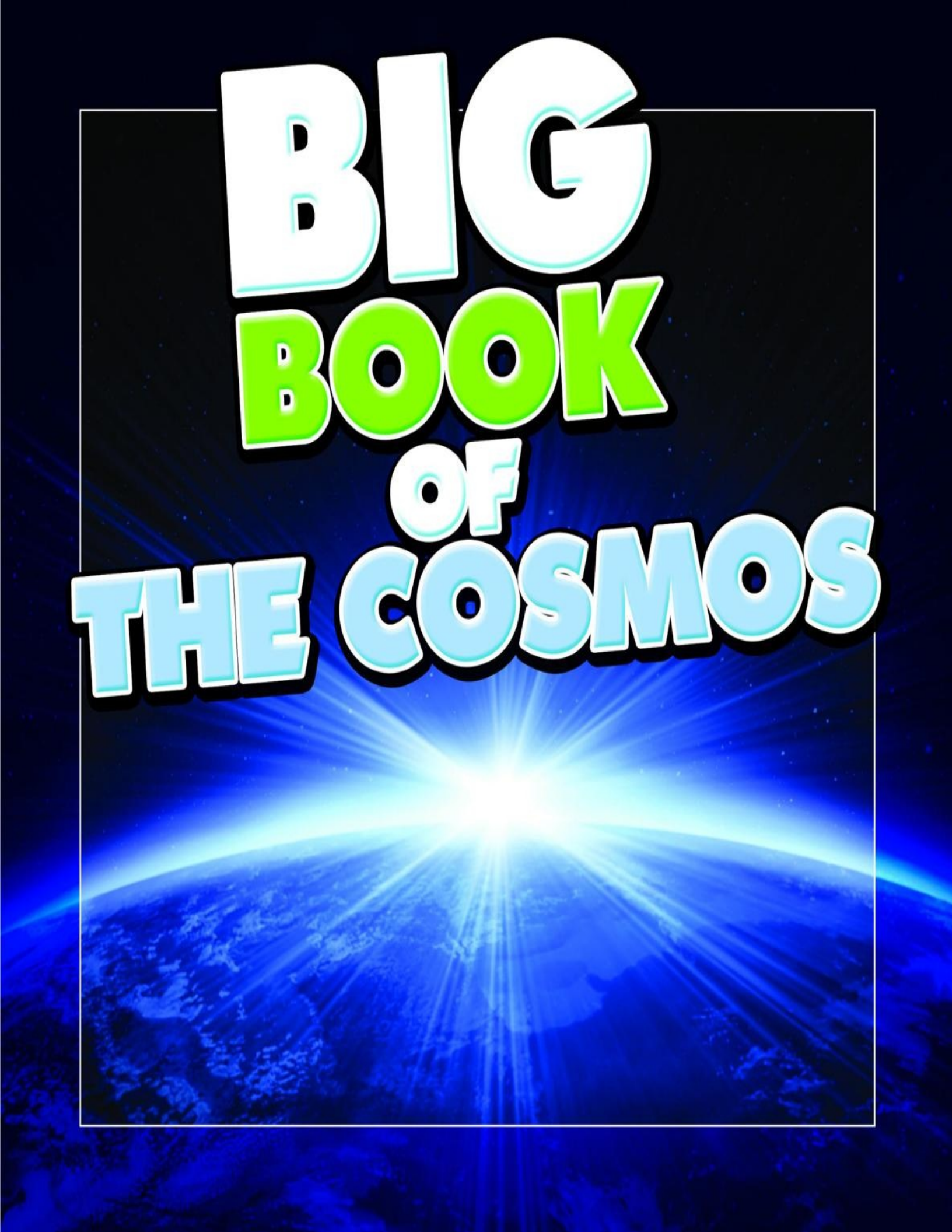
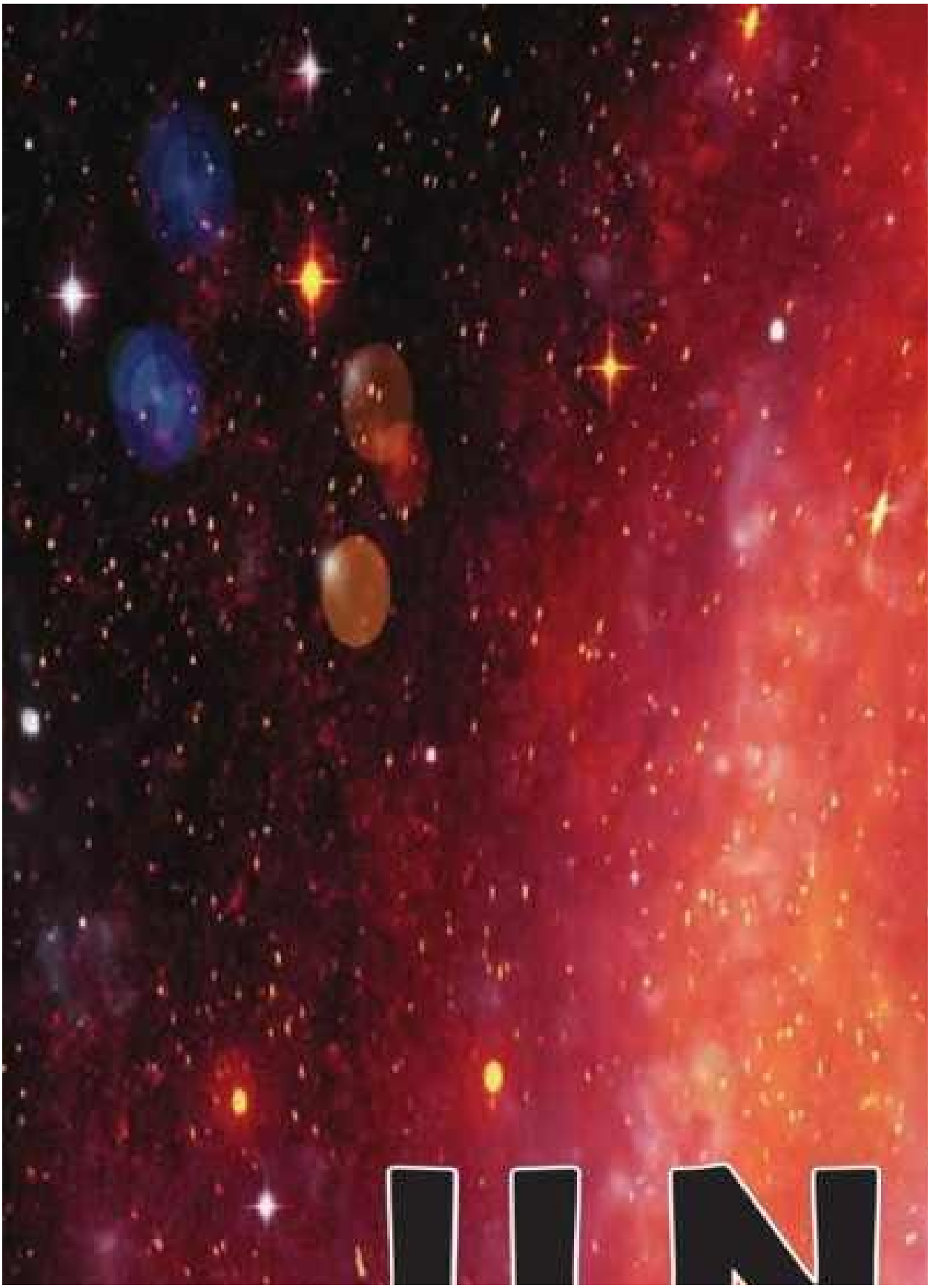
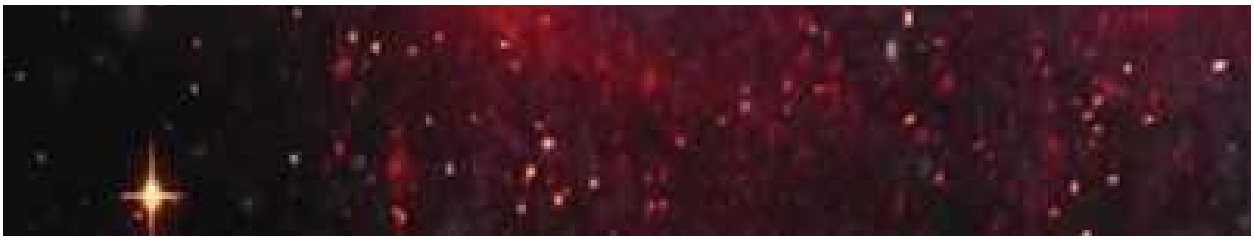

