

The Rise of Gravity in the 17th Century

or

A Life in the Day of Isaac Newton

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IT HAS OFTEN been said that Henry Wadsworth Longfellow did not invent the mode of poetic expression known as Homeric hexameter. It has less frequently been said that Elvis Presley did not invent the pelvis, or even discover it, for that matter. Nevertheless he apparently gave it a new significance as a mode of expression. It appears likely that Longfellow made a similar contribution to hexameter. Although it is most improbable that Longfellow's favorite mode of expression will ever rival that of Presley, it has attracted a not inconsequential following among the relatively unsophisticated readers of American poetry (if a near redundancy may be pardoned).

I do not attempt to defend hexam-



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eter, American poets or even the readers of American poetry. Nor do I, in the finest tradition of "the scientific method" so bravely postulated in five-part harmony in elementary science books, propose to predict future events. (The first four parts of "the scientific method" are left as an exercise for the reader.) Rather, I propose to predict events of the past.

On the surface this seems a rather commonplace activity indulged in by everyone from defeated politicians to television pollsters. However, as will be seen by the serious reader, this research (not sponsored in any part by the National Science Foundation, the National Research Council or the CIA) brings a powerful new insight into some of the long-standing mysteries concerning the personal and professional life of Sir Isaac Newton.

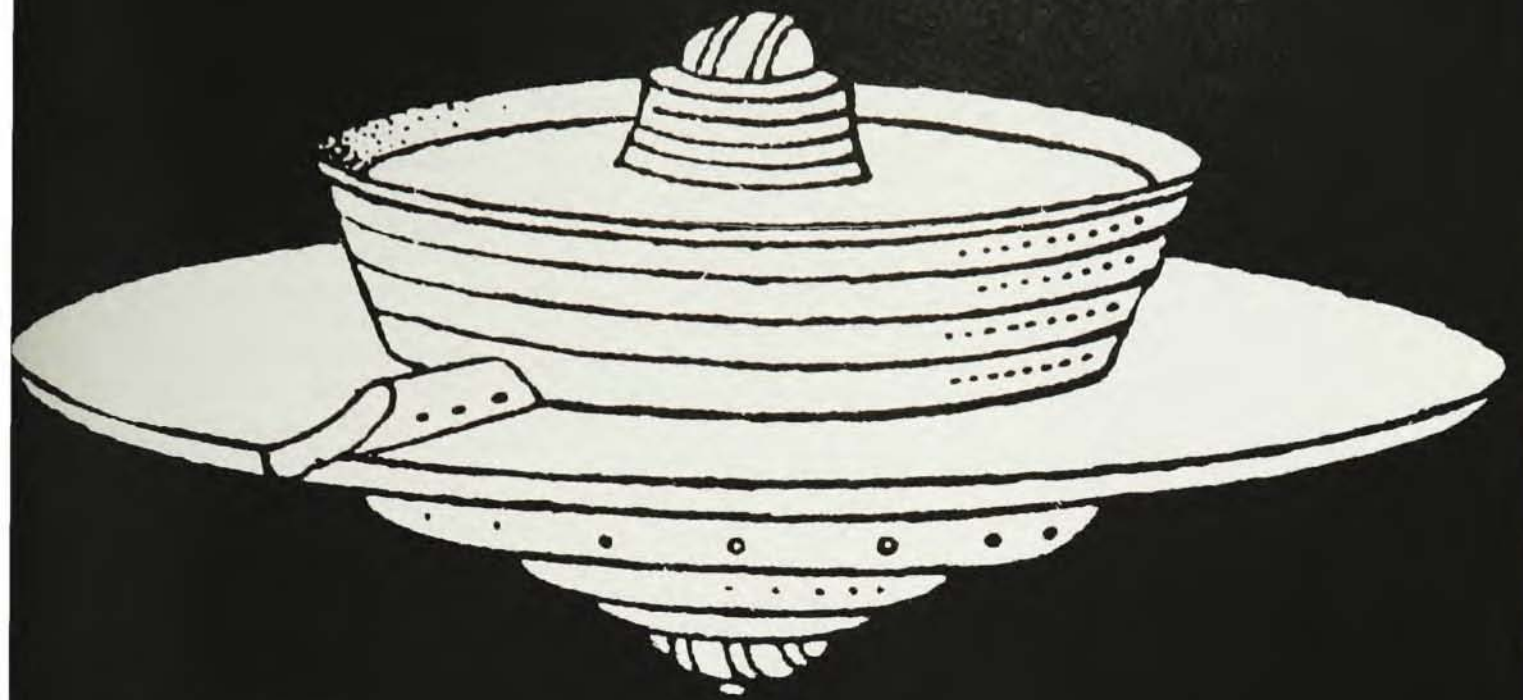
This work grew out of my consuming interest in the discovery and subsequent publication of completely unknown writings of unusually well known people (PHYSICS TODAY, 19, no. 5, 55, 1966). Although this type of research may not require the level of creativity that some kinds of experimental work require, a great deal of perseverance is necessary. Well known people in the intellectual world do not become well known by leaving their significant works unpublished, and since the day that the publish-or-perish law was first invoked at a major university, the difficulty of finding *any* unpublished work has increased exponentially.

