

# ‘... undoubtedly a rare mathematical talent ...’: The Einstein-Mathisson correspondence in the Albert Einstein Archive

Tilman Sauer

Einstein Papers Project  
Caltech

Myron Mathisson - His Life,  
Work, and Influence on  
Current Research  
Warsaw, 20 October 2007

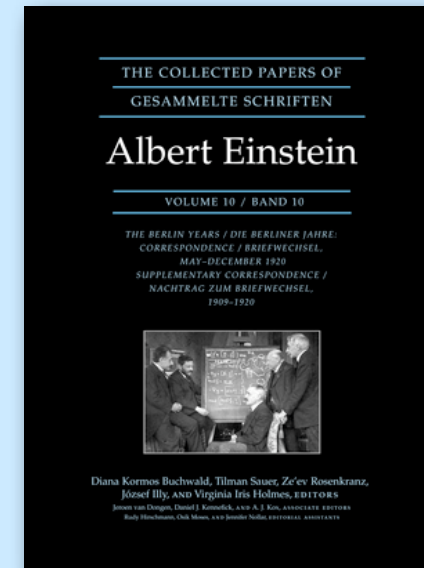
*Monsieur,*

*Votre Mémoire, publié dans les SITZUNGSBE-  
RICHTER DER PREUSS. AKADEMIE (séance du 8. décem-  
bre 1927), intitulé ALLGEMEINE RELATIVITÄTSTHEO-  
RIE UND BEWEGUNGSGESETZ, s'occupe d'un problè-  
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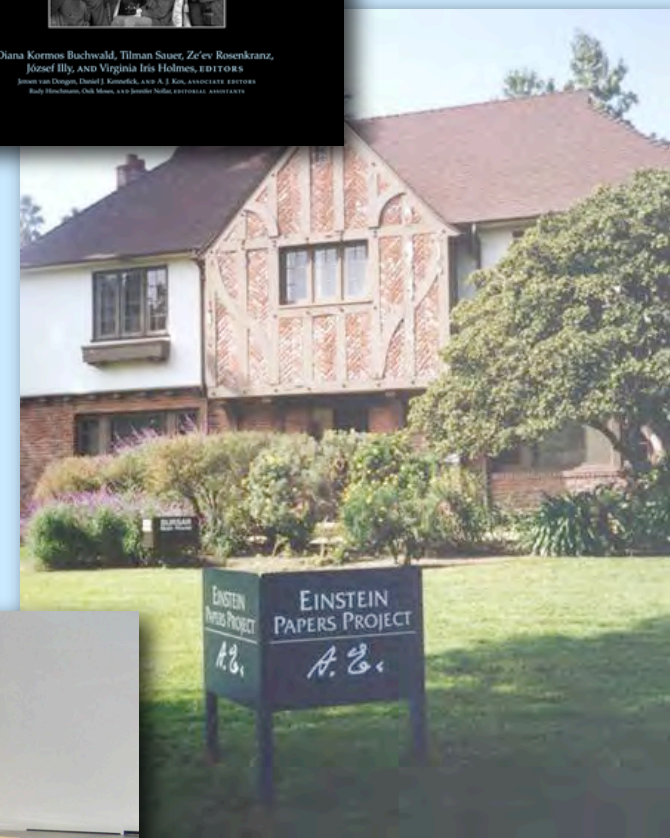
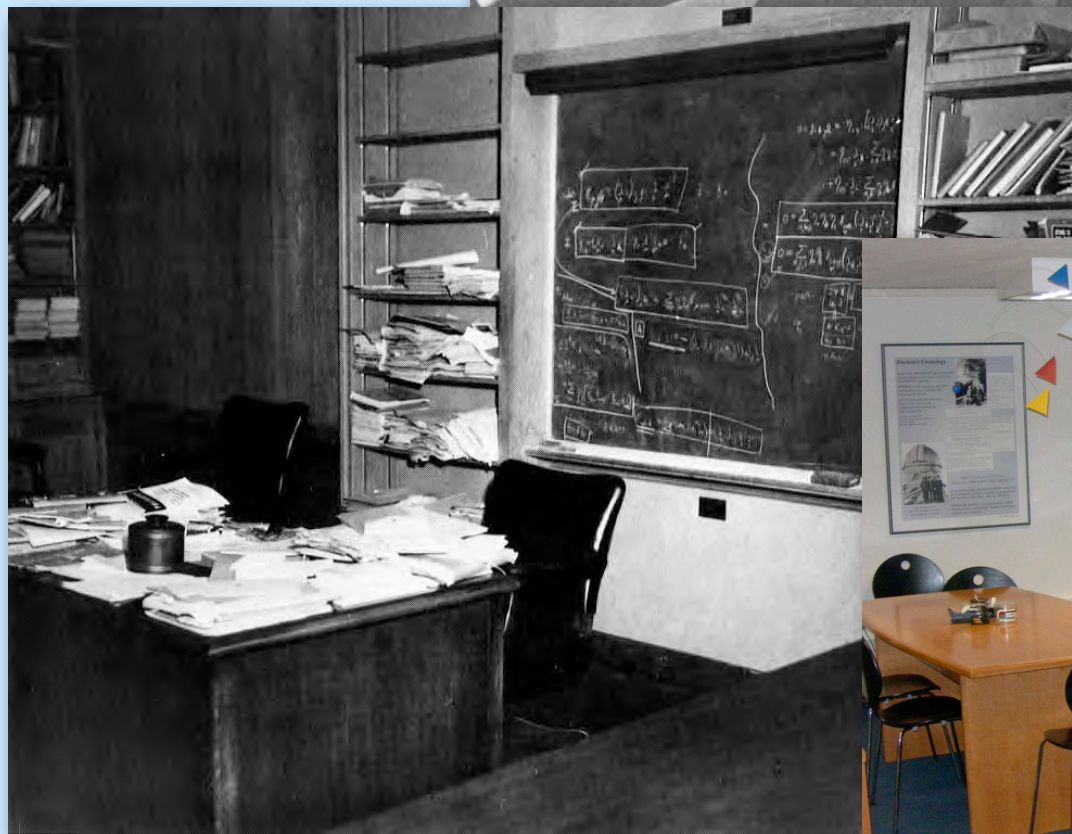
AEA 18-001