BIG
BOOK
OF
THE COSMOS

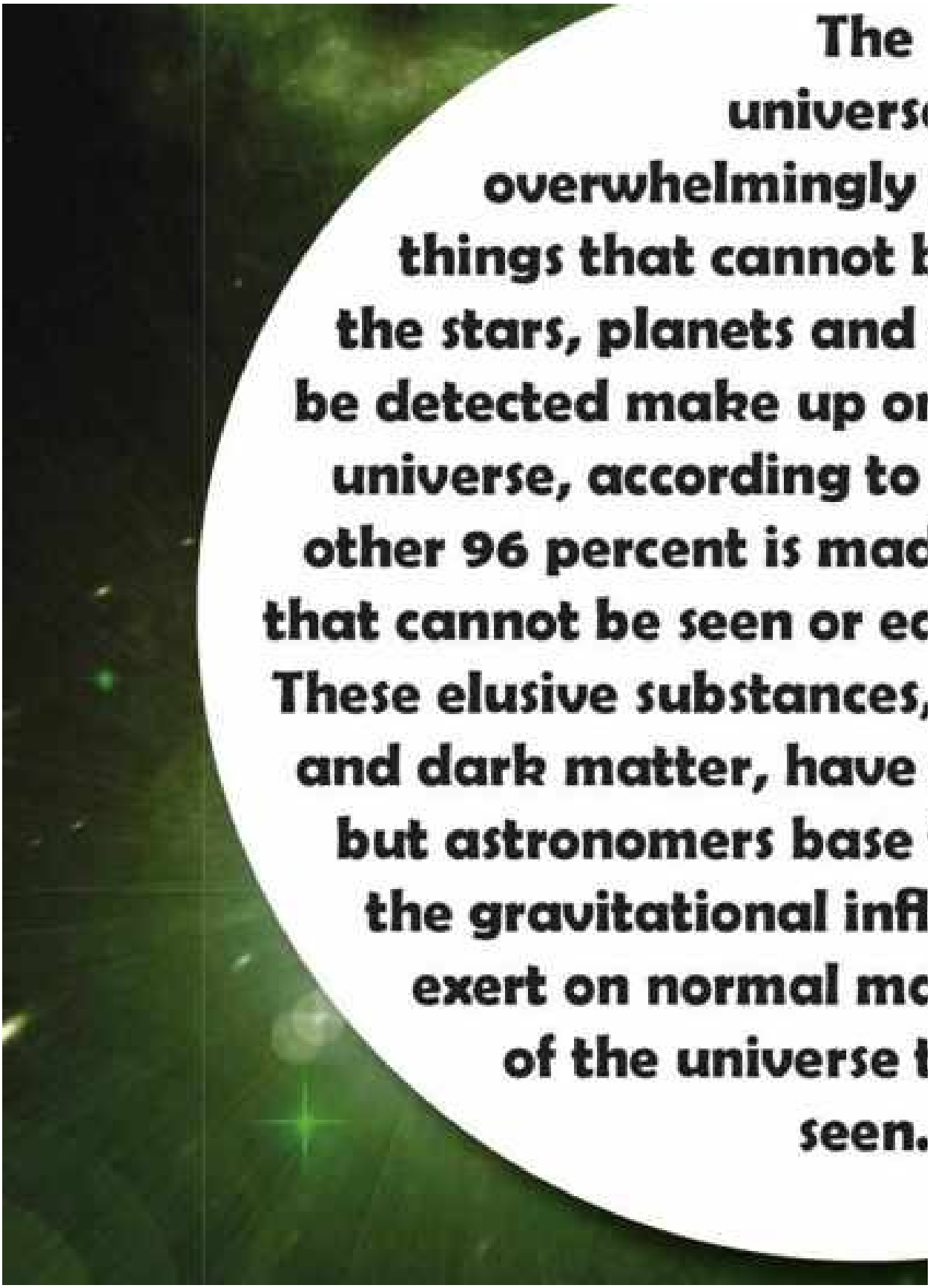
Big I

Cosn

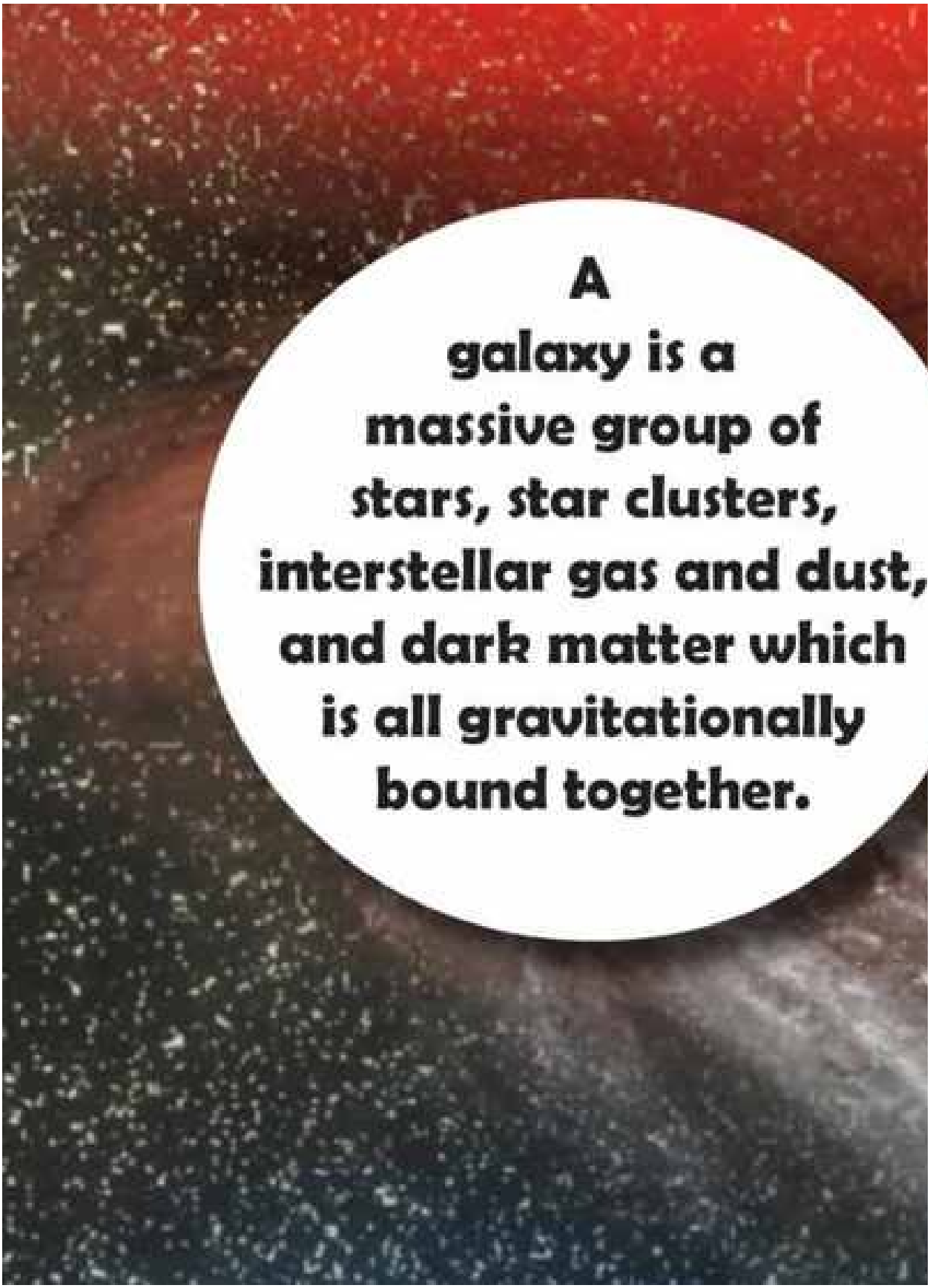


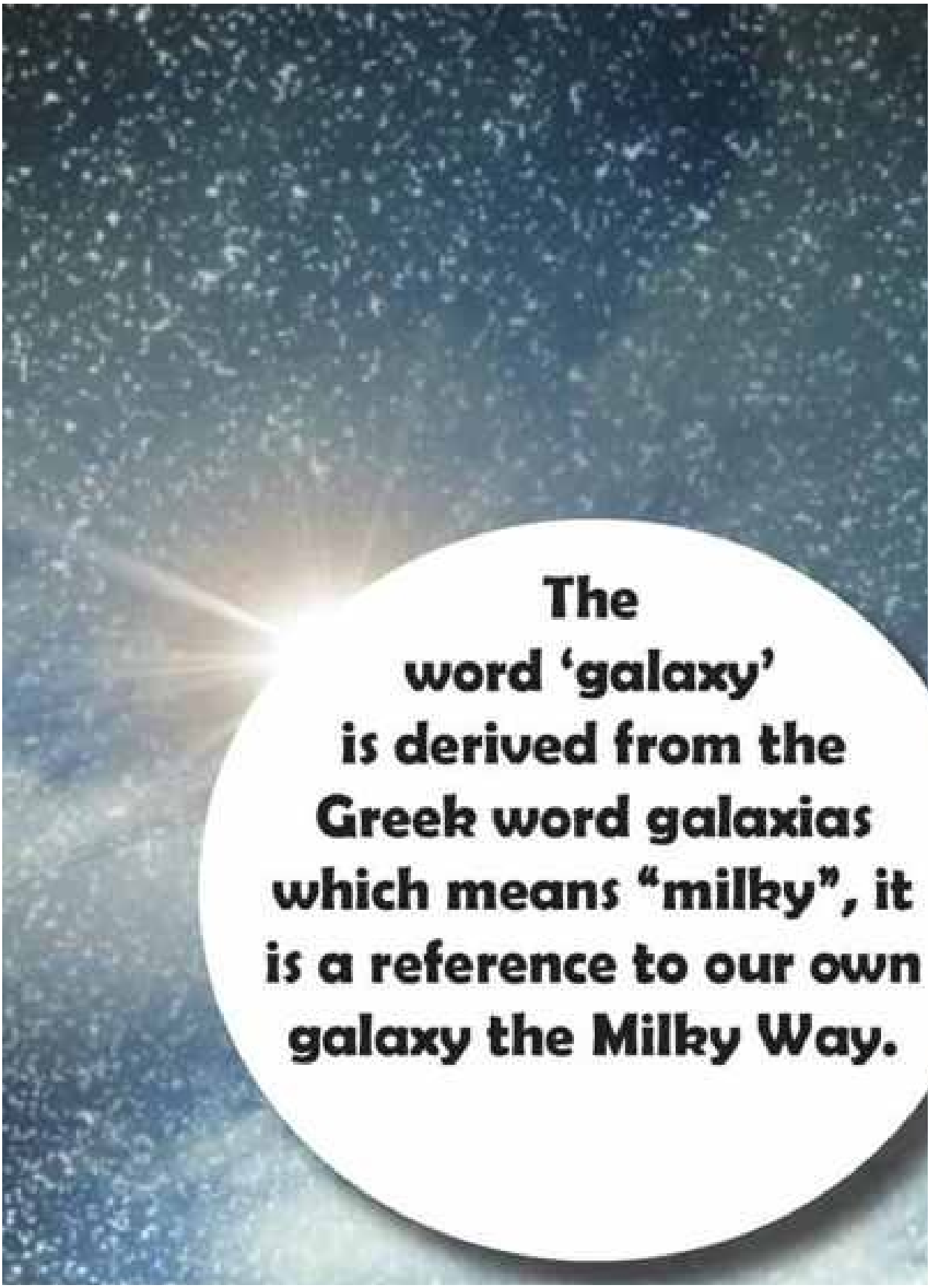


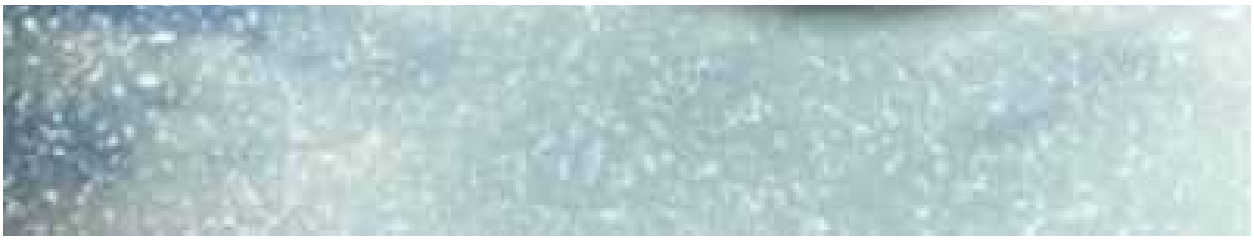

The
universe
began with the Big
Bang, and is estimate
to be approximately 13
billion years old (plus
or minus 130 million
years).

