Net Premiums and Reserves on Joint Life Policies, based on the
   American Table of Mortality graduated by the Makeham
   Formula, etc., etc.   By ARTHUR HUNTER.   New York,
   The Actuarial Society of America, 1902.   4to., 102 pp.

WHILE this book is mainly filled with tables of values relat-
ing to life insurance policies based on any combination of two
or three lives at risk — and is therefore designed for technical
use exclusively — it may interest the readers of the BULLETIN
to have pointed out to them somewhat of its scientific basis,
and incidentally to note the great expansion of the life insurance
business when such works of reference become necessary.

Mortality tables have been developed from crude statistics
in many ways — by simple collection of data, by grading these
by various summation formulæ, by arbitrary graphic interpola-
tion and the like.   Some of the tables thus obtained are incor-
porated in law, as the "Northampton" for valuing life interests,
the "Actuaries" and the "American" for the valuation of
life insurance policies.   But the only scientific method which
gives an algebraic expression for the law of mortality and offers
great practical advantages in use has never till now been given
legal recognition.   This method — the Makeham Formula —
gives a curve expressing the law of mortality which is continu-
ous and adheres closely to the original data.

By former methods of graduating the crude data, the result-
ing tables required to complete the matter in these hundred
odd pages would have filled several volumes the size of Webs-
ter's Dictionary and have been more than proportionately
troublesome to use.   This condensation is effected by using
a curious property of Makeham's law — that of "uniform
seniority" — by which instead of having to use a different
table for each different combination of ages of the two lives
involved in a compound risk, but one table is needed — with
an auxiliary table to show the modified argument by which to
enter for each varying combination of lives.   In other words,
under Makeham's law, for every product of the probabilities of
two lives aged x and y each continuing for a year, may be sub-
stituted the square of a similar probability for one life z, z
being intermediate between x and y.

Makeham's law was first established in 1860, but its practi-
cal value is just beginning to be appreciated, in this country at
least.   J. M. GAINES.