[ca. Jan. 1923]

PENNSYLVANIA SYSTEM
CINCINNATI LIMITED

My dear Dr. Wiener:

I am writing as I leave New York for the West to say that I was pleased that I had the opportunity of seeing you in Cambridge.

On reaching New York I found the ~~gal~~ page proofs of the March issue of the Bulletin awaiting me. In them I have had some difficulty in making the

pages come out straight,
and I have had to
prune the abstracts of
papers in the Reports
of Meetings a bit. Thus
in your ~~ab~~abstract on
Differential-space I felt
forced to omit the one
long formula to make
my pages.

Since I doubt not
that that is a secondary
item with you, I trust
that you will let me
know at once in case you see
serious objection, and I will
try to cut somewhere else.

Trusting that the nature of
my difficulties will be clear,
and with my best regards, I
remain,

Very sincerely yours,

E. R. Hedrick.

Berlin den 3.1.1913

Lieber Kollege Wiener!

Besten Dank für Ihre Briefe, und entschuldigen Sie bitte, dass ich erst jetzt antworte. Das Commers Buch haben Sie hoffentlich inzwischen erhalten. Das Formular habe ich ausgefüllt an das „Institute of Internat. Educ." geschickt und danke Ihnen sehr für Ihre Bemühungen. Können Sie mir bitte die Adresse von Gronwall mitteilen, oder ihn eventuell veranlassen, dass er mir eine Arbeit schickt, die er etwa 1916/18 in Amerika veröffentlichte (über beschränkte Potenzreihen und Fourierreihen). — Bezüglich unserer Frage kann ich Ihnen beweisen: damit die Summen $\sum (f(x_{\nu+1}) - f(x_\nu))^2$ beschränkt seien, ist notwendig und hinreichend, dass $\frac{1}{n}\sum_1^n \nu^2 |c_\nu|^2$ beschränkt sei ($= O(1)$). Wenn $\lim \frac{1}{n}\sum_1^n \nu^2 |c_\nu|^2$ existiert, so glaube ich auch Ihre Vermutung beweisen zu können. — Schicken Sie mir doch bitte die von Ihnen veröffentlichte Note über unsere geometrischen Fragen und die daran anschließende Bemerkung der Redaktion.

Herzliche Grüsse auch an Ihr Frl. Schwester Ihr Otto Szász

Paris - 1/1/1923

Remercîments et meilleurs
voeux de bonne année

P. Lévy

* Expédie par

M

Demt à

Rue

* L'inscription du nom et de l'adresse de l'expéditeur est facultative.

N°

RÉPUBLIQUE FRANÇAISE

CARTE POSTALE

Ce côté est exclusivement réservé à l'adresse.

PARIS 17 4 192

Monsieur Norbert Wiener

Instructor in Mathematics

Massachusetts Institute of Technology

Etats Unis Cambridge (Massachusetts)

238

THE RICE INSTITUTE
HOUSTON, TEXAS

DEPARTMENT OF [redacted]

March 6, 1923.

Dear Dr. Wiener,

Before I left Tech I promised to write to you and you know as well as I, that I did not keep my promise.

Besides trying to teach mathematics and it is quite some job I am taking three courses; Relativity, Functions of a Real Variable and Functions of a Complex Variable. They are all quite interesting and are presented in a very interesting manner. I often wonder at the extent of existing knowledge and appreciate more than ever that the more one tries to learn the less he knows.

I am quite undecided as to what to do next year. Whether to remain here or go elsewhere? I harbor no malice toward this Institute but I do not like the climate, it is too warm for one to do much work. Also I am not very keen for co-education. Suffice it to say that an rush of learning is not in my opinion a proper place for mixing sexes, there are in such a case too many things foreign to the pursuit of knowledge.

I suppose you've had a rather severe winter, which is if anything exactly opposite kind to the one we've had. I believe it did get down to 28° F once this winter but that for only a day or so. It was really thrilling to have such cold weather.

Did not see any of your work in the Tech Publ. I hope you are not loafing! How is Wilder doing? Working for his Ph.D. I guess. Well I certainly hope he has the most favorable good fortune and ambition for such an ~~undertaking~~ undertaking.

Give my regards to all,

Your friend

Alfred J. Maria.

New College,
Oxford.

May 7, 1923

Dear Dr Wiener,

Your paper on the average value of a functional was accepted for publication last week. We must apologise for the very long delay in considering it, which has been due to the great difficulty of finding a competent referee, and the disagreement of those to whom we sent it. Finally we had to send it abroad. No definite conditions were attached to its

acceptance, but it was thought that I had better send the substance of the criticisms received, for you to deal with as you think best. If you revise it and send it back, it will, assuming that it remains about the same length as at present, be printed without further quotation, and I will try by giving it precedence over other papers, to atone for our dilatoriness.