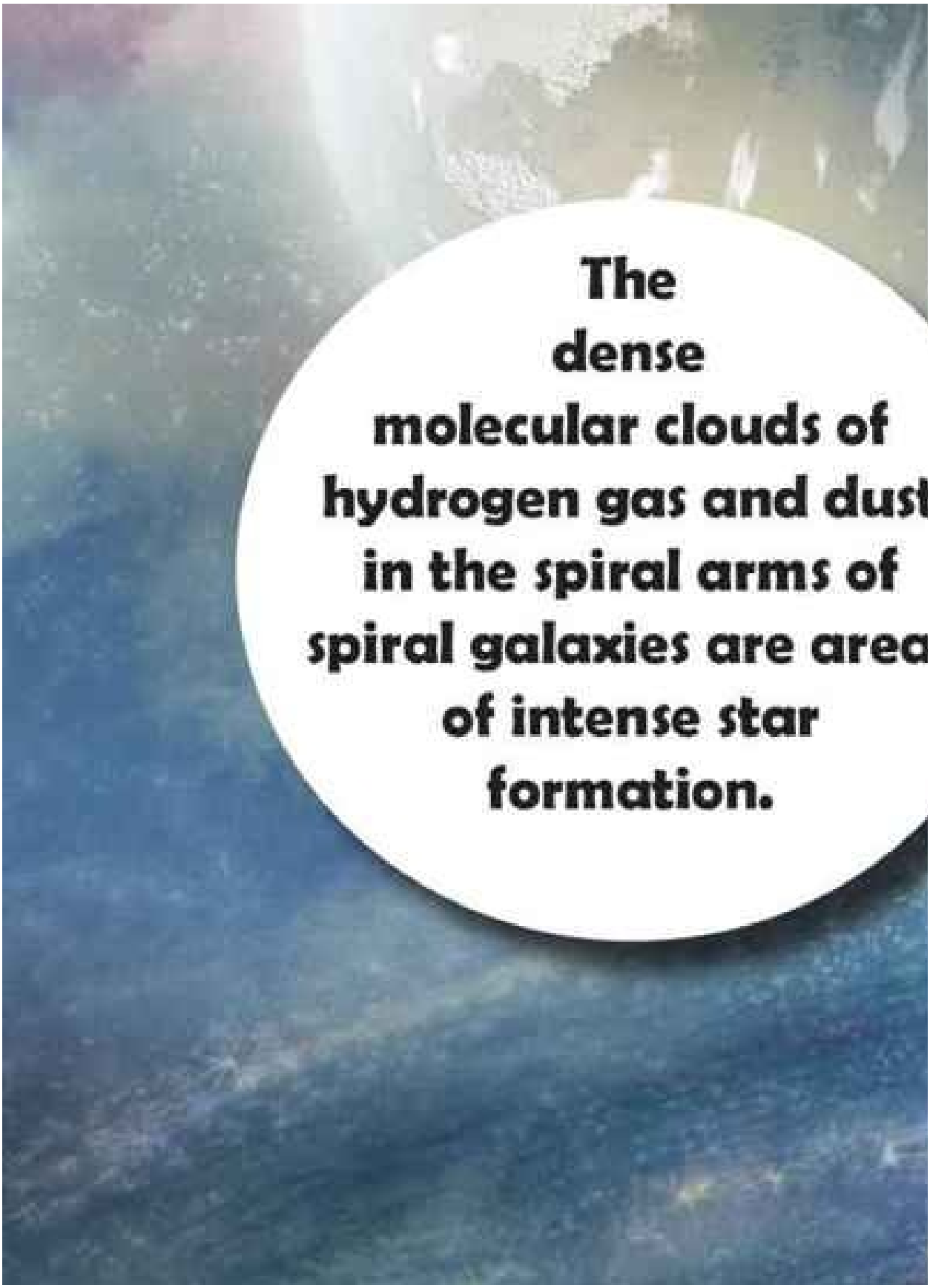

The
univers
overwhelmingly
things that cannot b
the stars, planets and
be detected make up or
universe, according to
other 96 percent is mad
that cannot be seen or ec
These elusive substances,
and dark matter, have
but astronomers base
the gravitational infl
exert on normal mc
of the universe t
seen.

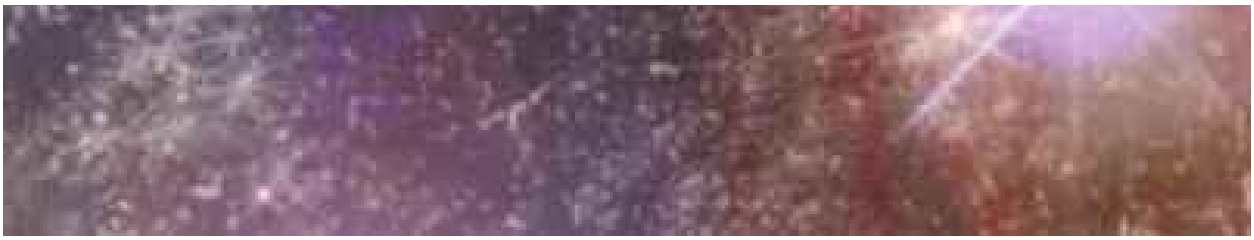

G A

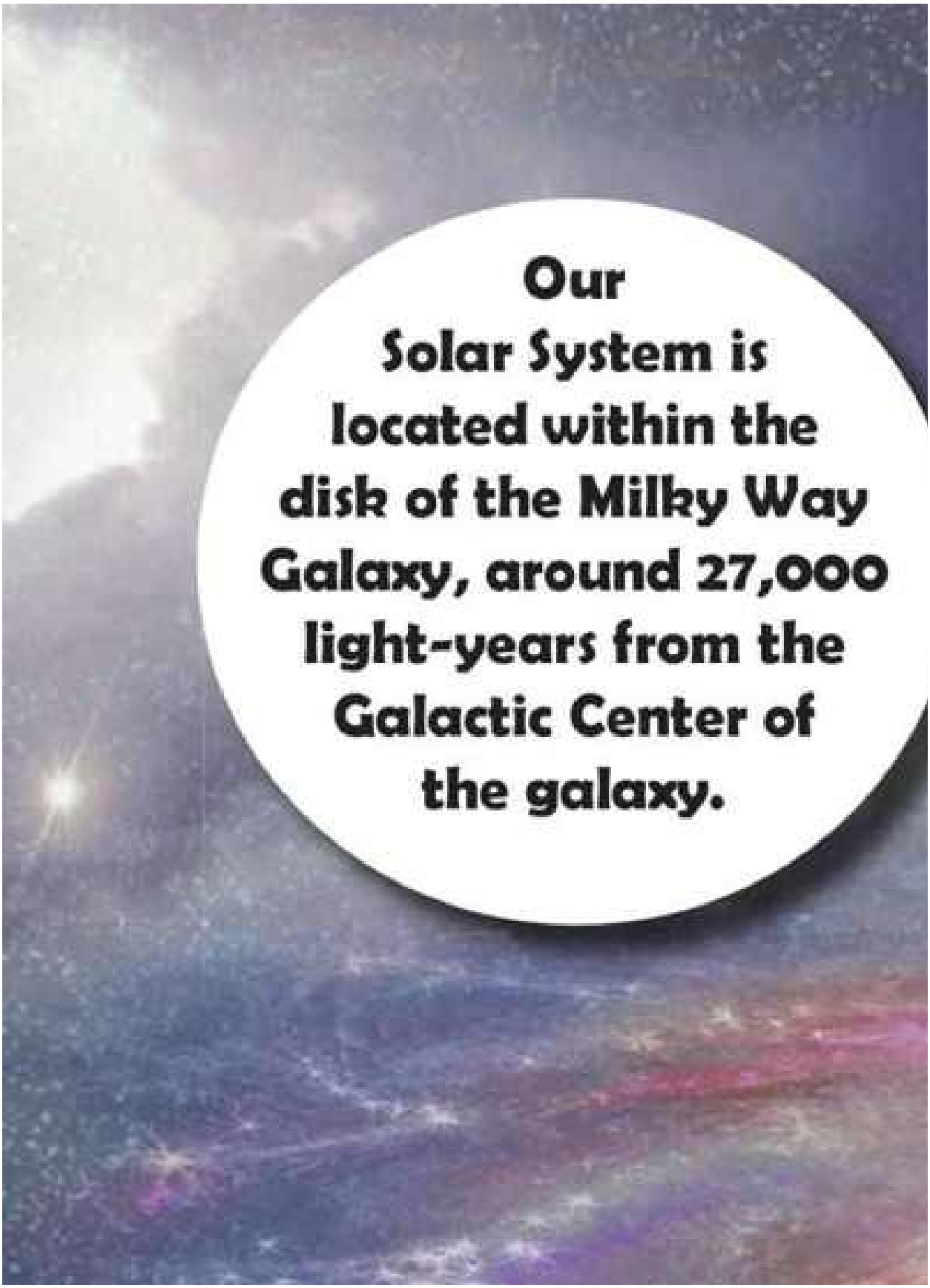

A
galaxy is a
massive group of
stars, star clusters,
interstellar gas and dust,
and dark matter which
is all gravitationally
bound together.

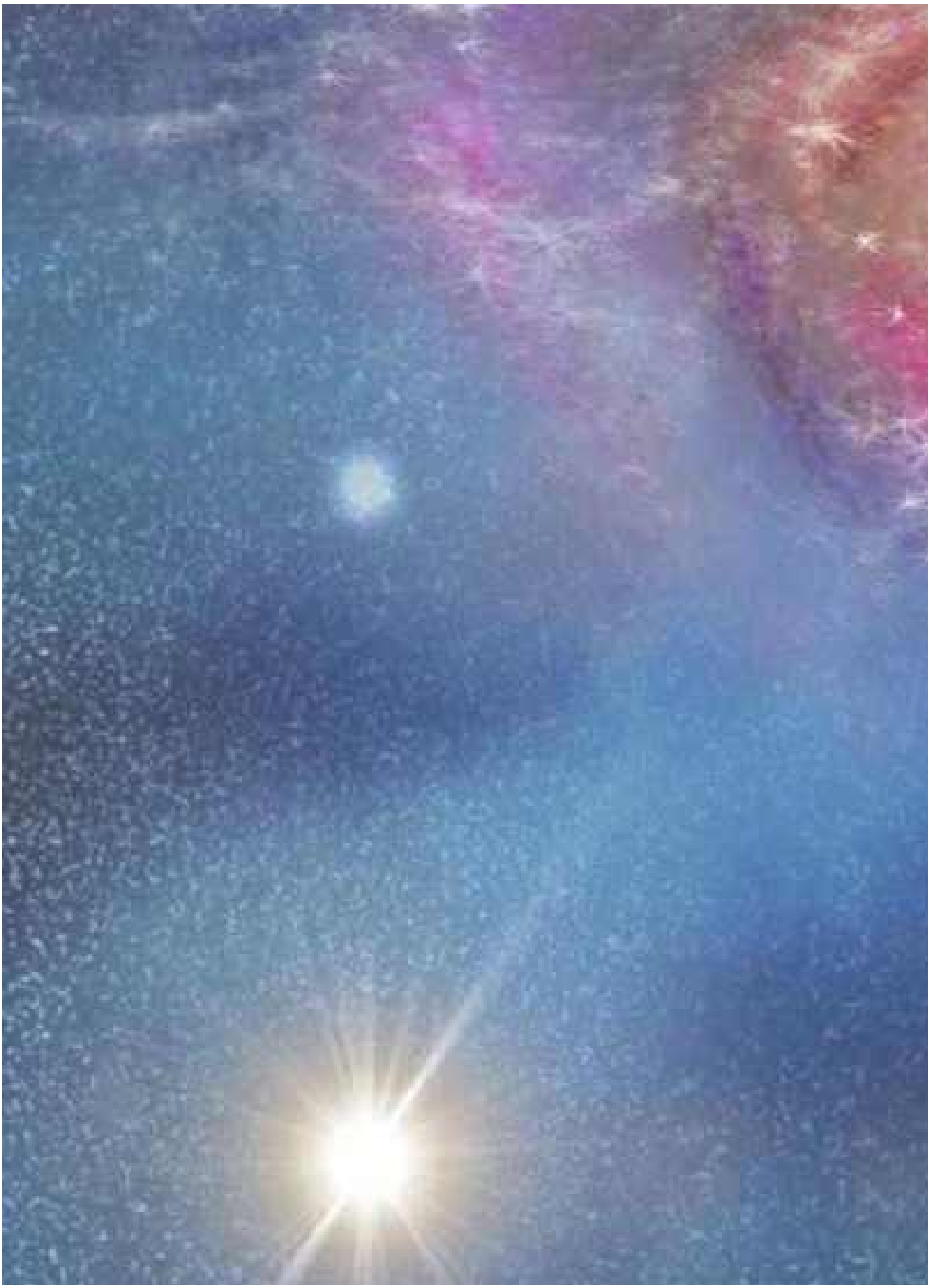

The
word 'galaxy'
is derived from the
Greek word galaxias
which means "milky", it
is a reference to our own
galaxy the Milky Way.