Recently I had the good fortune while studying abroad (or perhaps I should say, engaged in foreign study)

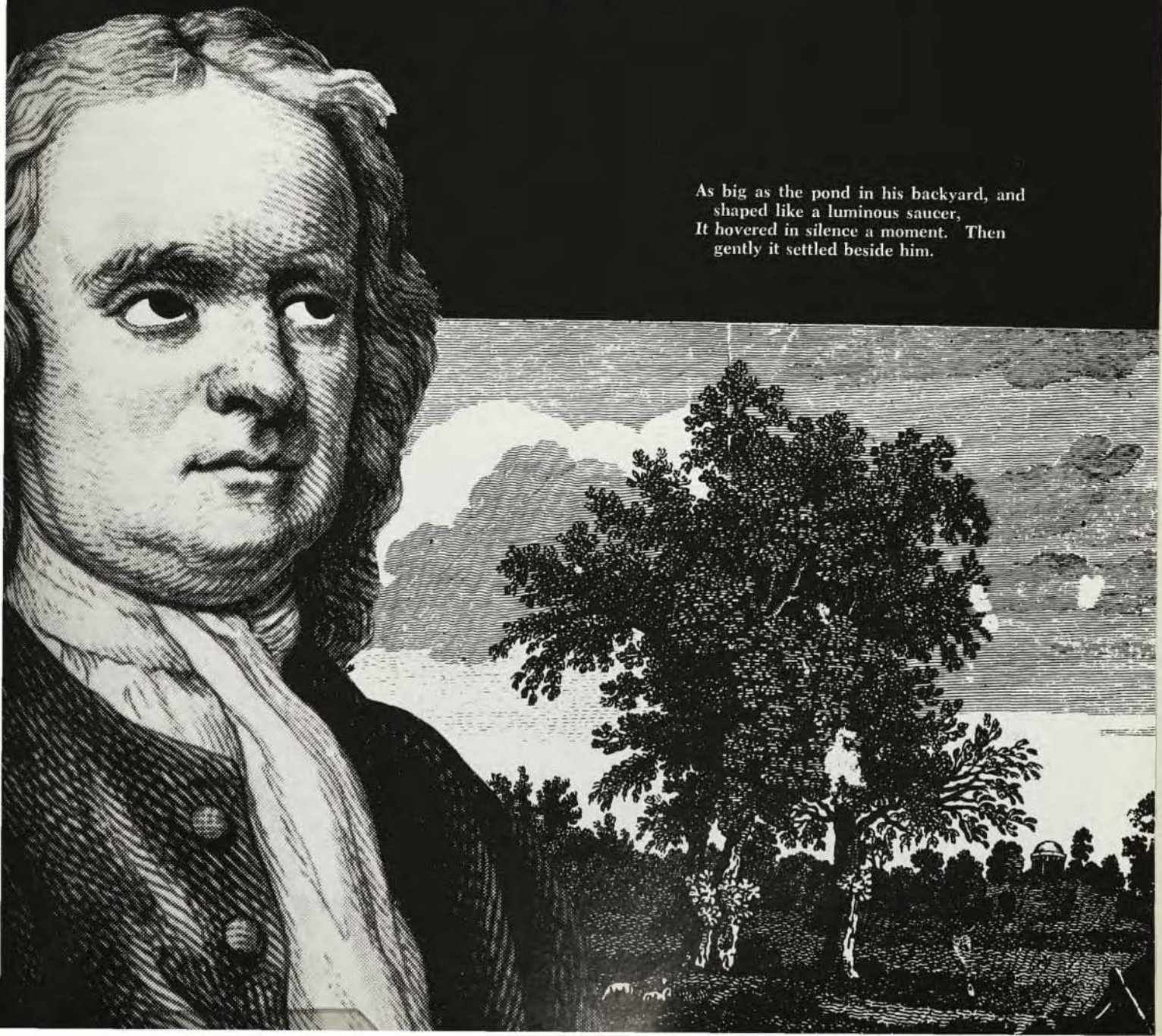
to visit Woolsthorpe in Lincolnshire, England, which, as everyone knows who knows about that sort of thing, is the birthplace of Newton. Among the many photographs I took in this general vicinity is one of a rather unusual document written in a style of such clever obscurity as to rival many of today's best-selling graduate textbooks. (This is no mean feat when one realizes that this document is dated 23 June 1710.) A precise and complete copy of the photograph appears on page 44.