Yours sincerely,

G H Hardy

Massachusetts Institute of Technology

Notification of Appointment

CAMBRIDGE, May 24, 1923

DEAR SIR:

I take pleasure in informing you that at the last meeting of the Executive Committee of the Corporation, you were appointed

Instructor in Mathematics
(on the Faculty)

for one year, from the beginning of the academic year 1923, at a salary of $2400.00 per annum. This salary will be paid in ten monthly instalments, the first payment being due October 1, 1923.

Very truly yours,

S W Stratton

President

Instructors and Assistants, in addition to departmental duties, are responsible to the Faculty for service in connection with the Fall, Christmas, Spring and June examinations, and are expected to be in residence for a period of nine months from about September 20 to about June 20.

Departments will make every effort to permit Assistants and Instructors to take such courses as they desire; for this instruction the tuition will be pro rated instead of charged at the higher rates in force for other part-time students.

7-21-400-T.P.

Mr. Norbert Wiener

UNIWERSYTET WARSZAWSKI
GABINET
MATEMATYCZNY

26 MAJ 1923 191

Monsieur,

Je viens de recevoir Votre lettre du 18 April et Votre manuscrit sur les séries $\sum(\pm\frac{1}{n})$. A mon regret le V-me volume des „Fundamenta Mathematicae" est déjà entièrement rempli et nous ne pouvons pas déterminer la date de la publication du VI-me volume de notre récueil.

Si cela Vous convient, je pourrai présenter Votre note à notre Académie et la faire publier dans le Bulletin de l'Académie Polonaise des Sciences et des Lettres. Je Vous prie de bien vouloir m'informer si Vous acceptez cette proposition.

Agréez, Monsieur et Cher Collègue, l'expression de mes sentiments distingués

W. Sierpiński

Prof. Dr. W. SIERPIŃSKI
WARSZAWA, Hoża 50, m. 52
Varsovie, rue Hoża 50, l. 52.

I think there is some chance of getting the Journal definitely established. It ought to be possible to do this, & I think it will be possible.

I am still very busy — this year having a new course of lectures to prepare on Greek Philosophy. But I have rarely met members of the academic profession who were not busy.

Please give the kind regards of my wife & myself to all your people.

Yours sincerely
B. Russell

The University of Sydney.

June 5th, '23

Dear Wiener,

Please forgive me for not writing earlier to thank you for your article received a short time ago. It is very much what we wanted. (By the way, I am not the Editor, but an associate editor of the Journal). There is one other thing for which I must also ask apologies. In our editorial inexperience, we got rather loaded up with copy, so that there may be a little delay before your article appears. You will hear about it further in due course. But it will be quite safe, & will come out as soon as possible.

1615 Omohundro Ave
Norfolk, Va
June 11 [1923]

Dear Dr. Weiner,

I intend to come to Cambridge this Summer for about six weeks and would like to know if you will be there during any period of the Summer so that I can arrange my stay to coincide with yours as far as possible.

Next year we are giving a resume of the work of America's Mathematicians and I am assigned that of yours, so I would like to discuss it with you. Of course my primary object is to have access to a library as I am going to work on my minor thesis for the Doctor's degree.

Wrote a paper on "Additive and Bounded Functions of Curves" for an M.A. degree, this being merely a generalization of Vitali's article appearing in the Rend. di. Circ. -

Daniell certainly has a high opinion of your more recent work. He thinks you are really one of the best of the younger mathematicians of today. For more of this type of praise Kellogg states that your paper on Neto the Dirichlet Problem is the best contribution to this particular thing made in recent times, and would be a credit to any one regardless of prestige.

Will you let me hear from this as soon as possible and I sincerely hope I may have the pleasure of seeing you during the Summer. With my very best regards I am

Alfred J. Maria.

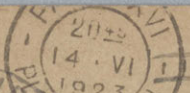
Paris - 14 juin 1923
9 rue Chernoviz

Cher Monsieur, tous mes remercîments pour votre Mémoire sur le problème de Dirichlet, que je me promets de lire dès que des examens qui m'occupent encore moment seront finis. J'attends avec impatience la publication de vos résultats sur le calcul fonctionnel, qui, comme vous pouvez le penser, m'intéressent spécialement.

Pour ma part, j'ai publié récemment aux dans les Comptes Rendus trois Notes sur le calcul des Probabilités et sur la notion de dérivée d'indice fractionnaire, selon Riemann. Je n'en ai pas de tirage à part ; mais je vous enverrai mes mémoires développés lorsqu'ils paraîtront. J'ai rédigé l'un et pense rédiger l'autre cet été.

