STERREWACHT TE LEIDEN

15 November 1951

Dear Reber,

The letter you wrote to Oort came just at the right moment, for I was going to write you anyway and this saves me a lot of questions. I am glad to hear that you are well and still busy.

The main message I have is that I should like to look you up again. I have arranged to be at Harvard Observatory for the spring term, Feb. 1 to June 30. I have even ventured to choose as the lecturing subject radio-astronomy; this I am trying out at present for a group of 10 graduate students at Leiden. I should like to come to Washington for a few days either before that term or some time during it, for after that I like to travel west. Of course, this looking around and hearing about current research, ideas and projects is the main purpose of my stay in the States. Therefore I was happy to get a taste of your present work already from your letter.

If all goes well and if nobody thinks up that I am a communist or worse, I hope to get my visa two weeks from now and to sail the first week of January, but reservations are not certain yet. After arrival the 16th I should like to spend about a week in Princeton and come from there to Washington. This is subject to changes, but perhaps you can let me know whether a visit would at all be convenient at that time. Also I should like to hear about any special events or meetings in this field that are scheduled for spring, like the U.R.S.I. meeting in April last year. Other people I should like to see at Washington are of course the N.R.L. radio-astronomy group, further Dr. Hulburt for his corona and zodiacal light studies and Dr. John S. Hall for his interstellar polarization. As far as visiting the Naval Research Laboratory is concerned, would you perhaps inquire how much red tape will be involved now; I fear it has not been reduced since 1948! I am quite willing to go through some letter writing in order to see the present set-up, if Dr. Hagen is willing to receive me. But since instruments is not my main aspiration I would not be terribly unhappy if it would have to be substituted by a cosy get-together somewhere else, like we had at the Haddock's last time. I certainly look forward to see all these people again; please give them my kind regards and send my excuses for not writing personally at this moment.

> This is just for your information. I hope to write to them when my plans are more definite.

I have not yet heard Oort's reaction to your news and one day for myself is also too short a time to give thorough comments on the interesting results you write. These eclipse observations during a rain storm are fine. The percentages at totality are about as expected, aren't they? That there is virtually no limb-brightening does not surprise me either since the fine measurements of Stanier at Cambridge. The explanation puzzles me, but I get more and more inclined to the idea that was suggested at one time by Denisse, that the changes of density in the outer corona cause irregular refraction. So the outer corona may act as a mild [illegible] less [illegible] a fuzzy image of the inner corona and chromosphere of which I do not doubt the real limb-brightening. I like to work this idea out mathematically. Your enhancement at [illegible] contact [illegible]. [illegible] too [illegible] e.

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[illegible] of the pips is really much more interesting thing. This summer, [illegible] Bolton [illegible] visited here for a week, I got really excited about the Australian spectra of bursts. I read the unpublished papers, had some correspondence with Wild and wrote a popular paper about it, which will appear [illegible] later. Yet I am quite willing to believe that this is not all there is to the fine-structure of solar noise. I think this will be a fruitful line of research and very important. I hope to hear more details about your results and about the way in which they were obtained when I see you. I just looked up what data I had about Wild's work. Their type-I bursts, occurring during continued periods of enhanced noise("noise storms") have duration 2 to 4 seconds and frequency range of about 4 Mc/sec, both measured at quarterpower or half amplitude. This seems to agree fairly well with the strongest of your pips. The range was only 70 to 130 Mc/sec. and I do not think they found any systematic change of duration with frequency like you indicate. How wide is your frequency range? Of course, Wild's work is like yours still unpublished so the data I give above are just for your information. Do you agree that I add some data about your pips to the popular paper I referred to?

I read Kiepenheuer's note and if you had not specifically asked for my reaction I would not have reacted at all but you'd have put it on the list of things I want to study, like for instance Unsöld's and Ryle's and Alfvén's work on the connection between cosmic rays and galactic noise. I quite agree that the free-free idea is outdated, certainly for the low frequencies and perhaps for the high ones, but in my brain this whole problem, including interstellar magnetic fields and interstellar polarization is still a big mess and the situation is excellent for a dozen theories to be suggested and discarded. This seems a bright idea of Kiepenheuer but for the rest I don't know.

We had a fine time in Paris last spring, where we saw a great deal of the Denisses and liked them very much. I also was able to hear a few things of Lyot, which is a little difficult because as an extremely good experimenter he is extremely cautious to make pre-publication remarks. He showed me photographs of the corona and chromosphere that were simply wonderful.

My wife sends you her best regards. We will go to Boston together, but it is doubtful whether she will join me on the various side trips I am planning. With very best wishes

Sincerely yours,

H. C. van de Hulst.