Brief investigation shows that this document has never been published, partly, I believe, because of a certain inability on the part of the referees to agree upon its pertinence (probably a wise decision) and partly because of a mild controversy as to whether it was *first* written by Newton, or by Baron Gottfried Wilhelm Leibniz, or on an outside chance, by Simplicio. However, I am happy to report that before my grant funds (sponsored in part by IRATE, the Imagination Relaxation Association for Translation and Explanation) were exhausted, both the authorship and the meaning of this paper became quite clear to me. Although I *can* claim finding this paper (indeed, that might be questionable in view of the fact that it was never lost), perhaps a better claim might be "reading this paper," because I feel reasonably secure in the assumption that it has never before received such a reading.

A short explanation of my method of translation is probably in order, although the simplicity of it will be seen at once. When I recall that as a



As big as the pond in his backyard, and
shaped like a luminous saucer,
It hovered in silence a moment. Then
gently it settled beside him.



boy Newton delighted in writing verses (see volume 1, pp. 12-13 of Sir David Brewster's *Memoirs*) and that as a man he delighted in writing ciphers, it was only a minor quantum jump to the conclusion that this paper is a clever combination of the two, and that the strange number-letter notation merely indicates how many of each of the letters of the alphabet were used in the original manuscript. I am sure that this explanation must

have occurred to others in the past, but their efforts at deciphering may have been hampered by a false assurance that Newton would have written in Latin. As will shortly be seen, nothing could be further from the truth.

Throughout his adult life, Newton was extremely reluctant to share the results of his scientific work, and though he eventually was persuaded to do so, he would never even discuss

the apparently limitless source of his knowledge. This paper may be Newton's only effort to reveal the source of his philosophical innovations and his mathematical elegancies. Its translation sheds light (of a dual nature) upon these achievements as well as upon his personal life of quasi-seclusion. Throughout this translation it is evident that Newton has written as though he were someone else writing about Newton.