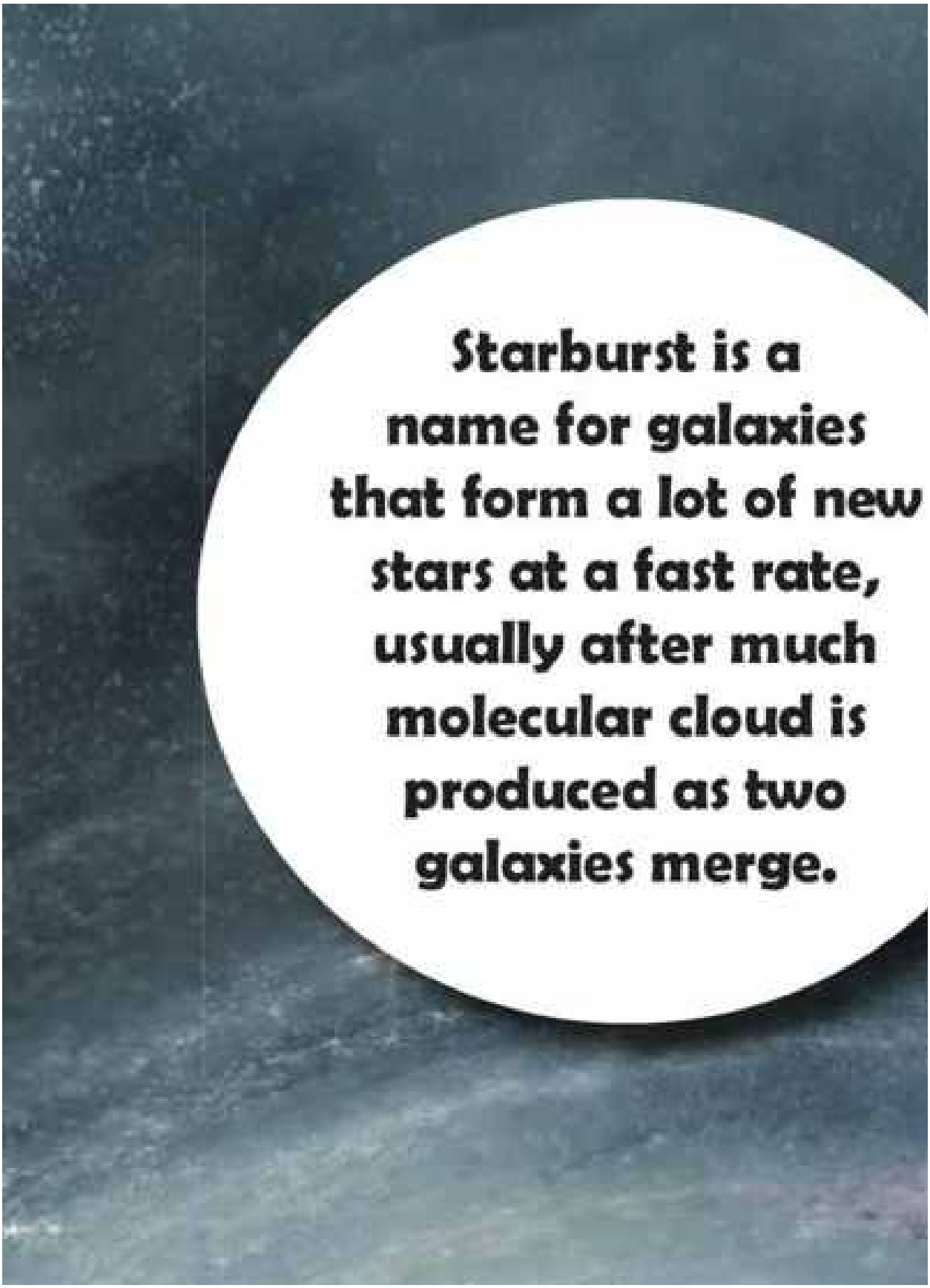


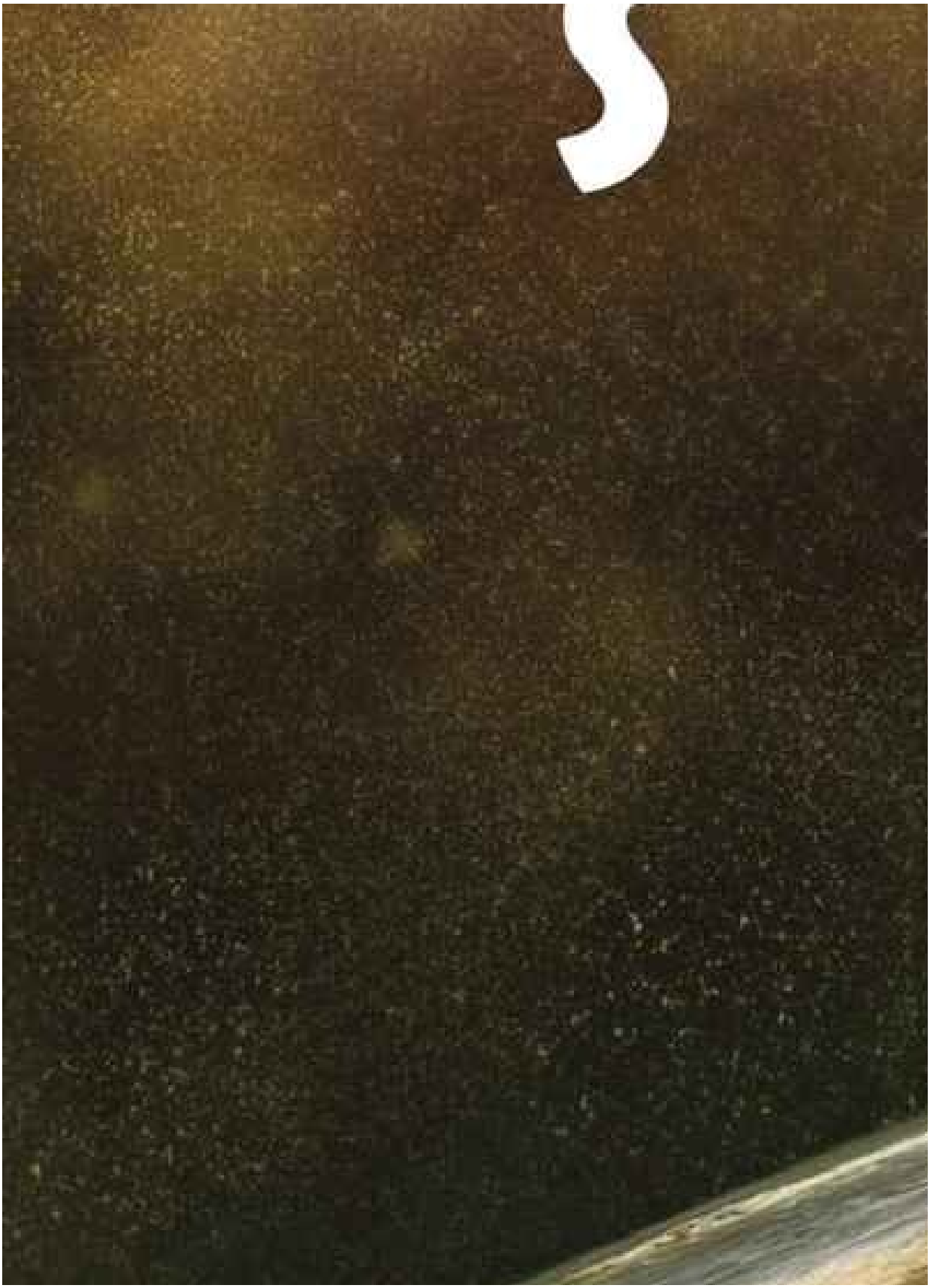

The
dense
molecular clouds of
hydrogen gas and dust
in the spiral arms of
spiral galaxies are area
of intense star
formation.



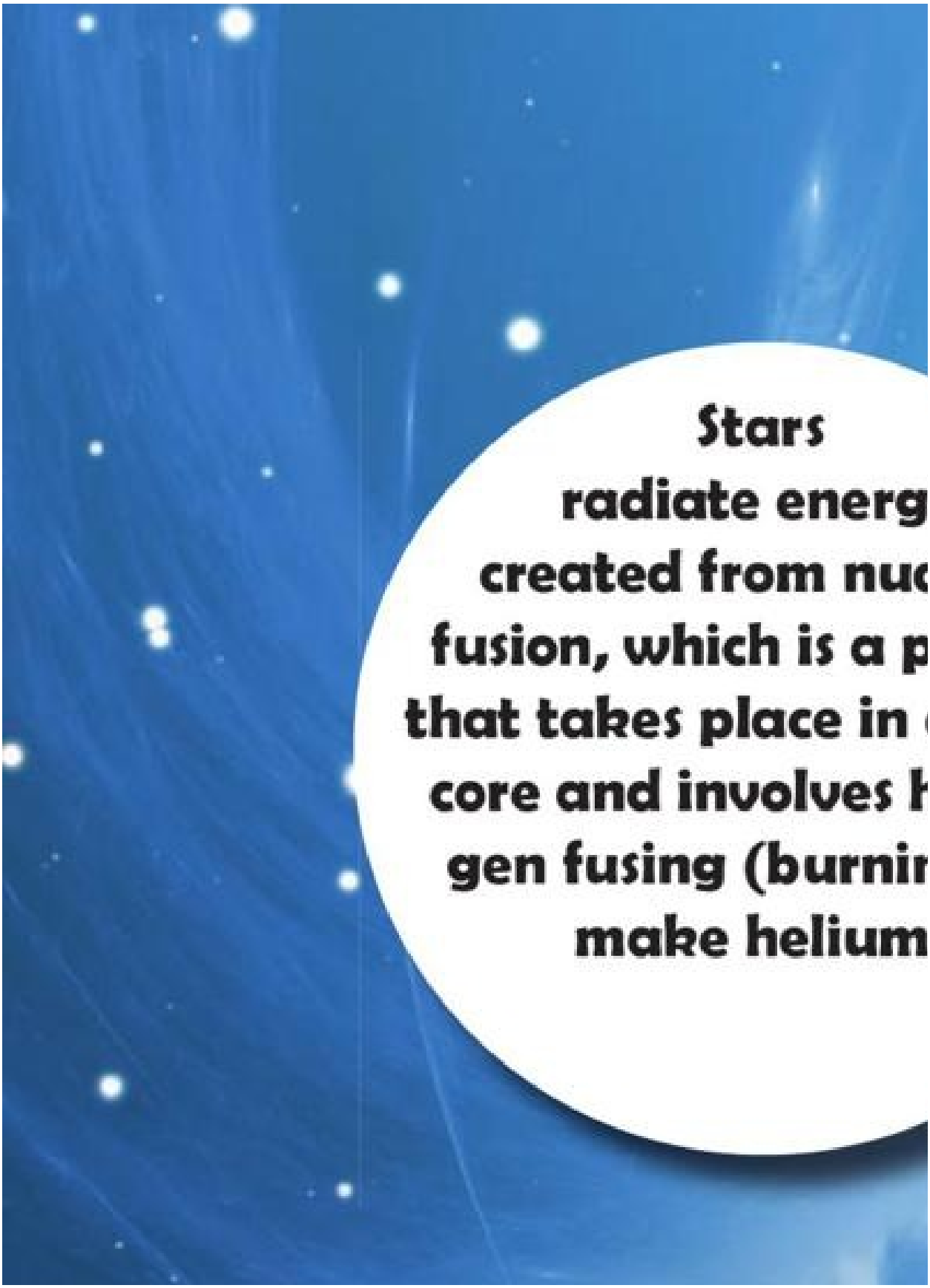

Our
Solar System is
located within the
disk of the Milky Way
Galaxy, around 27,000
light-years from the
Galactic Center of
the galaxy.

