

Mr. Kirk Saville  
Editor, Bell Labs News

Fax 908-582-6064

Mr. Saville,

Please help me and Brockway McMillan obtain the mailing address (e-mail address is even better) of Mr. Grote Reber who was featured on page 3 of the July 10, 1998 issue of Bell labs News.

For your information, Brock McMillan was VP, Military Systems when he retired from Bell Labs some 20 years ago. I retired from Bell Labs in 1994. Grote was a close friend of Brock in his high school and college days, but they have not seen each other since the summer of 1938. Brock is anxious to get in touch with Grote, and solicited my help since I did retire from Bell Labs more recently. Below is a quote from a message I received from Brock:

"During my high school and early college days, Grote and I were fellow radio hams in neighboring suburbs of Chicago, and good friends. The last time I saw him was in the summer of 1938, just at the time he was taking his first data from his home-made radio telescope,-- the first in the world after Jansky's."

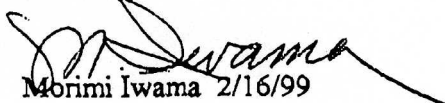
If you feel it is not appropriate to release Grote's address, please let him know that Brock is trying to get in touch with him. Brock's address is:

Brockway McMillan  
P.O. Box 27  
Sedwick, ME 04676

E-mail ~~bcmcmlln@celestat.com~~ bcmcmlln@media2.hypernet.com

This is an unusual request but I hope you can help old friends reunited.

Sincerely,

  
Morimi Iwama 2/16/99

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Rumson, NJ 07760  
Phone 732-530-8694, Fax 732-224-0312  
E-mail iwama@attmail.com

g.petersen@h130.aone.net.au  
% Dale Blanchard  
% daughter: Eileen Petersen

Dr. Grote Reber  
General Delivery  
7030 Bothwell,  
Tasmania,  
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Brockway McMildan  
P. O. Box 27  
Sedgwick, Main  
U. S. A. 04676

29/3/99

Greetings: Your undated letter posted on 15/3/99 arrived on 25/3/99. Thanks. I'm always pleased to hear from an old friend. Yes, I received a shortened copy of your letter by e-mail on 18/3/99. It came from Lauderdale, Tasmania which is 70 miles from Bothwell. We are a bit in the outback.

Perhaps you can be of some assistance to me. You know about the expanding universe and big-bang creationism. This is based on the assumption that red-shifts of lines in spectrum of distant objects is caused by relative motion, or the Doppler phenomenon. As time goes on the results become increasingly weird. Some are down right silly.

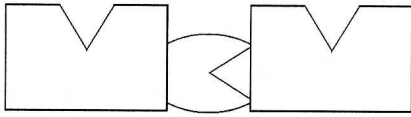
Obviously the trouble is in above assumption. A better assumption is the red shifts are caused by Compton Transitions. Here the energy loss reappears as low frequency radio waves. Down here I made a survey of sky at 2085 kc. Sky is brightest at galactic poles and darkest at galactic center. This is reverse of situation at centimeter waves. Sources have no significant relative motion.

Now I want to do a survey at 520 kc. This seems to be a world wide empty channel. If a rocket carries 200 kilograms of liquid hydrogen to bottom of F layer at 180 kilometers at midnite, and liquid hydrogen is dumped. It will ~~shapp~~ into gas. This will rise and sweep up charged particles, producing a hole in F Layer. Hole may last to sunrise, or only ten minutes.. An ionosonde operating over sweep frequency range of 350 to 600 kc will be needed to check up on situation in ionosphere.

I'll be pleased to answer any questions. Consider the matter. Put me in touch with people having rockets, liquid hydrogen and ionosonds.

Your assistance will be greatly appreciated. I am,

Yours faithfully,  
*Grote Reber*  
Grote Reber  
Michael Street  
Bothwell, Tasmania  
Australia 7030



brockway mcmillan

p. o. box 27

sedgwick me 04676

Tony

The enclosure copies an air-mail of a few days ago. It's clear that Reber is still ticking at some frequency. He didn't answer my questions about the frequencies he was scanning in 1938 but raised some others, as you see.

I can't judge the value or feasibility of the experiment he proposes. In fact, I don't even understand his reasoning. He wants to probe the ionosphere. Isn't it pretty well probed already? That's what Arecibo was built for. It became an instrument for radio astronomy only over a number of dead bodies. Can't we already predict its behavior at 520kHz from existing data?

Actually, the only connection I can make between the ionosphere and his remarks about the red-shift is to assume he wishes to ascribe the red-shift to Compton effects in the ionosphere. But extra-terrestrial optical telescopes see red-shifts, whatever we say by way of explaining them. If in fact the red-shift results from collisions between photons and ions, how many ions does the ionosphere contribute, versus 10 billion light years of intergalactic space? Can't we estimate that from existing data?

I'm searching for an appropriate reaction to his remarks. I can ask him to explain them further. Certainly nothing can be done about another ionospheric probe without some knowledgeable review. Given a review, there are only two possibilities I can see for him: (1) engage the enthusiasm of some active researcher who could shoe-horn him into an ongoing program, or (2) go through channels and apply to the NSF, or to its Australian counterpart, for support. For the latter he would need both patience and credentials. I wonder if he would have enough of either.