In seventeen hundred and ten,
in England, (the land of the
Beatles)
To and fro on a path in his simple but
elegant garden,
Strode with ponderous tread, the
world's greatest mathematician.
Clothed in thought and in thinking
(but with hair not so long as
Godiva,
Who once rode the streets of her vil-
lage, before the days of the hip-
pies,
Sans miniskirt, beads and sans flowers,
this first of the civil-rights march-
ers
Rode unadorned through her village
proclaiming the rights of her
people,

Revealing her sincere devotion for
those less favored than she was),
Immersed in deep meditation, but
dressed in conventional raiment,
He strode with ponderous tread, the
world's greatest mathematician.

And not just the greatest with numbers
(and who is there to gainsay it?),
But also the best at whatever he
turned his mind and his hand to.

At least so it said in the papers. And
Royal Society members,
Those who knew all about him,
elected this man as their leader,

Year after year reëlected; he ap-
pointed them all to committees.

But though he lived with and among
them, working and talking to-
gether,

These time-honored thinkers of En-
gland, with all of their time-hon-
ored wisdom,
Never approached understanding this
man whom they called Isaac
Newton.

They never were able to fathom
his near instantaneous learning,
Nor could they explain how the
knowledge that *they* gained
through diligent labor,
Was "seen at once" by Ike Newton, as
though it were his *a priori*!
And thus through the years ever pass-
ing, his fame was forever expand-
ing,

Till justly rewarding his labors Queen
Ann made him *Sir* Isaac Newton.
And so in the dusk of the evening he
plodded about in his garden,

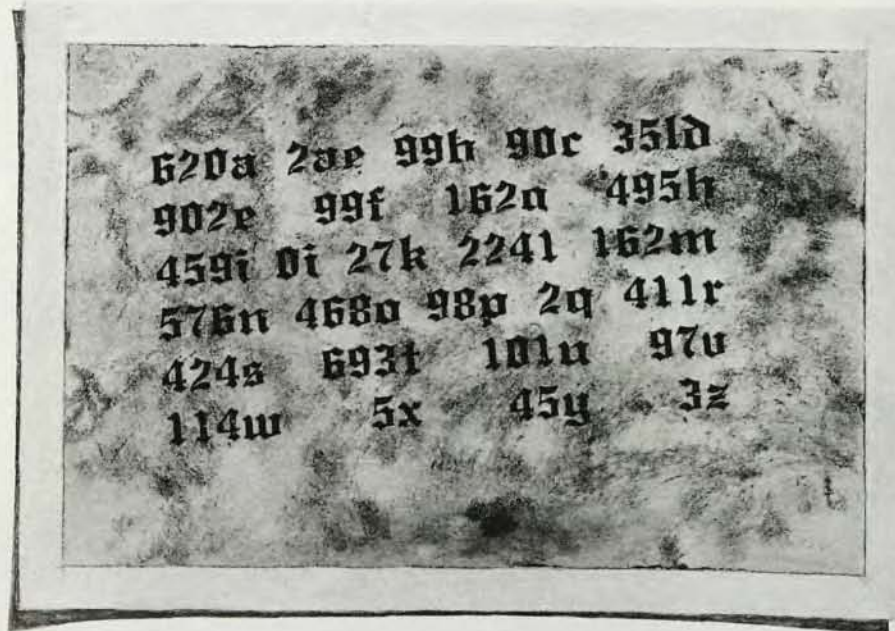
Plodding as well through the evening
of life and of work nearly ending,
Pausing at times for reflection, as men
often do who are aging,

Spanning the years in an instant, his
memory fleeing to childhood,
Keenly recalling the burdens of spend-
ing his life as an orphan,

Son of the lord of a manor, who died
without seeing his offspring,
Son of the poor Widow Newton, who
married again to a preacher.

Too timid to do his own courting, the
reverend sent an assistant
Who captured her hand for the
preacher by making a deal with
her brother.

(And near that same time in *New*
England Priscilla was courted by
proxy.