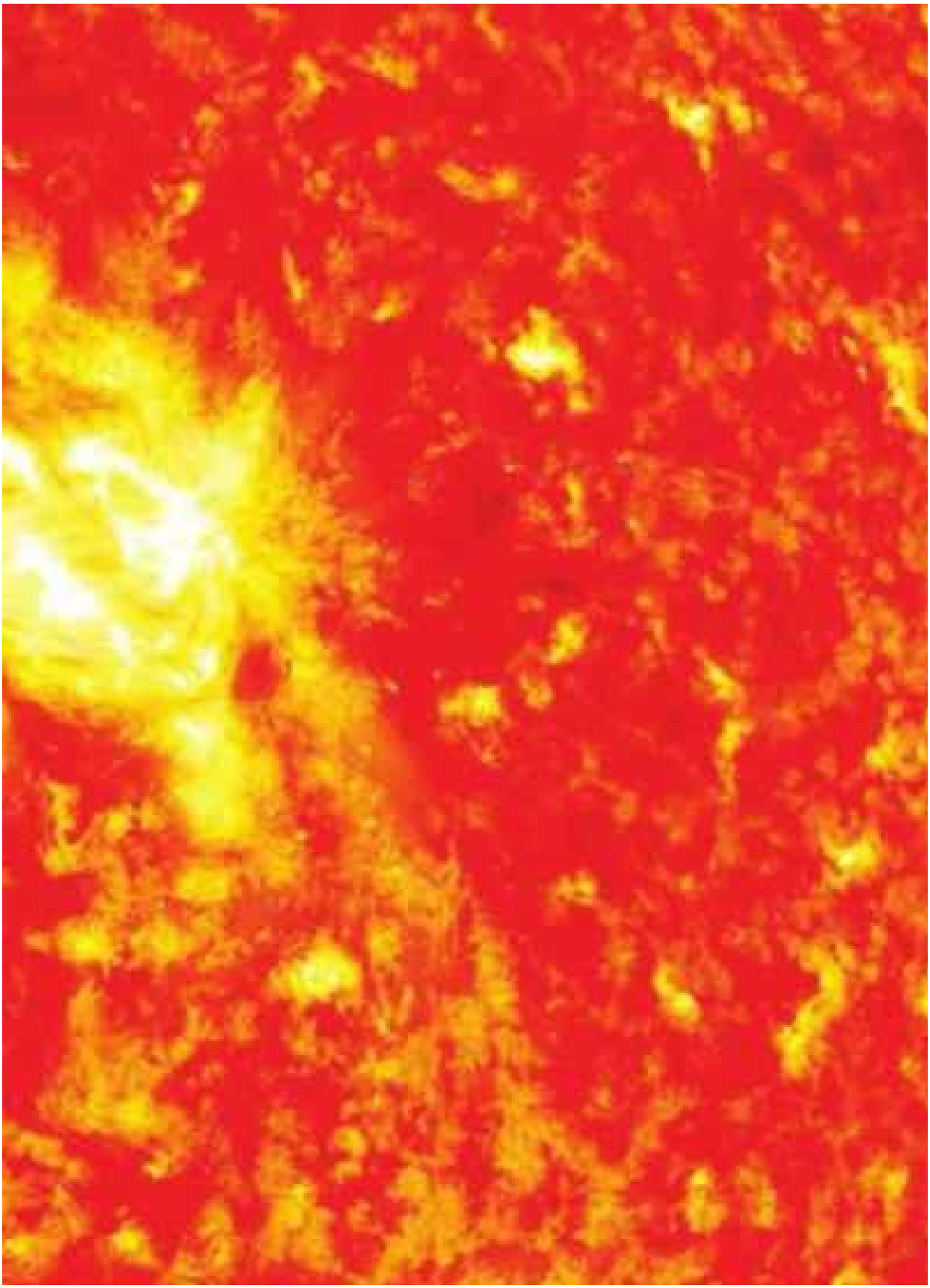


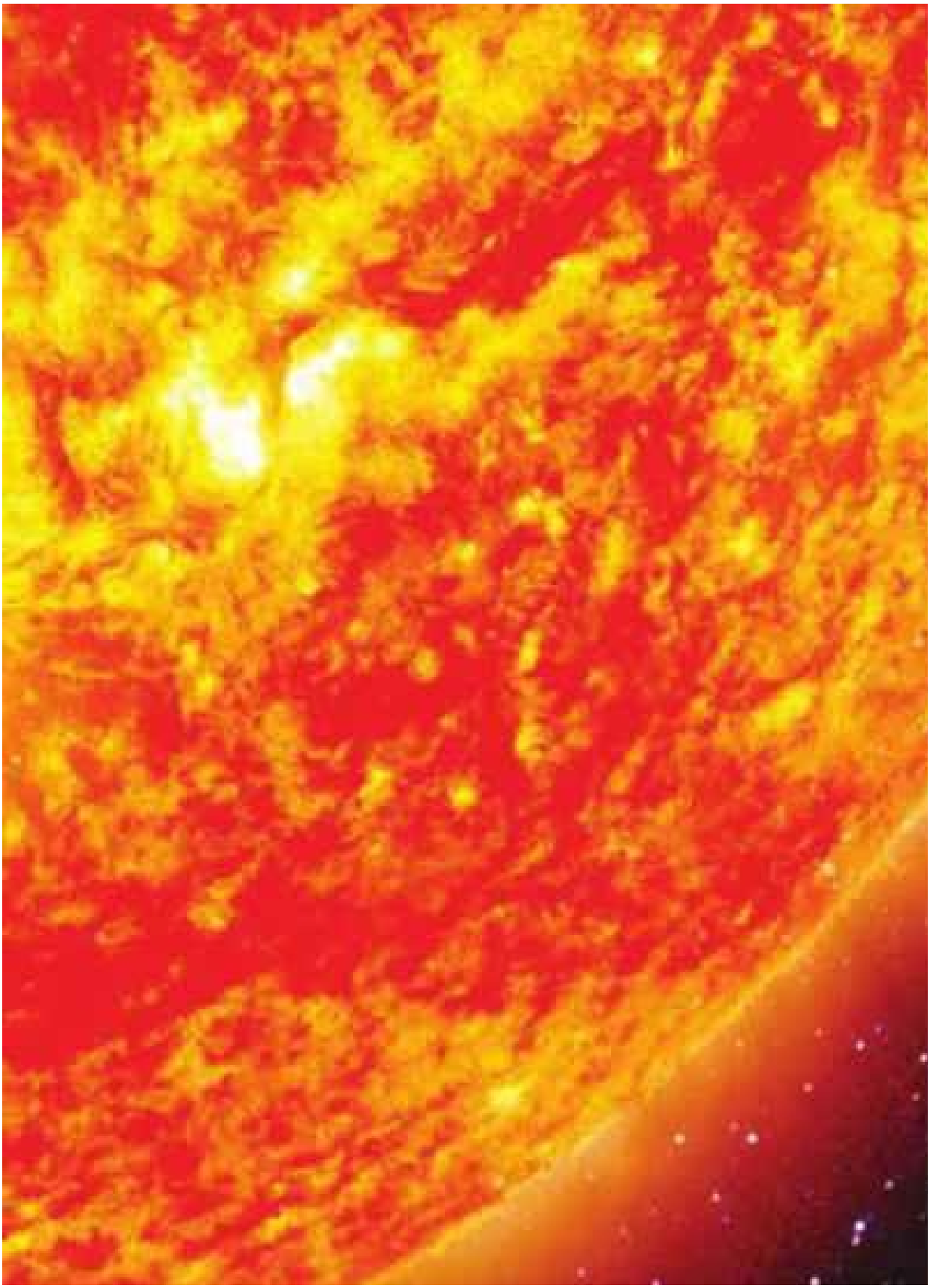

Starburst is a
name for galaxies
that form a lot of new
stars at a fast rate,
usually after much
molecular cloud is
produced as two
galaxies merge.

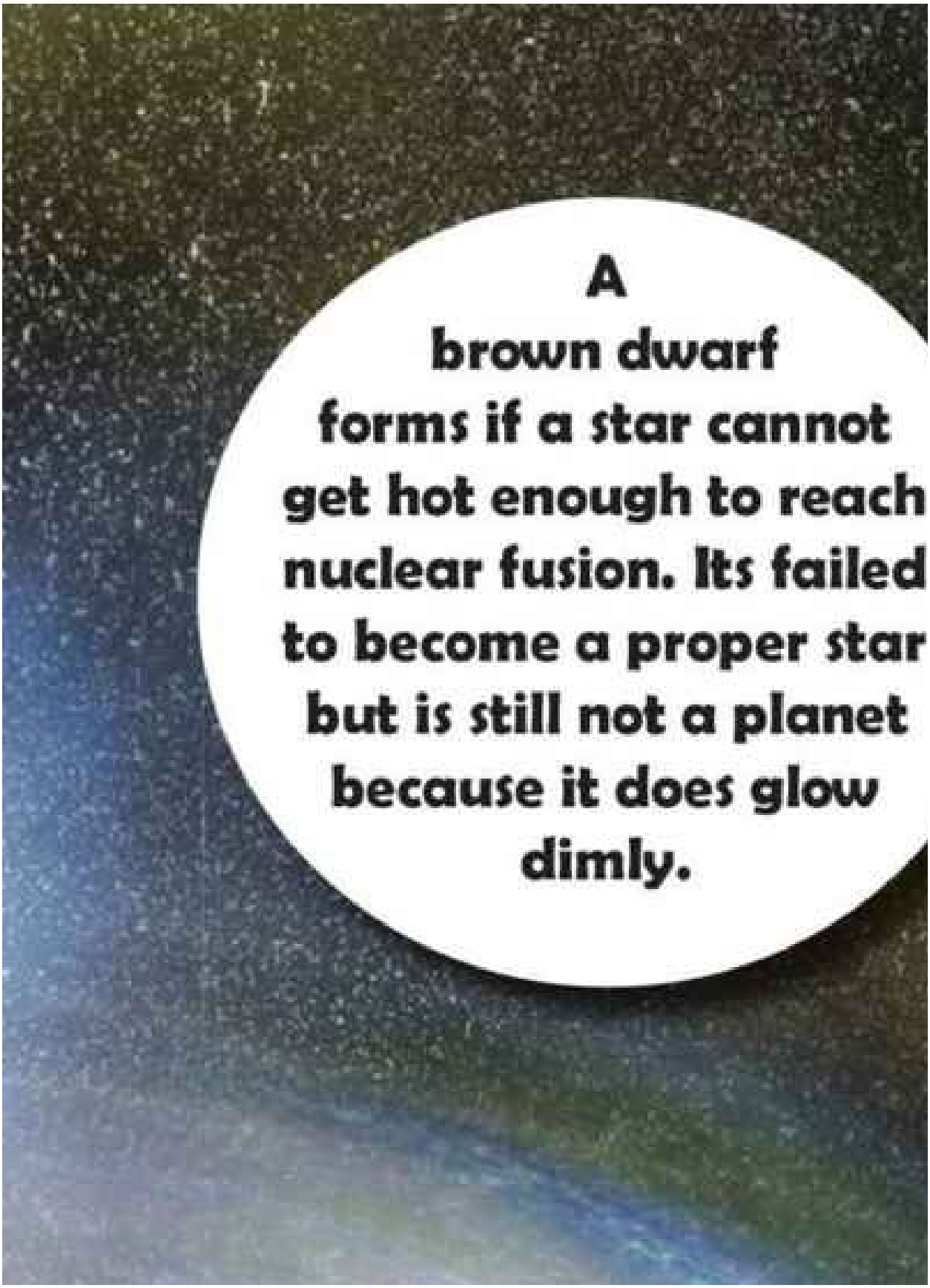



Stars
are usually
between 1 and 10
billion years old. Some
stars may even be close t
the age of the observed
Universe at nearly 13.8
billion years old.