# Albert Einstein Archives and Einstein Papers Project (AEA)

Helen Dukas  
( 1896-1982)  
1928-1955 Secretary  
1955-1982 Archivist



[www.alberteinstein.info](http://www.alberteinstein.info)



70000+ items:  
Primary collection (w many  
originals) in Jerusalem,  
duplicate archives in  
Pasadena (Caltech)

Einstein's office in Fuld Hall



# The Einstein-Mathisson Correspondence

- 19 letters by Mathisson to Einstein (+ 1 unpublished manuscript), 69 pp.
- 11 letters by Einstein to Mathisson, 17 pp.
- 30+ letters that mention Mathisson
- correspondence between 1929 and 1939, most 1930/31 and 1936/37
- all MM handwritten, all extant AE are carbon copies of typed letters
- it is clear that some Einstein letters are missing (the handwritten ones ?!)
- MM letters discuss his ideas, works, unpublished manuscripts, etc.
- most of extant AE is fairly formal

sind -ein Stipendium für Sie zu erlangen, damit Sie einige Zeit hier arbeiten können. Der schriftliche Verkehr ist für mich so gut wie unmöglich, weil ich viel zu sehr überlastet bin.

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# Einstein-Mathisson correspondence cont'd

- 30+ letters that mention Mathisson
  - with C. Białobrzęski
  - with Rockefeller Foundation
  - with Hadamard
  - with Fraenkel (Hebrew University)
- The Einstein-Mathisson correspondence is a significant source of information about Mathisson's life and science
- I find it difficult to present the correspondence in a talk
- will only talk about the documents in the Einstein Archives

1. The first letters
2. Einstein's attempts to obtain a Rockefeller grant for Mathisson
3. Mathisson as a candidate for a chair for theoretical physics in Jerusalem
4. The last letters

# 1. The first letters

# Mathisson to Einstein, 18 Dec. 1929

Varsovie, le 18 décembre  
1929.

