CORRESPONDENCE.

LIFE - CONTINGENCY PROBLEMS.

To the Editor of the Assurance Magazine.

SIR,—As it is not uncommon to find inserted in Mathematical Journals occasional problems upon which such readers as are fond of analysis may exercise their skill, it has occurred to the writer that this characteristic may, also, in a mathematical sense, come within the scope of the *Assurance Magazine*. The three following Life-Contingency problems are accordingly offered in the hope that other actuaries may be induced to add to the list; for independently of the novelty which such problems in themselves may be expected to comprehend, they may also occasionally become the bases of various useful transformations of the ordinary formulæ, when treated by methods of solution varying with the ideas of different calculators. If it be further remembered that the precedent has already been offered by Simpson, in his "Select Exercises," so well known and appreciated by the profession, it may be reasonably presumed that actuarial readers, at least, will not think such forms foreign to the purpose of an *Assurance Magazine* :—

Annuities. The formulæ for adjusting the value of a Life Annuity, when it becomes payable by n instalments in the year, appears to have not hitherto been deduced in connection with the *column system*. It is required to effect this, and to thereby show the exact nature of the assumption upon which the usual approximation is really founded.

Assurances. It is required to be shown, that the value of a policy has always a certain relation to the *compound interest* of the sum assured, considered as a loan.

Probabilities. The limits of " probability " being zero and unity, it is required to be shown that any " definite integral," involving those limits, necessarily represents an *average* value ; and that the recognised assumption by writers on probability, that the average result is also the most probable, is therefore virtually implied in the methods of definite integration, by which alone the results involved can be properly estimated.

E. J. F.

ON MEDICAL FEES PAID BY LIFE ASSURANCE COMPANIES.

To the Editor of the Assurance Magazine.

SIR,—The following information as to the working of the system of paying medical referees, may be interesting to some of your practical readers, who are still undergoing the harassments connected with that vexed question.