Stars
radiate energ
created from nuc
fusion, which is a p
that takes place in
core and involves h
gen fusing (burnin
make helium



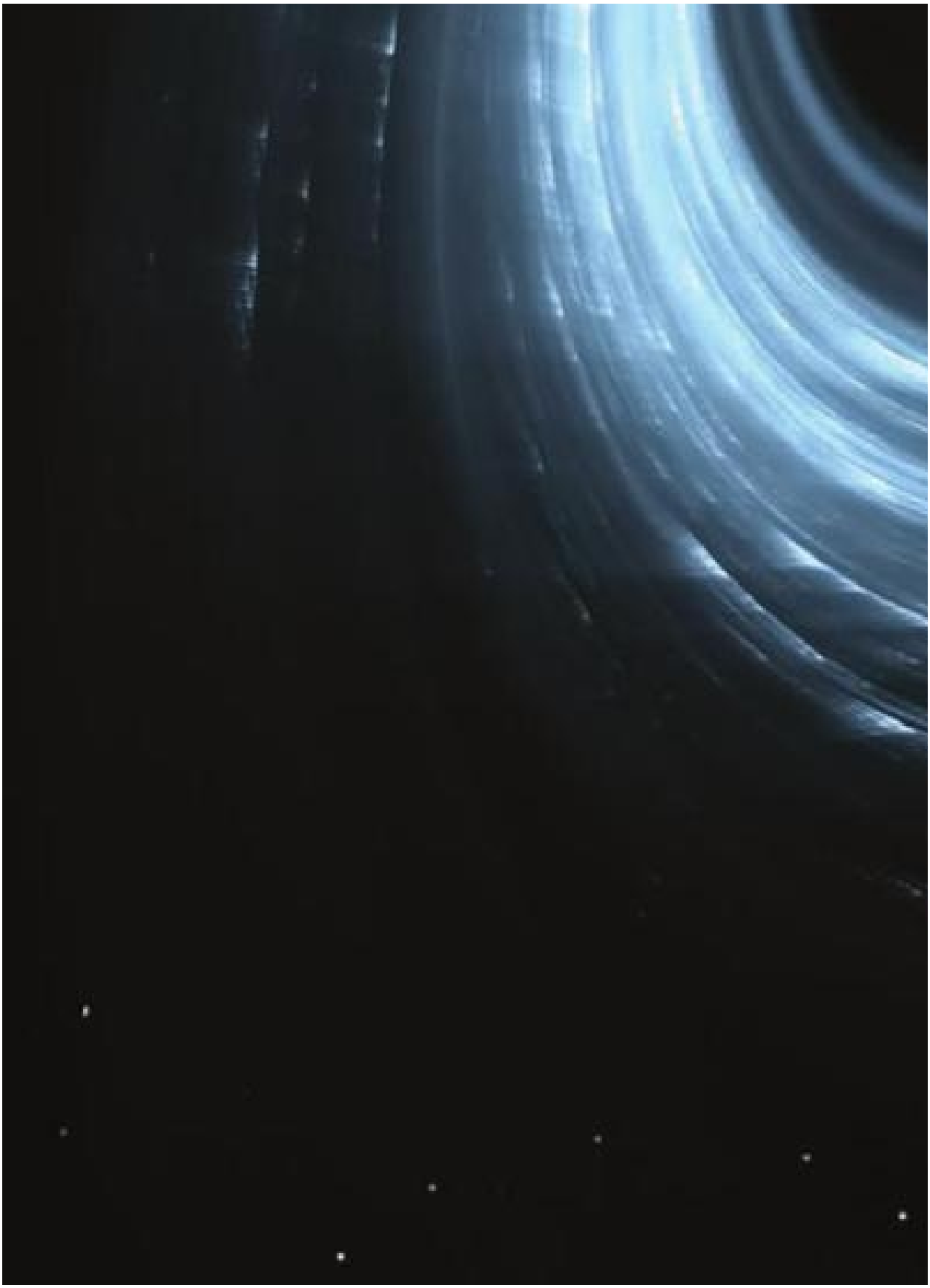


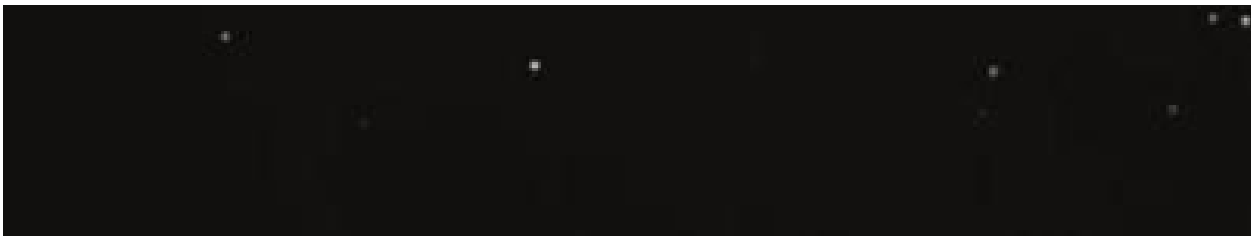

A
brown dwarf
forms if a star cannot
get hot enough to reach
nuclear fusion. Its failed
to become a proper star
but is still not a planet
because it does glow
dimly.

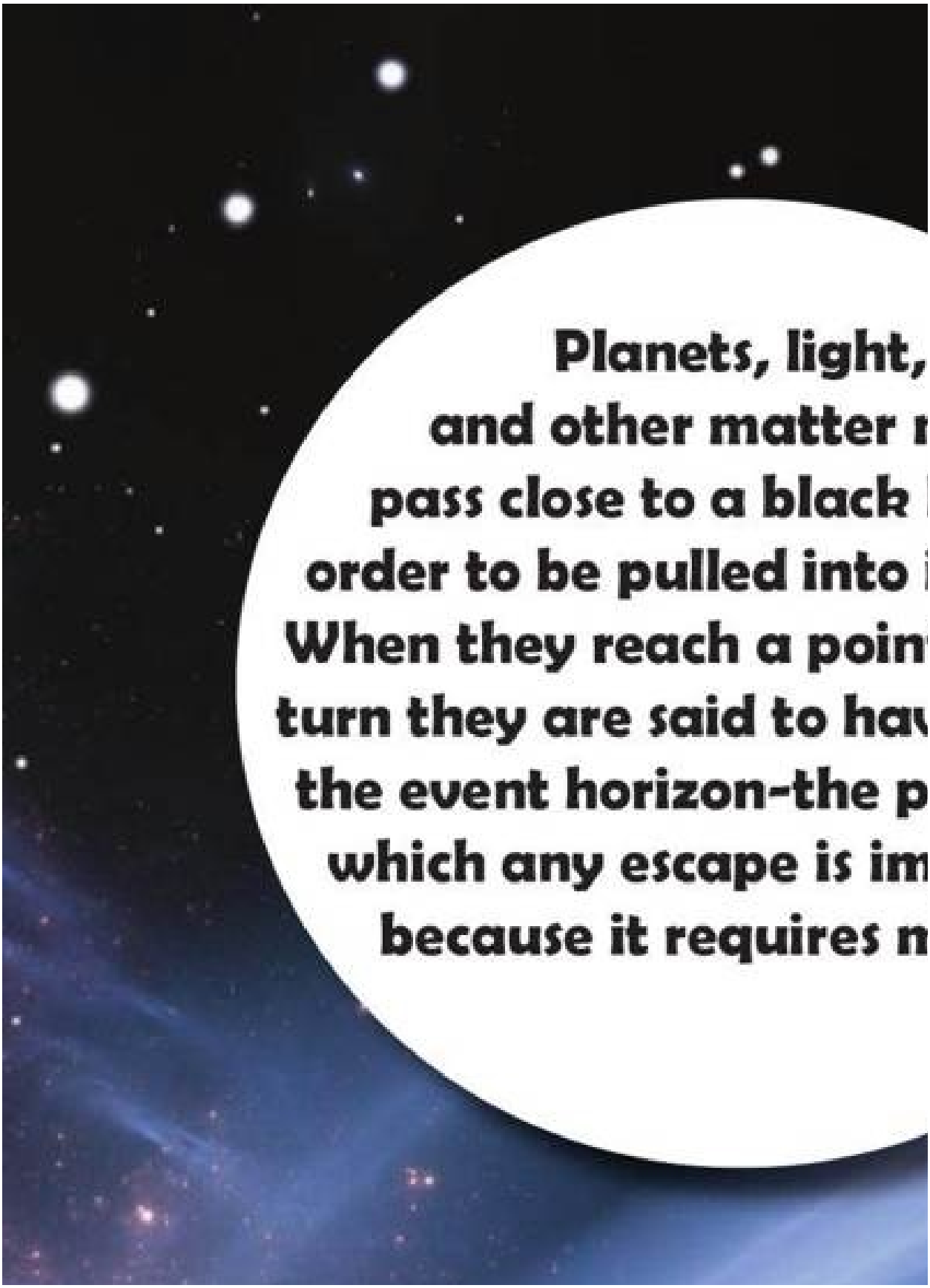

Big
stars like
supergiants and
hypergiants have shor
lives as they consume th
fuel at a faster rate th
smaller stars. As these ma
stars die they explode
massive bright
supernova.

