from Sidney Hegvold

Dear Mr Hermann:

I am sending back the ~~theses~~ you requested in a separate package.

The problems you have been asking about the velocity of light are interesting to me and have been the subject of quite a bit of thought. Mr Herbert N. Armstrong first got me to wondering about it not being a constant. He mentioned, in a meeting one years ago, that he just didn't believe that the light we now see from some stars ~~is~~ galaxies was given off by them hundred even thousands of millions of years ago. He questioned the validity of the constancy of the speed of light. I mentioned, at that time, the determinations made by Roemer in 1675 were direct and at least indicated that the velocity of light has that value and is constant in our solar system. Since that time, though, and after looking into the many ~~assumptions~~ conclusions derived from many ~~assumptions~~ and measurements in outer space, I'm not convinced at all that the speed of light is constant, or that it travels in straight lines, or that it suffers no attenuations in outer space.

AMBASSADOR COLLEGE
PASADENA, CALIFORNIA

OFFICE OF THE REGISTRAR

October 13, 1969

Mr. Sidney Hegvold
Ambassador College
Big Sandy, Texas 75755

Dear Mr. Hegvold:

I do not find your letter of some months ago where you asked for clarification and proof on some thesis conclusions. I put it aside in some special place and wanted to take time to answer it when I could put applications out of mind and be free. Will run onto it some time soon.

But at the moment a different problem: The speed of light bothers some people here. It has a fantastic speed; they question whether man can measure it and be reasonably accurate. Whether it is constant throughout the universe is still another question that it might be better to bypass it at the moment. I would conclude that at least from the moon this way, the speed of light must be about 186,000 and it is some sort of constant. Here is why:

Radar beams, radio signals to the moon and back, lasar, all give one consistent time to return. The distance to the moon is not in doubt. Thus we would conclude that 186,000 mps is correct. And that all frequencies travel at that speed.

When the moon occults a star, all frequencies are cut off at the same split second. Thus once more we prove that all frequencies of electromagnetic radiation travel at the same speed.

When the moon occults the stars of the Milky Way, some travelling toward us, some retreating, they are all cut off at the same split second. This is a paradox. It does show that the light from all of them is travelling at that same 186,000 mps during these final few hundred thousand miles. The speed is constant with regard to us, regardless of their retreat or approach.

What about our retreat or approach (as we move toward or away from them in our orbit)? Again we get the same figure of 186,000 mps every time we measure, any time of the year. Another paradox. What is wrong with our measurements? The conclusion that we are forced to is that the speed of light is a constant and that somehow or other our measuring instruments contract in our line of travel.

I do not see any way to get around these conclusions. Do you? We bypass the problem of whether galaxies beyond our own are really at those great distances. We merely check the speed of light between the moon and us. Since it cuts off all the spectrum at the same split second, and since it cuts off retreating and approaching stars at the same split second (even those that are binaries and periodically retreat and approach), then we have the odd conclusion that so far as an observer on earth can tell, light's speed is a constant.

And this conclusion of things becoming shorter in the line of travel is the next step we are forced to take. Is there any other alternative? There is one. We can say it looks that way but we do not accept it and go on to another subject. Just pigeonhole the information.

It's like the conclusion that the earth is round. Logically it doesn't go over well with us. Or the first time that we saw a squirrel cage rotor in a split phase motor. What no commutator and brushes? It won't run. But it does.

Would you care to comment on the above logic? It looks sound. Maybe the speed of light changes when it rebounds from a glass surface in an instrument for measuring. Or maybe it changes when it grazes the moon in an occultation. It is funny stuff. It has always seemed odd to me that light could regain its normal speed when it left a prism. It slowed down going through, then regained its speed upon exiting from the glass. This being true, my other two suggestions in this paragraph are not completely absurd.

Will find your letter here some place. Have not given out thesis to my current class yet. Would like to have you return the original copy with the plastic ring binder as it had some serious errors, many trivial ones. Have a good supply of green ones and can send whatever you need.

Hope to hear from you.

Sincerely yours,

Kenneth C. Herrmann
Registrar

KCH/ba