

depends on the differences of  $JE$ , that is, on the diameter of the earth's orbit, the determination of  $v \cos \lambda$  depends on  $JE$  itself, a much larger quantity.

But no method can be made available without good tables of the motion of the satellites, and as I am not an astronomer, I do not know whether, in comparing the observations with the tables of De Damoiseau, any attempt has been made to consider the term in  $v \cos \lambda$ .

I have, therefore, taken the liberty of writing to you, as the matter is beyond the reach of anyone who has not made a special study of the satellites.

In the article  $E$  [ether] in the ninth edition of the "Encyclopædia Britannica," I have collected all the facts I know about the relative motion of the ether and the bodies which move in it, and have shown that nothing can be inferred about this relative motion from any phenomena hitherto observed, except the eclipses, &c., of the satellites of a planet, the more distant the better.

If you know of any work done in this direction, either by yourself or others, I should esteem it a favour to be told of it.

Believe me,

Yours faithfully,

(Signed) J. CLERK MAXWELL.

D. P. Todd, Esq.

January 29, 1880.

THE PRESIDENT in the Chair.

The Presents received were laid on the table, and thanks ordered for them.

The following Papers were read:—

I. "English Reproduction Table." By Dr. W. FARR, F.R.S.  
Received January 15, 1880.

(Abstract.)

This table is a development of the English Life Table, from which the fundamental columns of  $ly$  and  $Py$  are taken, and is intended to show the constitution of the female population, as regards married and unmarried, and the reproductive power at the several ages.

The female population,  $Py$ , is divided into married (uxores) unmarried (filiae), and widowed (viduæ), according to the proportions of these classes of the various ages at the census of 1871; thus, of a total of 14,936,770, aged 15 and upwards, 7,957,456 are wives, 4,660,311 are spinsters, 2,319,003 are widows.

The offspring (soboles) are derived from Norwegian statistics of the number of children born to married and unmarried women of the several ages, such facts for England not being available.

As the Life Table represents a population, continuing the same in constitution from year to year, the columns *sy*, *s'y*, and *s''y*, show the *annual* number of children born to women of the several ages and classes; and the total births of live-born children in a year are 1,450,910, of which 55,381 are of illegitimate children.

By means of simple formulæ, the number of children born in or out of wedlock, to any given number of women at a specified age, can be deduced. 1,000 wives aged 20 bear 401 children, while 1,000 unmarried women of this age bear 11 children; at age 30, 1,000 women of each class bear 337 and 29 children; at age 40, 210 and 10 children respectively are born of married and unmarried women.

II. "A Note on Protagon." By ARTHUR GAMGEE, M.D., F.R.S.,  
Brackenbury Professor of Physiology in Owens College,  
Manchester. Received January 19, 1880.

In 1879, in conjunction with Dr. Ernst Blankenhorn, I communicated to the Royal Society a paper entitled "On the Existence of Liebreich's Protagon in the Brain."\*

In that paper we sought to establish the existence of the body which had been described by Dr. Liebreich, but which had by several writers been considered to be a mixture of lecithin and cerebrin. We gave many analyses of several samples of protagon, and pointed out the constancy in the composition of the body when subjected to repeated crystallization from alcohol. I have since the date of the above paper, in conjunction with Herr Adolf Spiegel and Mr. Leopold Larmuth, continued my examination of protagon, and of certain bodies which accompany it. Our researches, which are not yet in a sufficiently advanced state for publication, have in the fullest degree confirmed the conclusions arrived at by the research of which the results have already been submitted to the Society.

The object of the present communication is to notice certain of the statements which have lately been published by J. L. W. Thudichum, M.D.,† to the effect that protagon is an impure body consisting of a mixture of many organic substances, and containing in particular considerable quantities of potassium.

"These inquiries," says Dr. Thudichum, referring to his own re-

\* "Proc. Roy. Soc.," vol. xxix, p. 151.

† "Note and Experiments on the Alleged Existence in the Brain of a Body termed 'Protagon'." "Annals of Chemical Medicine." By J. L. W. Thudichum, M.D. London, 1879. Page 254.