The Sentinel

Local Scientists Report On Light Speed

A recent observation and suggestion of two scientists here for the correction of the value of the speed of light as obtained by optical methods now in use has come to the notice of the world of science.

This was revealed yesterday by Father James J. Hennessey, S.J., director of the Manila Observatory at the Mirador Hill, this city.

Fr. Richard A. Miller, S.J., head of the solar division of the Manila Observatory, and Fr. Adolf Lopez, S.J., physicist of Bellarmine College of this city, have reported on their calculations in the September, 1959 Journal of the Optical Society of America.

A resume of this is printed in the Science News Letter of November 10, 1959.

Fr. Hennessey said attempts to attain the greatest accuracy for the value of the speed of light have been made than one method. Experiments using the radio frequency (microwave) method have arrived at the value of 299,792.5 km/sec.

Optical method experiments, using reflecting mirrors, report an approximate value of 299,778 km/sec.

It would seem, Fr. Hennessey observed, that the 14 km/sec. or greater discrepancy between these values is possibly due to faulty conclusions from measurements in the optical system and could come from overlooking the time lost by reflection.

It is recalled that reflection from mirror surfaces cannot be instantaneous, such as from mathematical surfaces. Each reflecting surface used in an experiment causes a slowing of the velocity of the beam of light.

Pease and Person's apparatus, between the time of departure from and return to the rotating mirrors for the light beam, interposes thirteen reflecting surfaces into the path of the beam. Their light velocity value comes 19 km. short of the presently accepted approximate value of 299,793 km/sec.

Attention is called to the fact that when light changes its direction especially when it turns back on itself, its tremendous speed is reduced to zero. This takes time. To start again from zero and reach the original light speed in the opposite direction also takes times.

This is time lost, and should be recognized in the final value arrived at in the experiment, Fr. Hennessey further observed.

In the calculations at the Manila Observatory, Dr. Miller estimated the delay of visible light reflected from a silver mirror and for that it could account for the difference between the early optical and the recent microwave determination of light velocity.

It was brought out that free electrons play a greater role than both electrons in reflection of visible light from metallic surfaces. An individual electrons is forced into oscillation by the incoming light wave and remits the energy after an interval of time.

Considering that nothing moves faster than light, scientists have taken it as an unchanging figure in their calculations. Einsten's theory of Relativity is based on this constant and the measurements of distances in the vastness of interstellar spaces are calculated by it in light years.

Any approach to a refinement of methods used to arrive at an exact figure for the speed of light is a welcome help to the scientific world. We are happy that this suggestion and observation has come from the Philippines, Fr. Hennessey stated.

Pope Declares . . .

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houses for women and a cancer research clinic.

They are represented in several dioceses of the U.S. and they undertook mission work in the Diocese of Wuchang, China.

Mother Seton was a Roman Catholic convert. She died in 1821.

Three American cardinals, including the two who received their red hats last week, listened with the Pope while a papal assistant read the decree declaring Elizabeth Seton "venerable".

It will be recalled that the formal proclamation of a person as "venerable" is one of the first but major steps in the long church process toward sainthood.

Usually it is made in the Pope's presence but in ceremonies of strict private character. This time the ceremonies were more public and elaborate.