Croyez à mes sentiments dévoués

P. Lévy



* Expédié par

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Demeurant

Rue

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RÉPUBLIQUE FRANÇAISE

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M Professor Norbert Wiener

Massachusetts Institute of Technology

50 Buckingham Street

Cambridge (Mass.)

Etats Unis

New College,
Oxford.

June 22, 1923.

Dear Dr. Wiener,

Thanks for the M.S. duly received. It is very nice of you to be so candid about the collision between the two papers. I feel that we have already given you so much trouble that the only thing we can do with decency is to shut our eyes and print the paper.

I am accordingly sending

it to the printer.

Yours sincerely,

G. Wallas

North Sandwich, N.H.
July 7, 23.

Dear Ma:

We're back at North Sandwich after twelve days of the best hike we've ever had. Packs 48 — 31 to begin with; 35 — 24 at end. Gear excellent, sleeping bags and tent O.K. Did all the hardest trails, and feel as if we knew all of the Presidentials. We're in fine trim — weights unchanged. Bertha is a first class sport.

We shall return Tuesday as per directions given about Fritz. Congratulations to Fritz on marks. Hope Cepta likes work.

Love
Norbert Dixie Bertha

(over)

Dear little mother,

Could you make an appointment for me to have my teeth cleaned sometime next week — they are awfully dirty.

Don't work too hard.

Love
Bertha.

Catonsville Md.
July 24, 1923.

Dear Wiener -

Glad to have your letter the other day. I'm afraid math has been out of my thoughts for a while - will be for a while longer. Soon I leave for a two weeks cruise, U.S.N.R.F. Lots of fun.

Apropos of the abstract. Are you going to the summer meeting? I'm not, but Dr. presenting in paper by title. I think we might postpone the report of the paper until we have got more thought on the generalized problem. But if you think not, I don't care. The abstract would, I suppose, be about as follows:

This paper aims to study a generalization of the D. problem; the problem as generalized always has a unique solution, no matter what may be the region considered or the boundary conditions.

The paper contains a study of the notion of capacity in connection with the D. prob., (no underlying meaning is hardly suggested) which leads to a new general sufficient condition for solubility than any condition previously considered.

One works to that effect. If you're going to read the paper, whatever you want will be in an abstract. Don't be troubled in by any. P.

Saw Monaghan the other day. He's the only real mathematician within 200 miles, I guess. I wonder how you folks, over, yon, here, there & are coming along this summer.

My best regards to all the family.

J. L. W.

[July]
June 26, 1923,
Groton, Mass.

Dear Walsh:

I have just received your note of the 24th. On reading it over, it occurs to me that the collaborative method of work has been placing us both in a false position. Of course, your summer and your time are your own, to dispose of as you please, and I have no right to dictate to you when you shall concern yourself with our paper. At the same time, it seems to me a little hard that with regard to a paer which to date is entirely mine I should have to mark time until the circumstances of your work and play leave you free to develop it, more particularly since for what is now a period of several months you have apparently not even found the time to read my memoir critically. I think we had therefore better dissolve our partnership, thus leaving you free to pursue whatever investigation you see fit, and permitting me to dispose of my article as suits me best. Will you therefore forward me the MS: on potential theory? I shall not trouble you further in this matter.

Sincerely,

Norbert Wiener

Villa Edelweiss – Pralognan – Savoie

le 29 juillet 1923

Cher Monsieur,

Je suis cet été dans les Alpes françaises, et c'est là que je reçois votre lettre et votre mémoire sur l'espace différentiel. Je l'ai déjà un peu regardé et je vais me mettre tout de suite à l'étudier d'une manière plus complète. Je suis très heureux d'avoir une petite part dans ce travail et vous remercie de l'avoir aimablement rappelé.

Une question me préoccupe. L'avez-vous étudiée? Si ~~x est l'abscisse~~ $v = \frac{dx}{dt}$ est une composante de la vitesse d'une molécule à l'instant t, après un choc elle deviendra v_1. La différence $v_1 - v$, d'après la théorie cinétique des gaz, a une loi de probabilité qui dépend de v. Cela peut conduire à un problème mathématique différent de celui que vous avez étudié. On passe de mon espace au vôtre par une quadrature; là ce serait en quelque sorte une équation différentielle qu'il s'agirait d'intégrer. Tout serait beaucoup plus compliqué; mais je suis sûr que la même méthode doit réussir.

Je compte faire un Compte Rendu de votre Mémoire pour le Bulletin des Sciences Mathématiques. Peut-être dirai-je un mot de cette question.