Monsieur,

Votre Mémoire, publié dans les SITZUNGSBERICHTE DER PREUSS. AKADEMIE (séance du 8. décembre 1927), intitulé ALLGEMEINE RELATIVITÄTSTHEORIE UND BEWEGUNGSGESETZ, s'occupe d'un problème, dont j'ai établi, il y a deux ans et demi, une solution plus complète.

Voici, d'abord, quelques observations en fait de votre Mémoire.

# Mathisson's situation in Dec 1929

- was 33 years old (no Ph.D., no publications, no academic position, in spite of an ambitious education)
- after the death of his father had lost his financial independence
- had not taken up the offer to be awarded a Ph.D. under Prof. Białobrzewski in 1925 for a work in special relativity but had had scientific scruples and had simply left
- had been in Palestine but was forced to go back because of a tropical disease
- worked in Warsaw, living with his mother, earning money giving Hebrew lessons and technical calculations; did physics in the evenings as a “Abendsphysiker”
- must have convinced himself that his own method of setting up equations of motion in general relativity was superior to the Einstein-Grommer and Einstein method of 1927
- I imagine that his first letter to Einstein was carefully drafted and the resolve to write the letter must have been a very significant event, Mathisson must have been very excited and eager to get a response



# Mathisson criticizes Einstein:

*Bien loin, apparemment, d'être voulu, votre renoncement vous a été infligé par l'insuffisance mathématique de votre méthode. En effet, vos calculs*

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suggesting that he found a solution:

*nos équations. J'ai trouvé le mot d'énigme, après un an de réflexion obstinée et de calcul. En outre, mon*

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(Mathisson explains his criticism and ideas in some detail (in words, no equations) but I will not discuss these details here. This is a letter of 11 pages and should be read and discussed in its entirety. I cannot do this. I will only give a few quotes to give you an impression, but keep in mind that I am picking only a few sentences from a long letter)

# He expresses his firm adherence to general relativity ...

*Je me sens lié, pour la vie et pour la mort, à la théorie de la Relativité générale; j'y suis rivé. Sa décadence serait aussi la mienne.*

*ILLE DIES UTRAMQUE DUCET RUINAM.*

*(Je pense souvent à Henri Kleist, dont le drame a été révélé par Cassirer).*

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- Horaz, Ode 2.17: "That fatal day shall bring the doom of both of us."
- Ernst Cassirer: "Heinrich von Kleist und die kantische Philosophie" (1922)

... and comments on his ideas to solve the mysteries of quantum theory ...

*Je ne saurais pas travailler sans avoir devant les yeux un large plan, autorisé par le calcul, en-  
châssant, en principe, le tout de la Physique. Les*

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... in almost religious terms

*La vérité, que vous avez révélée au monde, de  
prétendus Sages l'ont proclamée effritée, stérile.  
Mais le jour viendra. Alors la plante desséchée, la  
rose de Jéricho, soudainement fleurira, grandira,  
remplira l'air de son arôme.*

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He also indicates his financial situation.

*mon insuccès, sans rien réclamer. Ne me tenez  
pas d'avidité, Monsieur. Des leçons d'hébreu,  
mal payées (et difficiles à trouver) me servent*

*de gagne-pain. Et, vers la fin de la journée, on  
se sent bien stupide, vide. L'inspiration ne jaillit  
pas sur les bêtes de somme. La publicité me  
serait précieuse, si elle me permettait de reprendre  
haleine pour la lutte finale. Sinon, j'y renonce for-  
cément.*

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# It is a very emotional letter

*Tout cela vous fera rire, peut-être? Moi, j'ai envie de pleurer. On est tenté parfois de tout lâcher, de faire un gros paquet de tous les calculs et de le remettre entre les mains d'un ami, après avoir tracé là-dessus le mot du roi de Suède, mourant dans la babilille:*

*ICH HABE GENUG, BRUDER; RETTE DICH.*

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After sending it off ...