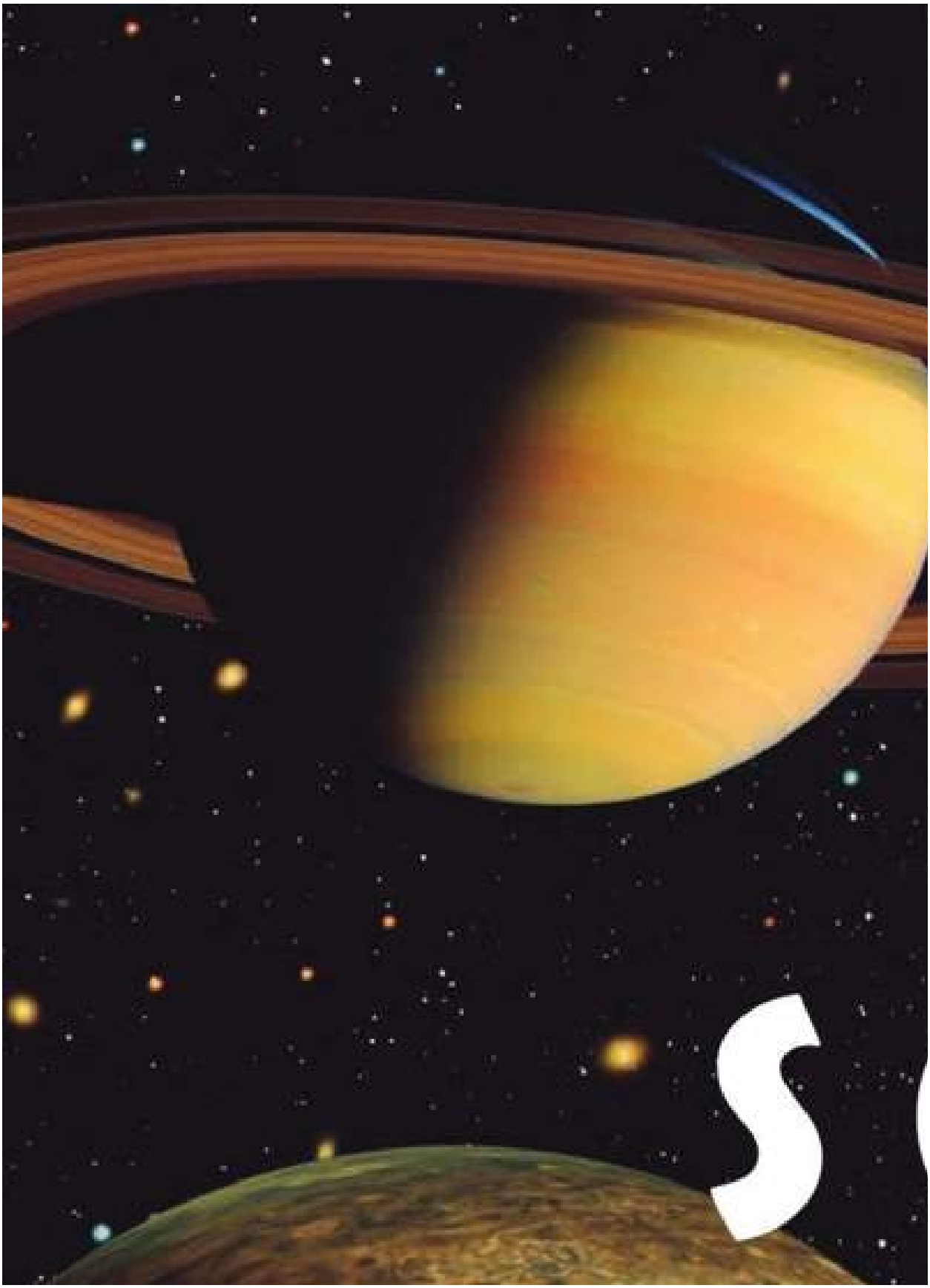

B

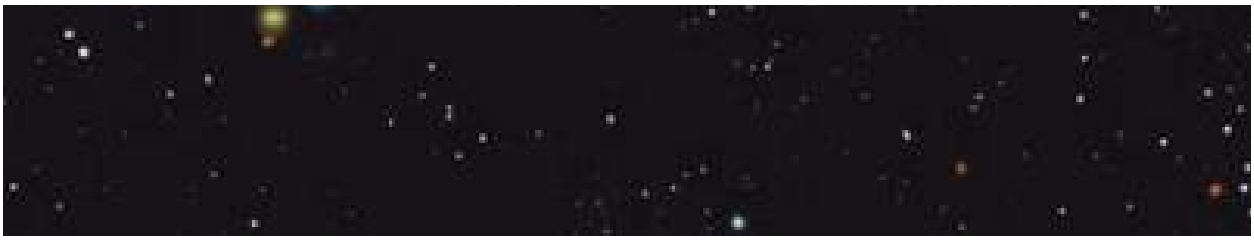

Very
heavy stars
that have gone
supernova can
actually turn into
black holes

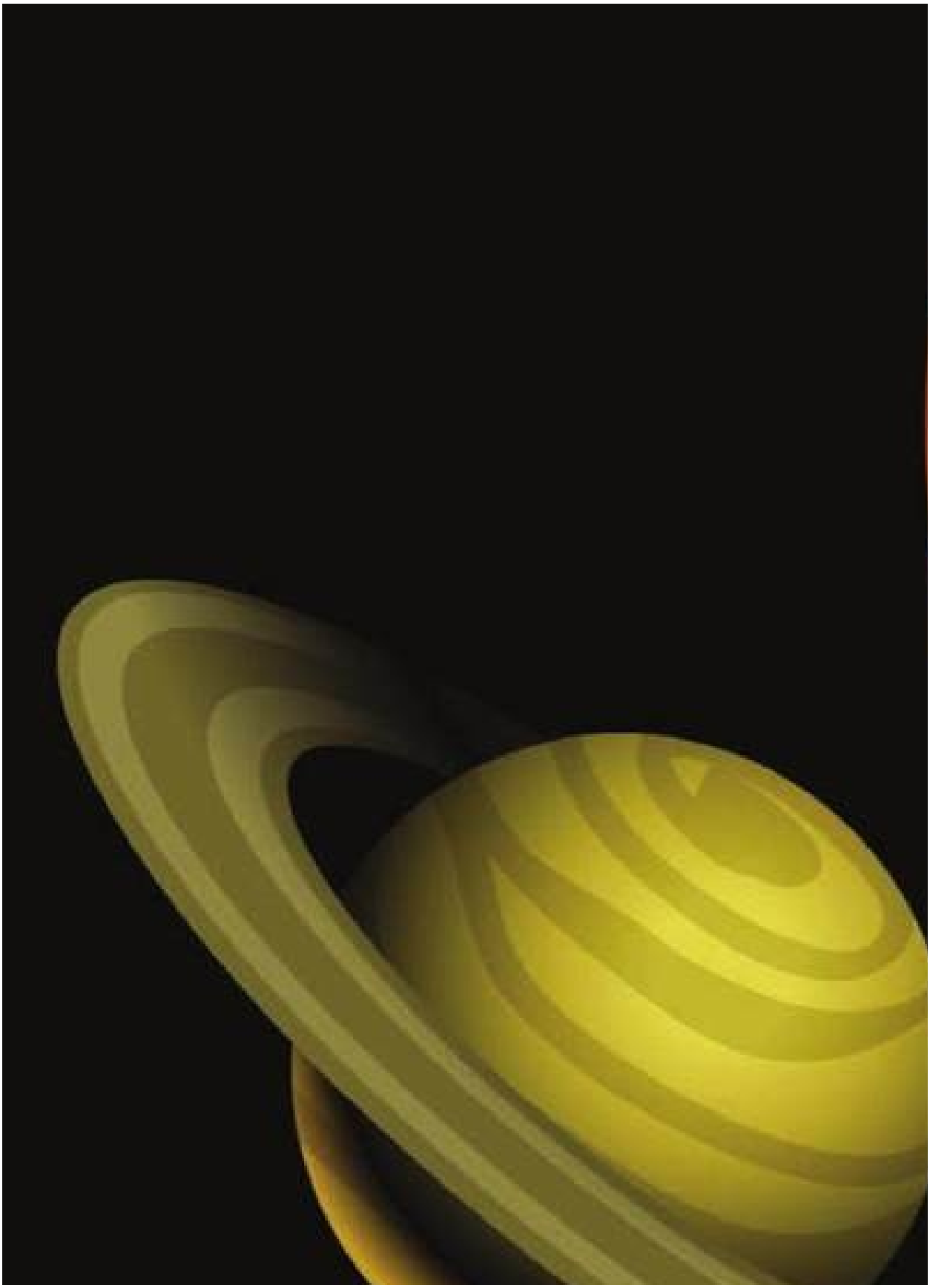




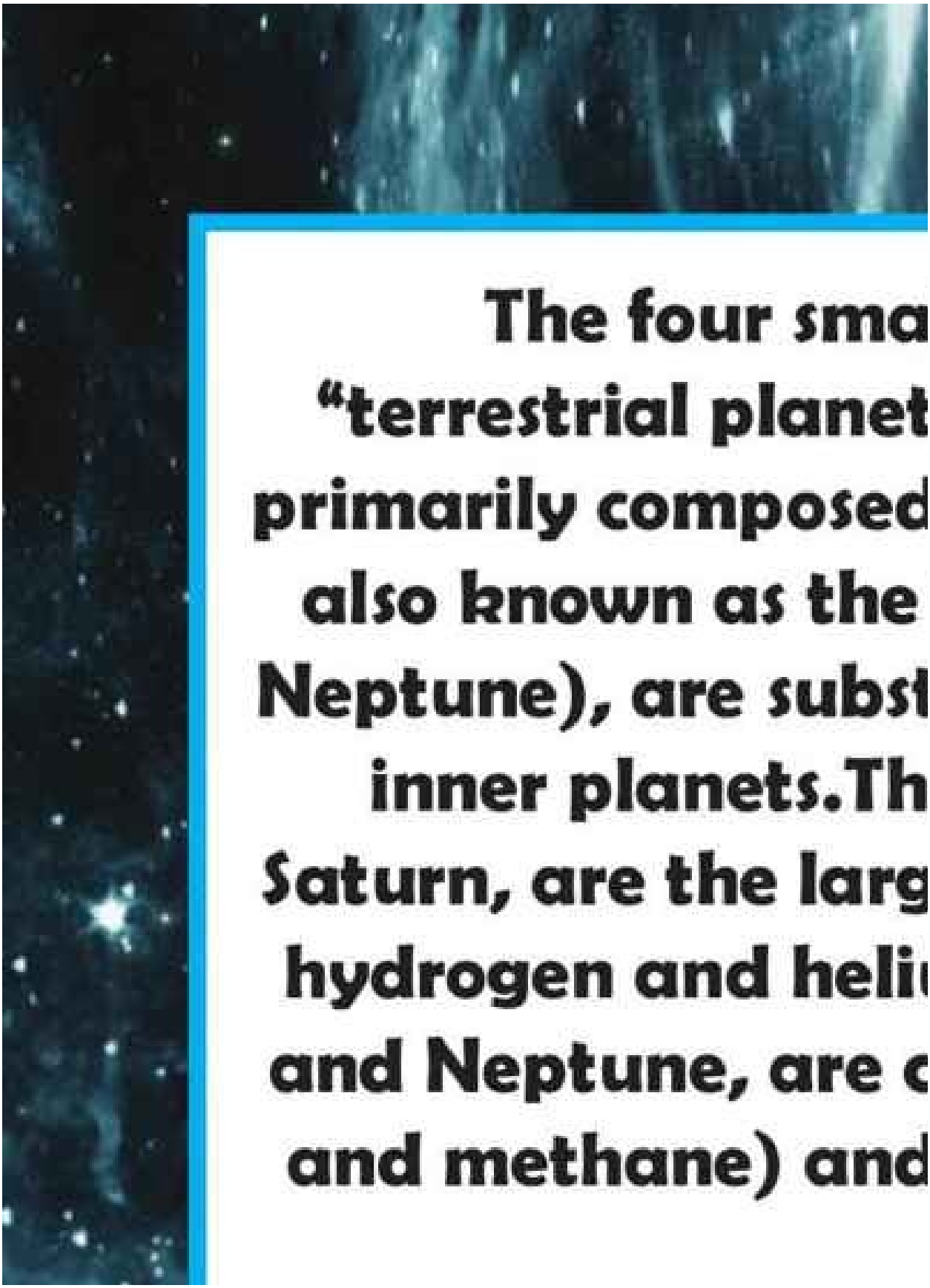

Planets, light,
and other matter
pass close to a black
order to be pulled into
When they reach a poin
turn they are said to ha
the event horizon-the p
which any escape is im
because it requires