OBSCURE DOCUMENT encoding the versification of Newton's most precious secret.

Disdaining the courtship as proffered,
she uttered the words now im-
mortal

That rival in wit and in wisdom those
words of the dignified Raven.)

Newton was left at the manor and
reared by Grandmother Ays-
cough

To take up the work of his father,
tending the land and the cattle.

But farming was not in his thinking
nor anything else that was useful.

And so teenage years at the manor
made little to put in his memoirs.

But then overnight a swift magic
transformed the so negligent
Newton,

Making him purposefully active (Edu-
cationists say "motivated").

What could happen so quickly to
change a man so completely?

And here the elderly Newton glanced
at the darkening heavens

And lighted his eyes for a moment
with the fire that formerly dwelt
there.

Living again, if but briefly, the event
that had altered a lifetime,

Groping back to the sixties, recalling
details of that evening.

Slowly at first, but then quickly
his memory rushed them to meet
him,

Bringing his mind and his heart again
to that wonderful evening

When all of the worlds and beyond
them were clearly revealed to his
vision,

Giving him full understanding of
hundreds of years worth of learn-
ing,

Unveiled in a brief conversation with
a truly remarkable woman.

On that marvelous, fully starred eve-
ning in sixteen hundred and sixty,

The youthful, fun-loving Newton was
flying a kite in the darkness

Rigged with a flickering candle—an
eerie sight for his neighbors,

When a light far brighter and stronger
came swiftly out of the heavens,
Snuffed out his candle in passing and
hovered a moment beside him,

As big as the pond in his barnyard,
and shaped like a luminous sau-
cer,

It hovered in silence a moment. Then
gently it settled beside him,

Slowly reducing its light till a halo re-
mained of it only.

Out of a capsule-like structure set in
the midst of the halo,

Gracefully down through the shadows
emerged thence a feminine fig-
ure.

Newton, still stunned by the vi-
sion of a flying machine in the
heavens,

Forgot he was lord of the manor, for-
got, indeed, all of his manners

And spoke not a word to the maiden
who came out and stood there
beside him.

Sensing, at once, his discomfort and
hoping, perhaps, to allay it,

She smilingly turned to confront him
and spoke to him softly in Eng-
lish;

"I regret that I had to disturb you,
but my radar had picked up your
candle

Just as I ran out of fuel; so I coasted
in on your blip-line.

I would have had power for eons, but
I used up a lot of my ions,

Fighting those crazy electrons out in
the belts of Van Allen.

I wonder if you could direct me to a
launching pad not too far distant,
And help me to get some more Ergo to
mix with my Poundalnite fluid.

I really must warn all my neighbors,
though some are still light years
behind me,

Warn them of strange radiation, and
help them to optimize landing.

You've patiently heard all my troubles,
A gentleman, truly, you must be

A leader, indeed, of your people—
Speak for yourself while I listen."

Newton, still stunned by the maiden,
both in appearance and language,
Statue-like stood there beside her, his
mind unable to function,

Hearing the words as she spoke them,
but really not knowing he heard
them,

Finally lifted his senses out of their
paralyzed numbness,

Feeling the whole of his being spring
into superalertness,

Knowing a kind of awareness greatly
surpassing the usual.



UFO makes off with the Ergo.

Quickly he spoke to the maiden, told
her his name and his history,
Rushing his brief explanation, asking
her then to continue,
Asking her then to inform him in full
concerning her actions.
Where "on earth" had she come from?
How did she move through the
aether?
What indeed is this Ergo,
and what is Poundalmite fluid?
What is the name that they call her
in whatever place she had come
from?
Pleased at being the object of New-
ton's most avid attention,
Spoke again softly the maiden, care-
fully choosing her phrases.