*Deuillez excuser, Monsieur, le dérangement que  
je vous occasionne et agréer l'expression de  
mon dévouement et de mon admiration profondes.*

*Myron Mathisson.*

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... he must have anxiously waited for a reply.

# Einstein's situation in Dec 1929

- was world famous since confirmation of light bending in 1919 and at the height of his career, had celebrated his 50th birthday in March
- The Einstein-Grommer papers on the problem of motion, that Mathisson refers to, were from January and November 1927.
- In summer 1928, being very ill with a heart problem (too much work?), he had had a new idea for another approach towards a unified field theory: distant parallelism.
- This approach, perhaps more than others before, showed Einstein the need of a mathematical collaborator.
- Jakob Grommer had just left or was just about to leave to take up a position in Minsk. Kornel Lanczos had been in Berlin working with Einstein on the distant parallelism theory and was also leaving towards the end of 1929.
- Einstein had just begun to look out for a new mathematical collaborator (Walther Mayer would start to work with Einstein in early 1930).
- Einstein himself had written very audacious letters to famous physicists, when he was a young man, hoping for academic recognition and positions.

# Mathisson's surprise on being invited ...

Votre proposition d'aller chez vous pour participer en quelque sorte à vos travaux m'a troublé profondément. S'il s'agissait d'une humble occupation pour moi, celle d'un copiste, par exemple,

je serais infiniment heureux de vous pouvoir servir. Mais le rôle, que vous avez voulu bien m'indiquer, il faut que j'en devienne digne. Et puis, je ne saurais parler de mes idées même le plus développées, tant qu'elles n'ont encore subi le fixage mathématique définitif. Comment oserais-je vous soumettre ma pensée en brouillon? Je ne veux rien négliger pour

AE to Mathisson, 14 Feb. 1937

(AEA 18-002)

- So with a few weeks of delay (14 Feb), Mathisson responds by sending the announced manuscript
- In response, Einstein suggests that the ms be used to obtain a Ph.D., offers to carry any expenses for this, and suggests that he apply for a Rockefeller grant for MM; he sends him an offprint of his own latest work, and asks MM to write him about his previous career
- In his response, of 23 February, MM gives an account of his life (again a letter of 14 pages!). It is from this letter that we know many details about Mathisson's biography:



# Mathisson to Einstein, 23 Feb 1930

Monsieur,

Je vous remercie infiniment de votre lettre et de votre Mémoire et je m'empresse de vous faire parvenir les renseignements désirés.

Je suis né le 15 décembre 1897, à Varsovie. J'ai fait mes études à un gymnase et je les ai achevées en 1915, avec une médaille d'or. C'était une école du type rigoureusement philologique, l'empire Russe n'en possédait alors que 5 écoles de ce type suranné. On m'y a bourré du grec et du latin. En 1915, j'ai été reçu à l'école polytechnique, à la section des Ponts et Chaussées. Ce qui a décidé ce

## about languages

Je connais le hébreu, le polonais et le russe de la façon la plus complète, approfondie par des études philologiques. Quant à mon français et à mon allemand, vous en avez, Monsieur, probablement une opinion arrêtée. Je suis habitué à la lecture scientifique anglaise. Grâce à mon éducation philologique spéciale, j'ai pris goût au grec et au latin, et (au détriment de la Physique, peut-être) je n'ai fait qu'accroître, par mes études ultérieures, les connaissances d'école. Il est à regretter, que l'acharnement sécularisateur a détruit la vraie langue internationale des savants, la langue de Leibnitz, de Newton, de Gauss.

