New Questions to be answer'd next Year.

The Life I gave annihilate;
Expiring Souls re-animate!

LADIES, a partial Friend to You;
I am you'll ever find me true,
While Virtue holds the Guiding-Clew:
But if your Steps to Folly bend,
(Tho' you may think me still your Friend)
I brand your Character and Name
With lasting Infamy and Shame.

New Mathematical Questions.
To be answer'd in the next Year's Diary.

I. Question 279. By Mr. Landen.

A Charming brisk Maid has afford'd me, and said,
Since I'm such a fine Mathematician,
(Laying puzzling aside, for the Joys of a Bride),
She will wed me—but on this Condition:
That I first shall unfold what * Pieces of Gold
Her Father has for her in Store:
And these I must find from the Data subjoin'd,
And then I'm to puzzle no more.

* The Pieces are Half-Guineas, Guineas, Moidores, and
Three Pound Tokens. The whole Number of them is
4000. And if \( x, y, z \), and \( x \), be put for the Numbers
of each Sort respectively, \( x^2 + y^2 + z \) is a Maximum.
Query what is the Lady's Fortune?

II. Question 280. By Mr. John Williams.

Going along a River's side, on an even
and direct Road ABC, I observed a
Tower on the River's other side, whose Angle
of Altitude at A was \( 5^\circ \). Upon going far-
ther on to B, 100 Yards, the Angle of Altitude
was \( 6^\circ 27' \); and intending, again, to
take an Observation when directly opposite to
the Tower, but was prevented by an Island
in the River (overgrown with Firs). I then
came to C, 400 Yards from B, where I
found the Angle of Altitude was \( 8^\circ 36' \). By
the Tower's Height.

III. Question 281. By Mr. J. Mdy, Jun. of Amsterdam.

It is required to find (by a general Theorem) the Number of Fractions
of different Values, each less than Unity. To that the greatest Deno-
nominator be less than 100?