Votre problème sur la série $\Sigma \pm \frac{1}{n}$ est intéressant. Il me semble que la solution est la suivante:

La probabilité pour que $\Sigma \pm u_n$ converge est 1 si Σu_n^2 converge et 0 si Σu_n^2 diverge. En effet, je peux supposer $u_n \to 0$ et $\Sigma |u_n|$ diverge, (autrement le théorème est évident; il y a certitude). Soit

$$S_n = 0 \pm u_1 \pm u_2 \pm u_3 \pm \dots \pm u_n$$

Si $n' - n$ est grand, d'après des résultats connus, $S_{n'} - S_n$ obéit à la loi de Gauss, (à la limite), sa valeur quadratique moyenne étant $\sqrt{u_{n+1}^2 + \dots + u_{n'}^2}$. Le résultat énoncé en résulte sans peine. Sans doute l'avez-vous déjà obtenu.

Pour ma part j'ai surtout travaillé cette année le calcul des probabilités, qui m'a conduit incidemment à m'occuper de la théorie des dérivées d'indices fractionnaires. Peut-être avez-vous vu mes Notes dans les Comptes Rendus de l'Académie des Sciences. Mon mémoire sur la dérivée généralisée va paraître bientôt. Sur le calcul des probabilités, je prépare un mémoire sur mes résultats nouveaux, et un livre. J'ai déjà refait plusieurs fois la rédaction, qui ne me donne pas encore complète satisfaction. J'espère ne pas trop tarder à terminer ce travail.

Croyez à mes sentiments les plus dévoués

P. Lévy

Si vous vous occupez de calcul des Probabilités, je pense que vous connaissez les travaux de Lindeberg et de Pólya.

Lindeberg – ~~1° Mathematis~~
1° Annales Academiae Scientiarum Fennicae (ou: Suomalaisen Tiedeakatemian Toimituskia) Serie A, tome XVII, N° 1, 1920
2° Mathematische Zeitschrift – 1922
3° Congrès des Mathématiques à Helsingfors – 1922

G. Pólya – Astronomische Nachrichten – 1919
Mathematische Zeitschrift – 1920 et 1922

– Je vous signale qu'il y a quelques erreurs de détail dans ma première Note sur la question (27 mars 1922).

Les dates de mes Notes sont 27 mars 1922, 26 juin, 13 décembre, 23 avril 1923, 7 mai et 22 mai.

20 Craigie St. Cambridge 38, Mass.
Dec. 5, 1923.

My dear Dr. Wiener:

Thank you very much for letting me see your solution of the problem I proposed in the "Monthly".

The editors took quite a while to publish the problem--I sent it in early in the spring. So I've forgotten exactly what was in my mind as to any further restrictions on the V functions than those stated in the printed account of the problem. However, I do remember the way I got at it, and I used the fact that V vanished on the boundary in more than the minimum way--I think I had in mind the vanishing of the first derivatives of V as a boundary point was approached--for I did not want to assume there was a normal at any point.

However, by some inadvertence, any such condition failed to get into print, so that, as you imply, the problem as it stands, is trivial.

No, I had no desire to bring out any delicate points, but merely to bring out what seemed to me an interesting form of the Du-Bois Reymond metho d of reasoning in the calculus of variations. And incidentally, to call out a theorem that might be of interest in the study of harmonic functions by the calculus of variations method.

The editors have my solution of the problem, which resembles yours, but puts it, I think, in more elementary form. If I can get it from them, I think I will include, if you see no objection to it, some statement about my intention to further restrict the functions V.

From the standpoint of one familiar with the notions of closure and convergence in the mean, your solution is simpler than mine, in that I have more reckoning to do.

I think there may be a little question as to whether your solution ought not to be simplified a little in language--in order to be intelligible to the majority of Monthly readers. Also there are one or two points of precision of statement you might want to consider. I will be glad to run over the paper with you if you wish.

I am indeed grateful to you for letting me see your reflections on the subject. If I can get my solution back, I shall submit it to you in its original form, and also any proposed alterations, to be sure I am not abusing your courtesy.

Sincerely yours,

O. D. Kellogg

See P.S.

P=S. I though maybe I might see you at Math. Club last night, so I left out one thing.

You say, in your solution "It is to be noted that a slight modification of his conditions will render his problem non-trivial even for ordinary regions."

It seems to me that this is probably not exactly what you meant. Isn't it the solution which is trivial rather than the problem? You were good enough to take a considerable interest in the problem--which you would not have done with a trivial one.

If you agree, a modification of the following sort might meet the point:

...a slight modification of his conditions make his problem susceptible of non-trivial solutions ....

Sincerely, O.D.K.