# French or English?

- Mathisson's first seven letters (between Dec '29 and June '30) are in French
- then, in the sequence of letters one item by AE is missing
- Mathisson's next six letters (between Nov '30 and Sep '31) are in German
- I guess that Einstein in the missing item asked MM to write to him in German (AE had French in Aarau Cantonal School, grade 3 (of 6), lowest of all)
- Mathisson reopens the correspondence in summer 1936 with a French letter, he alternates between French and German in his last six letters

## about philosophy

J'ai fait des études philosophiques, surtout des études Kantiennes, pour mieux comprendre votre théorie. Mais les philosophes, les prétendus maîtres de la Science, ne sont que ses esclaves. Ils n'osent s'aventurer que jusqu'aux AVANT-PROPOS des Traités connus, de Weyl et d'Eddington. Il me paraît que la Physique est trop jeune pour qu'on fouille dans sa conscience. Elle agit par instinct mieux que par raison. PRIMUM VIVERE, DEINDE PHILOSOPHARI. La littérature anti-relativiste était pour moi toujours pleine d'intérêt. Et le plus intéressants sont les anti-relativistes déguisés en héritiers de votre théorie.

Il est temps, que la Relativité fasse son entrée triomphale. " O, pourquoi est-il permis aux Peuples

d'interroger : Où est donc votre Dieu ? "

אם לא יתן לנו ה' : פתלנו ונאכל  
?פחיתות

Mais le beau jour point. Et ce jour radieux sera la récompense de mon labeur et de cette émotion douloureuse que je ne puis maîtriser à présent.

Agréez, Monsieur, mon hommage humble et dévoué.

Myron Mathisson.



2. Einstein's attempt to obtain a Rockefeller Foundation stipend for Mathisson

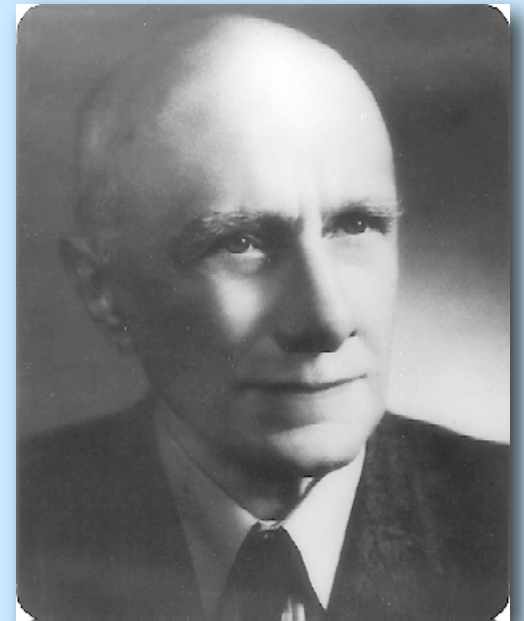
# Chronology of Einstein's attempt to obtain a Rockefeller grant for Mathisson

- after first letter of MM, AE invites him to come to Berlin
- 20 Feb, after 2nd letter of MM (with ms), AE proposes to take ms as dissertation, then to apply for a grant; asks for a CV
- third letter by MM gives an account of his life (and work)
- 27 Feb 1930, AE writes to MM; and also to Białobrzski, asks him to accept the paper as dissertation, and to give him an opinion about MMs prospects for a professional career
  - pre 20 Mar, AE to Rockefeller-Foundation (?)
  - 20 Mar, Fehling (Notgemeinschaft) to AE: should write to Paris office
  - 21 Mar, AE to Fehling, what is needed for application?
  - 22 Mar, Fehling to AE, lists the conditions
  - 24 Mar, AE to Jones (Paris), indicates his wish, what is needed?
  - 28 Mar, Jones to AE, has forwarded letter to Tisdale
  - 30 Mar, Tisdale to AE, application must come from professor of home country

# Chronology cont'd

- 9 Apr, AE to MM, sends forms to be filled out
- 9 Apr, AE to Bialobrzewski, asks him to submit the application.
- 14 April: Białobrzewski to AE:

*Très honoré Collègue,  
demain j'envoie à l'adresse  
de la fondation de Rockefeller  
(Paris, 20 rue de la Baume) les docu-  
ments nécessaires pour que la  
bourse de Rockefeller puisse être  
accordée à M. Mathisson.*



C. Białobrzewski

AEA 18-010

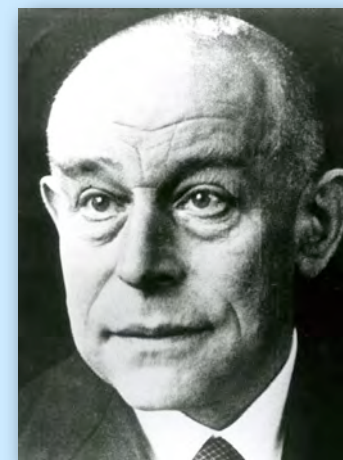
- 17 April: AE to Białobrzewski, thanks him
- 17 April: AE to Tisdale, letter of support for Mathisson's application

# Chronology cont'd

- 12 Jun, Rockefeller delegate meets with MM, fails to meet B
- pre 28 Jun, B to AE (?)
- 28 Jun, AE to B; and to Rockefeller Foundation, confirms his support of MM
- 30 Sep, Rockefeller Foundation notifies B that application will be withheld
- **31 Oct, MM obtains Ph.D.**
- 7 Nov, MM to AE, informs him of decision, now wants to publish papers
- 18 Nov, MM sends ms to AE
- 22 Nov, AE sends 2 letters of recommendation to MM, to get his relativistic papers published; leaves for US trip
- **8 Dec, “Die Beharrungsgesetze ...” received by Zs. Phys.**
- **25 Dec, “Die Mechanik des Materieteilchens ...” rec'd by Zs. Phys.**
- **19 Mar 1931, “Bewegungsproblem der Physik ...” rec'd by Zs. Phys.**

# March-May 1931

- ca. mid-March: MM sends ms of paper “A parametrix method for generalized wave equations in Riemannian manifolds” to AE, asking him to forward the paper to *Mathematische Annalen* or *Mathematische Zeitschrift*. AE forwards the paper to Blumenthal, managing editor of *Math. Ann.*, praising MM as an author, but does not comment on the ms itself; Blumenthal asks for a specific comment on the manuscript itself.
- MM’s paper, entitled “A new solution method for differential equations of normal hyperbolic type,” is only published in 1932, it was rec’d by the Math. Ann. on 21 Dec 1931, probably with a recommendation by Hadamard



O. Blumenthal



# Chronology, cont'd

- 30 Apr, AE to MM, wants to try a second attempt to get Rockefeller stipend for MM
- 1 May, MM sends AE infos, including copy of letter of decline and CV
- some correspondence lost (?)
- 6 June, MM to AE

beiliegenden Brief gelesen und mich beglückwünscht hat. Ein Ausweg aus dem bürokratischen Labyrinth wäre eine Forderung aus Amerika, daß man dahin Ihr Gesuch und die übrigen Akten aus Paris endlich zusende.

Es drückt mich, daß Sie meinetwegen zu unerquicklicher Schreiberei verleitet worden sind. Zu meiner Rechtfertigung

AEA 18-044

# Einstein vs Rockefeller, Jan. 1931

- during his visit in the US, in mid-December, AE and his wife meet with John d. Rockefeller, Jr. and his wife; AE mentions problem of all-too-strict rules for scholarships; R agrees to look into any particular case that AE might bring to his attention
- 20 June 1931, AE to R, mentions MM as a case in point
- 9 July 1931, R replies, will look into this himself, but will take a while until committee reconvenes
- 5 Sep, MM to AE, sends letter by Rockefeller foundation, saying that application cannot be forwarded to Paris, since no formal assurance for a follow-up academic position was given; has saved some money to come to Berlin; wants to use Einstein's letter to get a visa
- 10 Sep, AE to MM, need to wait until Rockefeller committee meets in the US with R., Jr. present; will be in the US until early next summer, until then Rockefeller application will be decided; about his new approach to UFT with Mayer



John D. Rockefeller, Jr.

