

Deane Montgomery

In support of the proposal that Deane Montgomery be made a permanent member of the Institute for Advanced Study, we wish to submit the following outline of his life and work. Montgomery was born in Minnesota September 2, 1909; got his undergraduate education at Hamline University in St. Paul where he took the A.B. 1929. His graduate work was at the University of Iowa which conferred the M.S. 1930 and Ph.D. 1933. He also had a National Research Fellowship at Harvard 1933-34, and at Princeton University and the Institute 1934-35. His subsequent positions were

Smith College: Assistant Professor 1935-38; Associate Professor 1938-42;
Professor 1942-46
Guggenheim Fellowship at Institute for Advanced Study 1941-42
Princeton University: Visiting Associate Professor 1943-45, and
Part-time work 1944-45
Institute for Advanced Study (3d time) 1945-46
Yale University: Associate Professor 1946 to date.

His mathematical publications have been continuous since 1933. He has published 33 mathematical papers, of which 17 were in collaboration with other young mathematicians. In assessing his scientific evolution and importance the most striking fact is a rather clear division of his career into epochs. Up to 1940 his outwardly visible interest -- that is, what appeared in his publications -- was definitely within the confines of one particular chapter of mathematics: point-set topology in the classical sense, following in the footsteps of L.E.J. Brouwer. This tendency is clearly associated with the fact that he got his intellectual start quite far from the main centers of mathematics, and remained under the influence of his first interest. It should be noted however, that even in this

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period he was thoroughly original, - that is, the direction to which he belonged was not particularly represented in the region where he got his education, so that his selection of a subject and his perseverance in working in it in themselves are symptoms of his independence and originality. In addition, at least one phase of this work may, in the opinion of experts, have considerable influence in analysis: his work on fixed points and its applications in dynamics. In the second part of his career, beginning somewhat after 1940, he very rapidly branched out into four other fields of modern mathematics: topology of the modern algebraical, combinatorial type; theory of topological groups; theory of differentiability and analyticity in groups; connections of group theory and differential geometry. These subjects are generally agreed to be in the central domain of modern mathematics. They are essentially connected with each other, but in a manner which will be appreciated or utilized only by a mathematician with a broad and technically strong grasp of the subject, and it is an absolute indication of a man's quality and strength if he is able to obtain important results in all of them. During the last six years Montgomery has done first-class work in all of these fields, and in addition it is evident that the breadth, the depth, and the technical quality of his work in these fields has been continuously increasing. His latest publication, "Analytic parameters in three dimensional groups", is undoubtedly his best up to date, and is generally considered as one of the most important contributions to its field (analyticity of topological groups) since its inception.

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It seems therefore fair to assess Montgomery's scientific personality in the following manner: He is a man of original and independent ideas, considerable technical strength, and exceptional energy. He adhered to one subject during his formative years, and showed a very unusual ability to expand as soon as he had a good chance, - that is as soon as he came into direct contact with the main currents of modern mathematics. His scientific quality and performance is clearly on the ascendant; indeed it has clearly been accelerating rapidly during the last years. To the extent to which such predictions can be risked at all, it is very probable that he is still before his apogee and is likely to have a considerable productive period of a very high order before him.

In view of our general agreement that the mathematical group in the Institute is in need of a first-class man who is in an early stage of the best part of his productivity, whose optimum period is likely to be in the next decade, there would seem to be very little risk in making a permanent commitment to him.

We have made a careful study of mathematicians in his age group in this country, and we are agreed that he is by far the strongest candidate. Outside opinion concerning him is uniformly favorable. Montgomery had an offer of an Associate Professorship from Harvard University about 1938, considerably before the work was done on which we chiefly base our estimate of his quality. In the period between 1943 and 1946 while he was in Princeton, he declined several very good permanent positions because he wished to stay in the environment which suited him best scientifically. Among the universities which invited him were the Universities of Minnesota

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January 30, 1948

John von Neumann

Faculty Minutes - Feb. 2, 1948 (To be attached)

1

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January 30, 1948

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HARVARD UNIVERSITY

CAMBRIDGE 38, MASS.

DEPARTMENT OF
MATHEMATICS

January 28, 1948

Professor Hermann Weyl
Institute for Advanced Study
School of Mathematics
Princeton, New Jersey

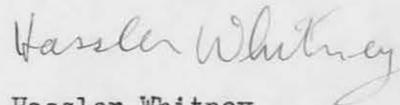
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Sincerely yours,



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(By S.Bochner and DM) Groups on analytic manifolds, Ann.Math. 48 (1947),
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Connected one dimensional groups, Ann.Math. 49 (1948), 110-117

Analytic parameters in three dimensional groups, Ann.Math. 49 (1948),
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Letterhead of

HARVARD UNIVERSITY
Cambridge 38, Mass.

