

NEW TABLES OF ANNUITIES, ETC., BY DR. OTTO BEECK,
OF HALLE.

To the Editor.

DEAR SIR,—Allow me to draw the attention of the readers of the *Journal* to a set of Tables just published by Dr. Otto Beeck, in Halle. The first set contains the values of annuities during the joint duration of two lives, numbers and logarithms, Experience mortality, interest at $3\frac{1}{2}$ per cent. The tables are completely calculated, not interpolated; they begin with the age of 15 years, and contain all differences of age up to 55 years. They are published with excellent good figures, only on one side printed, to be fixed on cardboard for office use. The price for the 12 tables, with 15 columns each, is 3 th. 15 gr., about 11s. sterling. The author intends next to publish six tables with 15 columns each, premiums of assurance on two joint lives, single and annual premiums, price $2\frac{2}{3}$ th. (about 8s.); then 16 tables with 10 columns each, single and annual premiums for survivorship assurance, price $4\frac{5}{8}$ th. (about 15s.); and then five tables containing the values to be placed to the reserved fund for the assurance of deferred annuities with single and annual premiums, price $2\frac{1}{4}$ th. (about 4s.).

It depends on the success which these tables meet with, whether the author will continue the publication of similar tables, the computation of which is a laborious task, as most of the readers of this *Journal* well know by their own experience. To these readers I need not add a word as to the value of the tables, which, even to those who have made similar computations will furnish very useful means for checking.*

I am, dear Sir,

Yours most truly,

Hamburg, 17th November, 1866.

WILHELM LAZARUS.

THE FORMULÆ IN MR. DAVID JONES'S WORK, COMMENTED
ON BY MR. MACFADYEN.

To the Editor.

SIR,—In the October Number of the *Journal* there appears a letter from Mr. Macfadyen, of the City of Glasgow Life Assurance Company, pointing out what he considers a serious error in one of the expressions given at p. 170 in Jones's work on *Annuities and Reversionary Payments*. I trust the following explanation may be deemed sufficient to exonerate Jones's work from the charge of error.

The value of the assurance of a sum to be received at the end of the year in which the life or lives shall fail, provided that event takes place after t years, is admitted by Mr. Macfadyen, to be correctly given as

$$A_{(m, m_1, m_2, \&c.)_{\overline{t}|}} = r^{t+1} p_{(m, m_1, m_2, \&c.)_t} - (1-r) a_{(m, m_1, m_2, \&c.)_{\overline{t}|}}$$

* Before Dr. Beeck proceeds further with his publication, it may be well to draw his attention to the circumstance that new and very extensive data are now being collected and arranged under the direction of the Council of the Institute, as mentioned in their last Report, with a view to the more accurate determination of the probable duration of human life.—ED. J. I. A.

Aware that, by a further transformation, a much more convenient expression applicable to single and joint lives could be got, Mr. Jones gives this in addition; but it would be absurd to suppose that in doing so he was ignorant of the fact that it did not apply to all cases. As a proof of this, he has, in his recapitulation of formulæ, p. 215, only referred to single and joint lives.

Baily, in a Note at page 147 of his work, says, "Since $(ABC)^d$ is, by Prob. I., cor. 3, equal to $A^o B^o C^o \times \frac{a\beta\gamma}{abc} (1+\rho)^{-n}$, it is obvious that the present value, in the case of single or joint lives, might be more conveniently expressed by $s \times \frac{1-\rho A^o \cdot B^o \cdot C^o}{1+\rho} \times \frac{a\beta\gamma}{abc} (1+\rho)^{-n}$; and it is from this formula that I have deduced the rule in Question 28, Chap. XII. But that rule will not extend to *all* cases."

If any blame at all attaches to Jones, it can only be for his omitting to state that the formula $r^t p_{(m, m_1, m_2, \&c.)}^v A_{(n+t, m_1+t, \&c.)}^v$ did not apply to all cases.

I am, Sir,

Your obedient servant,

COLIN McCUAIG,

Assistant Actuary Scottish Union
Insurance Company.

Edinburgh, 47, George Street,
3rd December, 1866.