# Invitation to Princeton

- On 3 November 1935, AE writes to Hadamard that he wants to invite Mathisson to stay for some time at the IAS
- there must have been one or more letters that are not extant
- The next letter in the archive is from Mathisson, 23 June 1936, from Moscow, telling him about his one-year appointment in Kazan, and suggests that he come in the academic year 1937-38
- Einstein responds on 7 July 1936; delighted that MM has found a good position; under these circumstances it would not be right to invite him to Princeton, since other colleagues are deprived of their positions as well
- 2 Feb 36, Infeld writes to AE, asking him about possibility to come to the IAS
- 4 May 36, Infeld's salary for a one-year stay at the IAS is granted
- Oct 1936, Infeld arrives in Princeton

### 3. The candidacy for the chair for theoretical physics in Jerusalem

# Einstein about Mathisson in Jerusalem

- 18 April 1937, MM writes to AE: ‘I am happy to tell you that I have solved the quantum problem as a dynamical problem of the general theory of relativity ...’
- 28 April 1937, AE writes to Schocken, recommending Infeld over MM for theor. physics in Jerusalem
- 7 May 1937, sceptical response by AE to MM: ‘your indications remain completely incomprehensible to me ...’
- EIH submitted on June 16, 1937
- 4 July 1937, MM announces ‘exact results’ and asks whether AE would forward them for Physical Review
- 22 July 1937, AE writes to Fraenkel, urging them to not choose ‘crazy’ MM
- 5 Sep 1937, MM sends AE ms of “Neue Mechanik ...” (rec’d by the journal 8 Sep)
- April 1938, AE defends his assessment of Infeld over MM in correspondence with Hadamard
- Dec. 1938, AE recommends MM over Fuerth for Jerusalem

## 4. The last letters

Mon adresse personnelle: M. Mathisson  
Kraków (Pologne) Rynek Kleparski 4, m. 23

Cracovie, le 18 janvier 1939

Monsieur le Professeur !

Je travaille à Cracovie, depuis un an. Pendant cette période, j'ai arrivé à des résultats nouveaux (dont rien n'a encore été publié) qui paraissent autant solides que sensationnels à moi-même et à mes collègues d'ici. Grâce à l'aide du professeur Weyssenhoff, je suis en possession de tout ce qu'il faut - passeport, argent - pour passer quelques semaines à Princeton et vous soumettre notre récolte. Je réaliserai ainsi un rêve qui m'est cher depuis longtemps.

Etes-vous disposé, Monsieur, de me consacrer un peu de temps ? J'ai réglé toutes les formalités du départ et j'attends, avec une impatience qu'il est facile d'imaginer, que vous m'autoriserez de venir.

„Wie stürzt sich das Gesetz der Schwere

Auf jedes Ding, auf jede Beere

Und trägt sie in den Kern der Welt". \*

Veuillez agréer, Monsieur, l'expression de mon admiration et de ma gratitude.

M. Mathisson

\* Rilke (de mémoire)

# Mathisson's last letter to Einstein

“Thanks to Prof. Weyssenhoff's help, I am in possession of everything that it takes - passport, money - to spend a few weeks in Princeton and to submit to you our harvest. I would also realize a dream which has been dear to me for a long time.”



# Hadamard to Einstein, 11 July 1939

quelque chose, un petit crayon, etc.

Il y a donc là un homme à sauver, que vous considérez comme moi comme un homme très distingué et pour lequel, malheureusement, nous ne pouvons rien ici. Il semble que vous soyez son seul espoir. Je joins d'avance mes remerciements aux siens pour tout ce que vous pourrez réaliser en sa faveur.

AEA 12-045

# The last item in the Mathisson folder

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NLT ALBERT EINSTEIN= 112 Mercer Street Nov. 25, 1944			
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