Department of
Mathematics

January 28, 1948

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Institute for Advanced Study
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Princeton, New Jersey

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DEANE MONTGOMERY

A.B. 1929 Hamline Univ., St. Paul, Minn.
M.S. 1930 University of Iowa
Ph.D. 1933 University of Iowa

Born September 2, 1909, Weaver, Minn.

Married; 2 children

Positions held:

Univ. of Iowa - graduate scholarship 1929-30; graduate assistantship 1930-33

National Research Fellowship

Harvard 1933-34

Inst. Adv. Study and Princeton Univ. 1934-35

Smith College

Asst. Prof of Math. 1935-38

Asso. Prof. 1938-42

Prof. 1942-46

Guggenheim Fellowship at Inst. Adv. Study 1941-42

Princeton Univ. - Visiting Asso. Prof. 1943-45

Natl. Defense Research Committee - part-time 1944-45

Inst. for Adv. Study 1945-46

Yale - Asso. Prof. 1946-48

Inst. for Adv. Study - Permanent Member 1948-

In case of emergency notify wife's sister: Mrs. Emmett Harris, 471 W. Wheelock
Parkway, St. Paul, Minn.

Honors and societies - AMS, MAA, Sigma XI

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- Dimensions of factor spaces, Ann. Math. 49 (1948), 373-378
- Subgroups of locally compact groups, Am. J. Math. 70 (1948), 327-332.

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Topological groups of differentiable transformations, Ann. Math. 46 (1945), 382-387

(By S. Bochner and DM) Groups of differentiable and real or complex analytic transformations, Ann. Math. 46 (1945), 685-694

Measure preserving homeomorphisms at fixed points, AMS Bull. 51 (1945), 949-953

(By S. Bochner and DM) Locally compact groups of differentiable transformations, Ann. Math. 47 (1946) 639-653

(By S. Eilenberg and DM) Fixed points for multi-valued transformations, Am. J. Math. 68 (1946), 214-222

(By DM and H. Samelson) Fiberings with singularities, Duke Math. J. 13 (1946), 51-56

(By S. Bochner and DM) Locally compact groups of differentiable transformations, Ann. Math. 47 (1946), 639-653

A theorem on locally Euclidean groups, Ann. Math. 48 (1947), 650-658

(By S. Bochner and DM) Groups on analytic manifolds, Ann. Math. 48 (1947), 659-669

Connected one dimensional groups, Ann. Math. 49 (1948), 110-117

Analytic parameters in three dimensional groups, Ann. Math. 49 (1948), 118-131

Sent to Professor Deane Montgomery

Reference: Letter from David J. Levy to Dr. Oppenheimer
Maass, Davidson, Levy and Friedman
20 Exchange Place
New York 5, New York

Sept. 15, 1948, page 2:

"We are accordingly of the opinion (1) that you ought to treat the annual grant to Professor Montgomery as non-taxable, and accordingly not withhold; (2) that this should be upon the understanding and agreement with him that should a contrary decision be reached by the Bureau of Internal Revenue he will meet and pay the tax involved; and (3) that Professor Montgomery should in filing his income tax return attach a rider disclosing the fact of this receipt, even though he does not include the Institute's payments as taxable compensation. Thus both you and Professor Montgomery will be resolving the doubt, as you have a right to do, in your favor, allowing the question to be brought up by the Treasury for test."

Copy: Miss Trinterud

August 31, 1948

Dear Mr. Levy:

Before Dr. Oppenheimer left Princeton for conferences abroad, he asked me to write to you to ask your opinion on the income tax status of Professor Deane Montgomery who joined the Institute as a Permanent Member on July 1, 1948. At present our business office is withholding his tax, but as I understand it, until October 1st this withholding fund is not turned over to the government.

I believe all the relevant material is enclosed - a copy of the Director's letter of appointment to Professor Montgomery, dated February 17, 1948; a copy of our notice to the business office; two excerpts from the minutes of the Board of Trustees (p. 3, December 16, 1947; p. 1, February 10, 1948).

In Faculty discussion - the minutes of which I presume would not affect your view - the appointment was suggested to be an interim professorship. However, the decision taken was to invite Professor Montgomery as a Permanent Member. As such he is now at the Institute doing his own research and study in mathematics. It would appear that he is under no obligation to, render service to the Institute, nor is the Institute under any obligation to ask him to do so.

Professor Montgomery has been told of your advice on this general question in your letter of May 5, 1948. We would appreciate it very much if you will let us know your view on his case. He would, I believe, like to see you about this if that is convenient for you.