Told of the home she departed,
of decades spent in the space
ship,
Moving at speeds that would rival the
speed of light in a vacuum.
Told how she moved through the
aether by using the three laws of
motion,
Explained how she started her motion
through use of external forces,
How once she got into motion, no in-
ternal forces could stop her.
How rate of change of momentum
takes place in amount and direc-
tion
Controlled by the force that is acting
(Provided the mass is not chang-
ing).
Let him know that where the action is
one must have an equal reaction.
Showed him a new mathematics for
finding the rate of a motion,
Urged him to use it for solving the
problems left over by Kepler,
Problems he gleaned from the data of
Tycho, the hard-nosed observer.
Told him the light on her rocket was
made up of tiny corpuscles,
Similar, somewhat, in nature to those
that powered her engines.
All this and more she related, and
Newton, who realized its value,
Questioned her more about motion,
especially the falling of apples.
(A problem of varying interest to all
the descendants of Adam.)
And as their talking proceeded, as
night hours turned into morning,

A friendliness grew up between them
that both were reluctant to
dampen.

So Newton departed from science and
spoke to her just as a woman,
Praising with eloquent candor, her
beauty of face and of figure,
Speaking with earnest conviction (and
she was very attentive),
Told her that she should abandon her
flying machine in the meadow,
Forget the rest of her journey and
stay on the earth with him al-
ways.

But reason prevailed, and emotion
was sadly suppressed by the
maiden.

Gently she spoke to young Isaac, put-
ting her heart in the speaking,
Just for an instant revealing the depth
of her love and devotion.

Letting him know her true feeling,
but thinking the while of her mis-
sion.

She gave him a kiss and a promise
that faithful she'd be in her ab-
sence,

Pledging to come back to see him, ex-
plaining that others would follow
After she gave them directions, for
hundreds of years still arriving,

Leaving their miserable planet to
travel for three generations,
Forced out by overabundance of off-
spring and water pollution.

She kissed him and fled to her capsule,
clutching a handful of Ergo.
And Newton, still filled with emotion,
was quite unaware she had found
it.

(In fact didn't care that his meadow
abounded in ion-rich Ergo.)

He watched in numb apprehension as
silently, instantly rising,

The love of his life simply vanished
like lightning flashes in summer
That brighten the earth and the
heavens a moment before disap-
pearing.

And so the elderly Newton,
plodding about in his garden,
Fifty years had awaited the return of
his beautiful Ufo,

For that was the name that she told
him, and true he had been to her
always,

Devoting himself to the science that
Ufo had taught him that evening,
Confounding his colleagues with wis-
dom, but never revealing its
sources,
Enraged at those who opposed him,
though not by selfish intention,
For all those who criticized Newton,
unknowingly criticized Ufo.

Looked he once more to the
heavens, then sighed and re-
turned to his cottage,

Knowing quite surely tomorrow his
men at the mint would regale
him

With questions concerning their sight-
ing last week of a light in the
evening,

That appeared overhead for a mo-
ment, and then lost itself in the
sunset.

How could he tell them their sighting
was Ufo's people arriving?

Tell them their sighting was simply
the first, and many would follow
For centuries, maybe forever, but no
one would fathom their meaning.

And thus Newton's burden of knowl-
edge grew ever more strongly
oppressive,

Till sitting quite late by his fireplace,
he arrived at the simple solution

Of calling the lights in the heavens
unidentified flying objects.

What better name could he give them
without divulging his secret?

Ufo would know and applaud him, so
smiling he moved to his bedroom.

Thus the tale ended. But I think
not without partially solving some of
the riddles of the strange life of New-
ton, as well as bringing new evidence
to bear upon the increasingly puzzling
riddle of unidentified flying objects.
Of course, the authenticity of this
work cannot be guaranteed either as
to authorship or content, but much of
physics today depends upon probabili-
ties that do not approach the con-
fidence with which this paper can be
considered. For who, indeed, could
have written such poignant and
powerful phrases, concerning his love
and his learning? No one but
Newton! □