As an ignorant outsider I am myself deeply skeptical of the Hubble myth. To my knowledge it now survives the observations only because of some ingenious *ad hoc*-ery called "inflation". I don't know whether you know the work of Irving Segal, professor emeritus of mathematics at MIT. Many years ago he published a group-theoretic analysis of the fundamentals of quantum theory,-- far above my pay grade,-- that resulted in predicting a quadratic law for red-shift versus distance. The high priesthood of the Hubble Law would not listen. Segal has in the last decade found at least one sympathetic astronomer and published with him some statistical analyses of rather large data sets. These data are fit better by a quadratic law than by the Hubble law. To quote a reaction Irving showed me from one high priest: "Dear Irving, ... I don't know why you insist on using [some named data set] for these analyses, when [some other named set] has been *carefully selected* to show..." (Italics mine.) All this is however a far cry from Reber's rather down-to-earth proposal.

I can send an extensive listing of Segal's writings on the red-shift, should you or someone be interested. Any suggestions on what to say to Reber would be welcome.

How was life aboard the Alvin? I take it you are not a claustrophobe.

Regards,



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May 6, 1999

Mr. Brockway McMillan  
P.O. Box 27  
Sedgwick, ME 04676

Dear Brock,

Thanks for your letter, which took 3 weeks to get to me. Note my address is Murray Hill. Let me start by saying that if I am as lucid and energetic as Grote when I am his age, then I and a number of others will be surprised.

You are right: The ionosphere is sufficiently well understood that radio propagation even at low frequencies can be predicted. What Grote wants to do is radio astronomy at 520 kc. To do this he must get outside the ionosphere or make a hole in it, or maybe wait for solar minimum. Difficult in any case, and I don't think there is a strong science driver; galactic synchrotron radiation is well understood if not well mapped, at least at somewhat higher frequencies. Grote's 1944 map was years ahead of its time.

I heard Grote's suggestion of Compton scattering, but that cannot explain narrow redshifted lines in the optical and radio from distant sources. The evidence for a linear Hubble relation is now overwhelming. Several experiments yield a linear relation. Segal's work was confined to a raw dataset of nearby galaxies uncorrected for local flow.

Inflation is another matter. It's used to "explain" why the microwave background radiation is so smooth – even on scales which only now are coming into causal contact (due to finite velocity of light). So far, inflation theory has no testable predictions.

Sincerely

J. Anthony Tyson

27/4/99

Brockway McMillan  
P. O. Box 27  
Sedgwick, Maine  
U. S. A., 04676

Greetings Brock:

Thanks for your long and interesting undated letter posted on 13/4/99. It arrived on 22/4/99. I appreciate putting yourself on my behalf. Apparently I do not make myself clear. The red-shifts have nothing to do with ionosphere. They are far out in cosmos. The energy loss in Compton Transitions appears as low frequency radio waves. I wish to study these. Such is not possible because ionosphere shields sky from out low frequency radio receivers. Idea is to make ionosphere more transparent by sweeping up free charges. This is to be done by dumping liquid hydrogen at about 180 km at midnite. It will snap into gas. Such will rise and sweep up free charges, creating a hole in ionosphere. I will examine cosmos at low frequencies thru this hole. I need to know how effective the hydrogen gas is in creating this hole. That is, down to what frequencies will hole be transparent. Also how long will hole last. If to sunrise, a lot of low frequency radio astronomy observations may be made. If only ten minutes, the whole effort is useless. The low frequency ionosonde is needed to get some idea of how effective this effort is.

I hope the above gives a better idea of how I'm thinking. Please pass this note on to Tony Tyson. I am,

Yours faithfully,

*Grote Reber*

Grote Reber  
Michael Street  
Bothwell, Tasmania  
Australia 72030

From: Self <Single-user mode>  
To: gpetersen@h130.aone.net.au  
Subject: Piercing the ionosphere  
Send reply to: bmcmln@media2.hypernet.com  
Date sent: Wed, 5 May 1999 12:34:21 +0500

Dear Grote,

Now I understand your thinking. This is a rather quick reply, with some thoughts that I may be able to improve upon later.

The experiment as you propose it looks administratively difficult. Setting aside the technical problems, it calls for synchronizing a rocket launch and a balloon launch to carry the sonde. Why not let that 300 meter dish at Arecibo be the sonde? I don't know what Arecibo is up to these days, but it was built to probe the ionosphere. Surely you don't need a 300 meter aperture for signal strength? The ionosphere isn't that far away! That big aperture must be for resolution at low frequencies. It's an aperture better than one half-wavelength at 520 kHz. Surely that beats a balloon borne sonde. Of course, I have no idea of the difficulty, bureaucratic or technical, of getting a 500 kHz channel equipped, or of getting on the schedule.

A second possibility is to forget the ionosphere and go directly into space. A simple experiment on a shuttle flight. Surely it has a scientific priority higher than probing the effects of old age on a Senator from Ohio. The advantage of the shuttle is that there is no data-relay problem. Your data come back with the bird.

Other possibilities for piggy-back space travel must still exist. When I was in the Pentagon I personally authorized the launch, piggy back on an Air Force mission, of the ham radio repeater Oscar III or maybe Oscar IV. I expect that the Naval Research Lab. would be a good source of information about small piggy-back missions. I suspect that they use mostly NASA resources for orbital kinds of mission.

I no longer have real contacts with the space-cadets at my old stamping ground in the Pentagon, but I will try to see what the Air Force's policy now is about piggy-back missions.

To change the subject: your first letter reported the brightness of the sky at the galactic poles. Is this consistent with what the COBE mission brought back? That mission was studying temperature,-- color,-- not intensity, but surely information on intrinsic brightness was collected.

I am mailing a copy of this message, and a copy of your letter of Apr 27, to Tony Tyson.

Regards.

Brock.