Yours sincerely,

(Mrs. John D. Leary)
Aide to the Director

David J. Levy, Esq.
Maass, Davison, Levy & Friedman
20 Exchange Place
New York 5, New York

Enclosures - 4

THE INSTITUTE FOR ADVANCED STUDY
PRINCETON, NEW JERSEY

OFFICE OF THE DIRECTOR

February 17, 1948

Dear Montgomery:

Thank you for your good letter. This will confirm to you in writing that you are to have a permanent membership at the Institute for Advanced Study, with an annual stipend of \$8,000. The Trustees will contribute 5% of this amount, namely \$400 annually, toward the purchase of a retirement annuity policy, if you will make a similar contribution.

We are worrying a little about the titles, and "permanent member" may be changed to something else, but you know the Institute well enough to understand how it will be and not be worried about words.

With all warm good wishes,

Robert Oppenheimer

Professor Deane Montgomery
Department of Mathematics
Yale University
New Haven, Connecticut

THE INSTITUTE FOR ADVANCED STUDY
PRINCETON, NEW JERSEY

OFFICE OF THE DIRECTOR

February 19, 1948

NOTICE OF APPOINTMENT

Professor Deane Montgomery
Department of Mathematics
Yale University
New Haven, Conn.

Status: Permanent Member

School: Mathematics

Term beginning academic year 1948-49 - July 1, 1948.

Stipend: \$8,000 annually

Source: Special Appropriation

TIAA 5% contribution by Institute if similar contribution is made by
Professor Montgomery, namely, \$400 annually.

Date of appointment: Executive Committee meeting February 10, 1948

(This is a tentative notice of appointment. Status may be changed.)

May 7, 1948

Dear Professor Montgomery:

Your letter of May 6th and its enclosure are being referred to Miss Trinterud in our business office.

It will be arranged so that, beginning July 1, 1948, both the premium payments for your annuity contract and your insurance policy will be paid to TIAA through the Institute as monthly deductions from your salary.

Mr. Bradley tells me you are thinking of buying a house after all. I do hope it works out.

Yours sincerely,

(Mrs. John D. Leary)
Aide to the Director

Professor Deane Montgomery
Department of Mathematics
New Haven, Connecticut

Copy: Miss Trinterud
(Prof. Montgomery's letter and enclosed
letter to him from TIAA sent to LT also.)

Copy to Miss Blake
Miss Trinterud

Director's Office
February 19, 1948

NOTICE OF APPOINTMENT

Professor Deane Montgomery
Department of Mathematics
Yale University
New Haven, Conn.

Status: Permanent Member

School: Mathematics

Term beginning academic year 1948-49 - *July 1, 1948*

Stipend: \$8,000 annually Source: Special Appropriation

TIAA 5% contribution by Institute if similar contribu-
 tion is made by Professor Montgomery, namely,
 \$400 annually.

Date of appointment: Executive Committee meeting February
 10, 1948

(This is a tentative notice of appointment. Status may
by changed).

cc to Mr. Lichtenberg

February 17, 1948

Dear Montgomery:

Thank you for your good letter. This will confirm to you in writing that you are to have a permanent membership at the Institute for Advanced Study, with an annual stipend of \$8,000. The Trustees will contribute 5% of this amount, namely \$400 annually, toward the purchase of a retirement annuity policy, if you will make a similar contribution.

We are worrying a little about the titles, and "permanent member" may be changed to something else, but you know the Institute well enough to understand how it will be and not be worried about words.

It seems that occasionally the Institute has been willing to advance money against the purchase of a house by one of its faculty or permanent members. This has always been done in a purely matter of fact way on the basis of whether it was financially sound. I see little reason to doubt that we could help you, but until details are further along than they are now, it would be inappropriate to make a commitment. Can we talk about that when you come down?

With all warm good wishes,

Robert Oppenheimer

Professor Deane Montgomery
Department of Mathematics
Yale University
New Haven, Conn.

YALE UNIVERSITY
DEPARTMENT OF MATHEMATICS
NEW HAVEN · CONNECTICUT

February 15, 1948

Professor J. R. Oppenheimer
Institute for Advanced Study
Princeton, New Jersey
Dear Oppenheimer,

Can you have your administrative assistant, or whoever the proper person may be, tell me whether the Institute lends money on housing? I hope to come to Princeton to look around some time soon.

Incidentally this is to confirm my telephone acceptance of the position you offered, which I understand to carry tenure and a salary of \$8000. Galt offered to promote me but I was not interested and have resigned. My wife and I are both looking forward with pleasure to returning to Princeton.

Sincerely yours,

Deane Montgomery