S

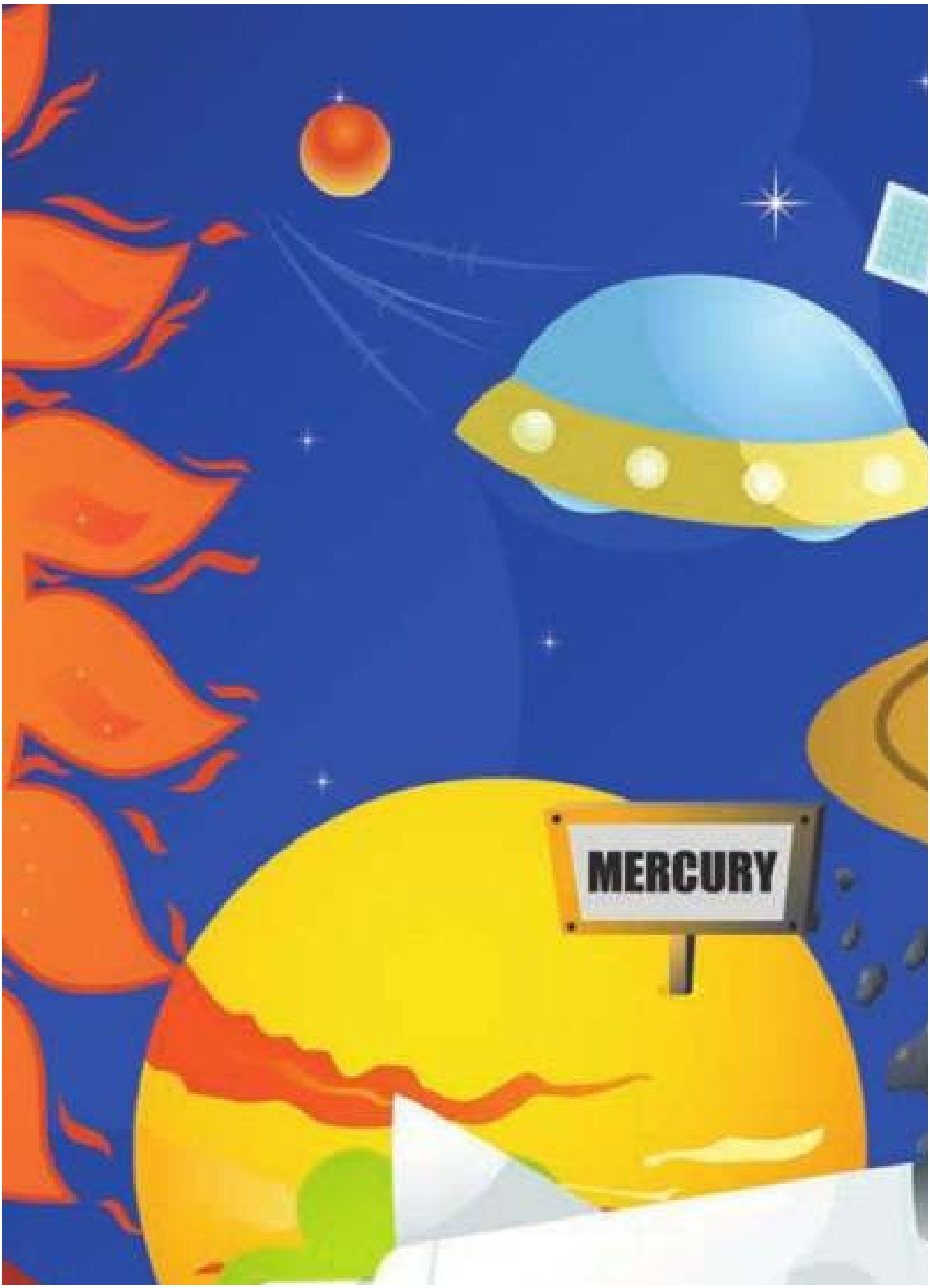




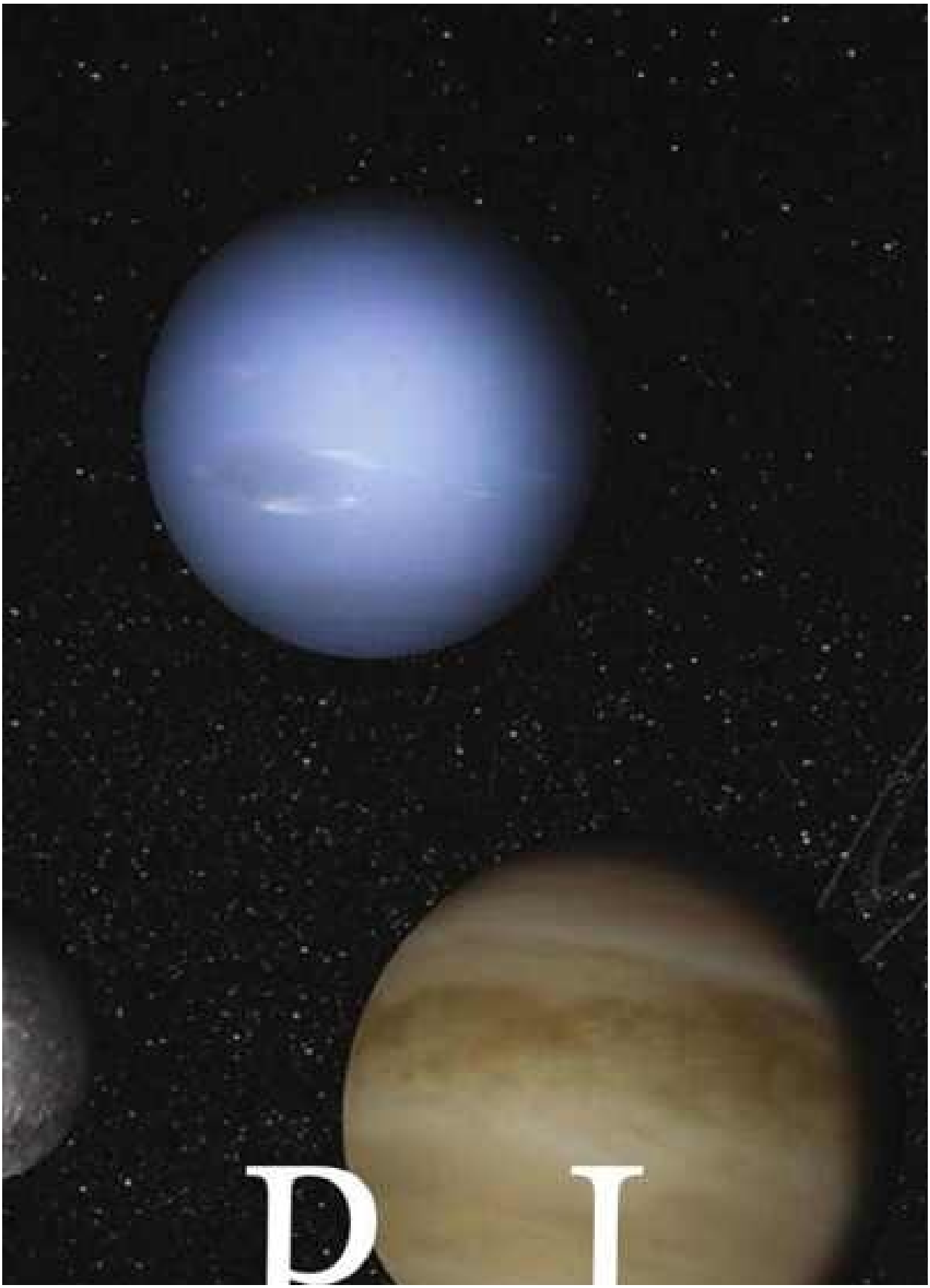
The Solar System w
ago and consist
other astronomic
was cause by the c
at the centre colle
around it which th

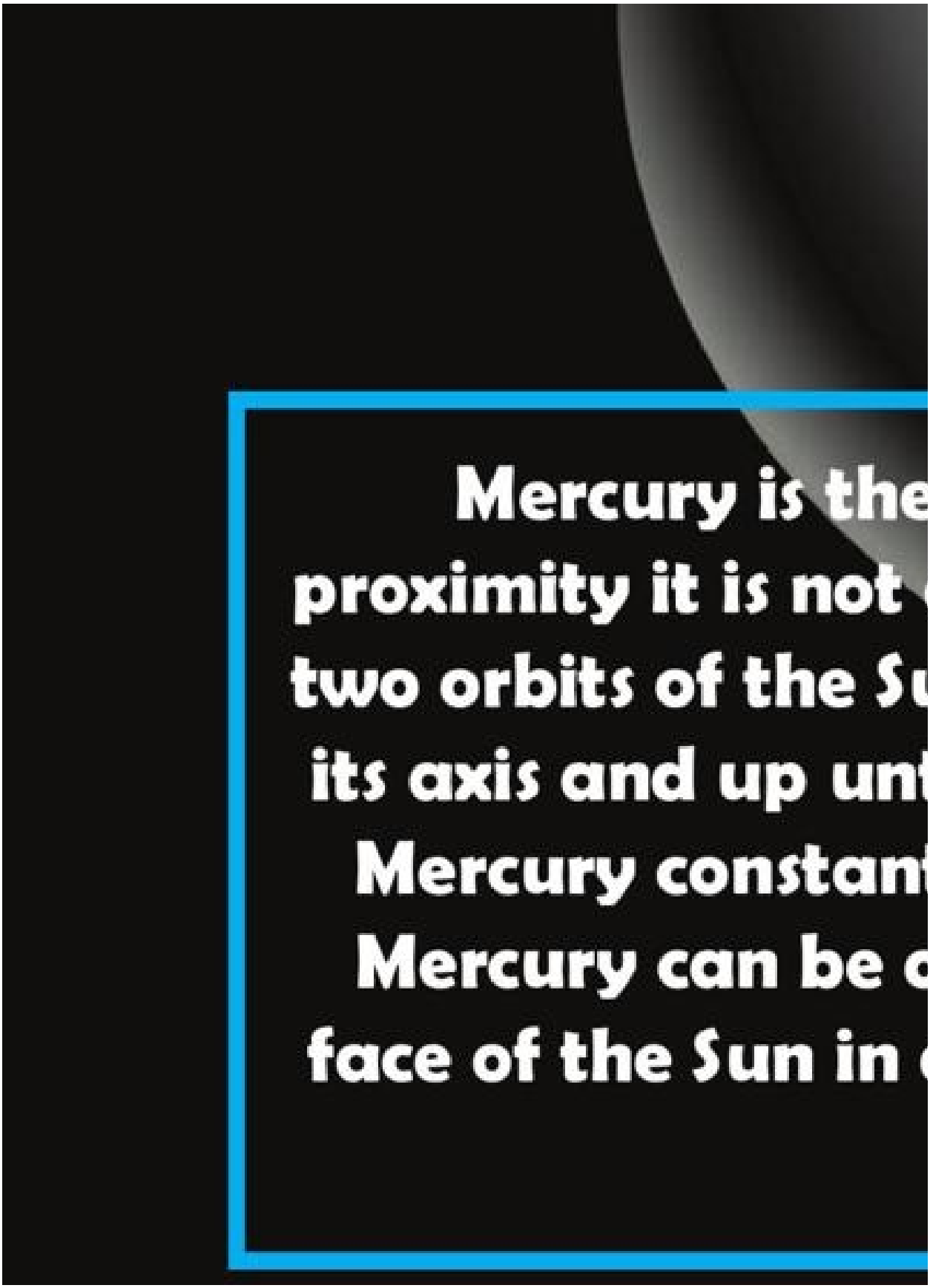


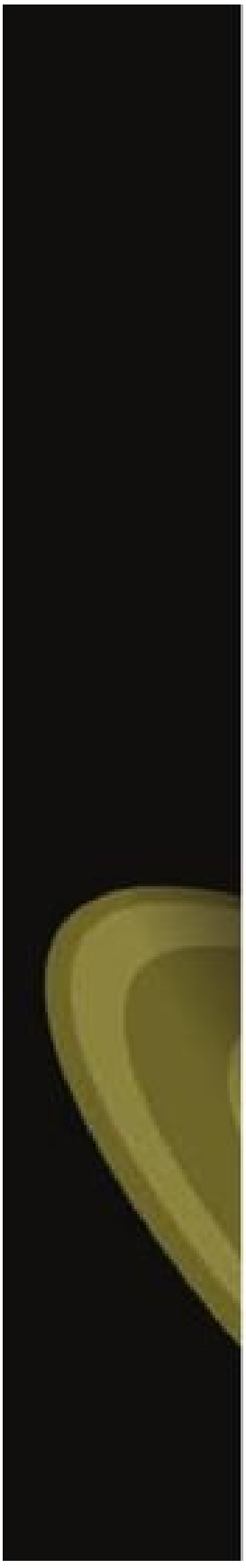
The four sma
"terrestrial planet
primarily composed
also known as the
Neptune), are subst
inner planets.Th
Saturn, are the larg
hydrogen and heli
and Neptune, are c
and methane) and


MERCURY


The Sun contains
mass, withJupiter
small inner planet
Mars make up a




Mercury is the
proximity it is not
two orbits of the Su
its axis and up unt
Mercury constant
Mercury can be o
face of the Sun in



Facts:

Mass:

330,104,000,000,0
billion kg (0.055
Earth)

Moon:

None

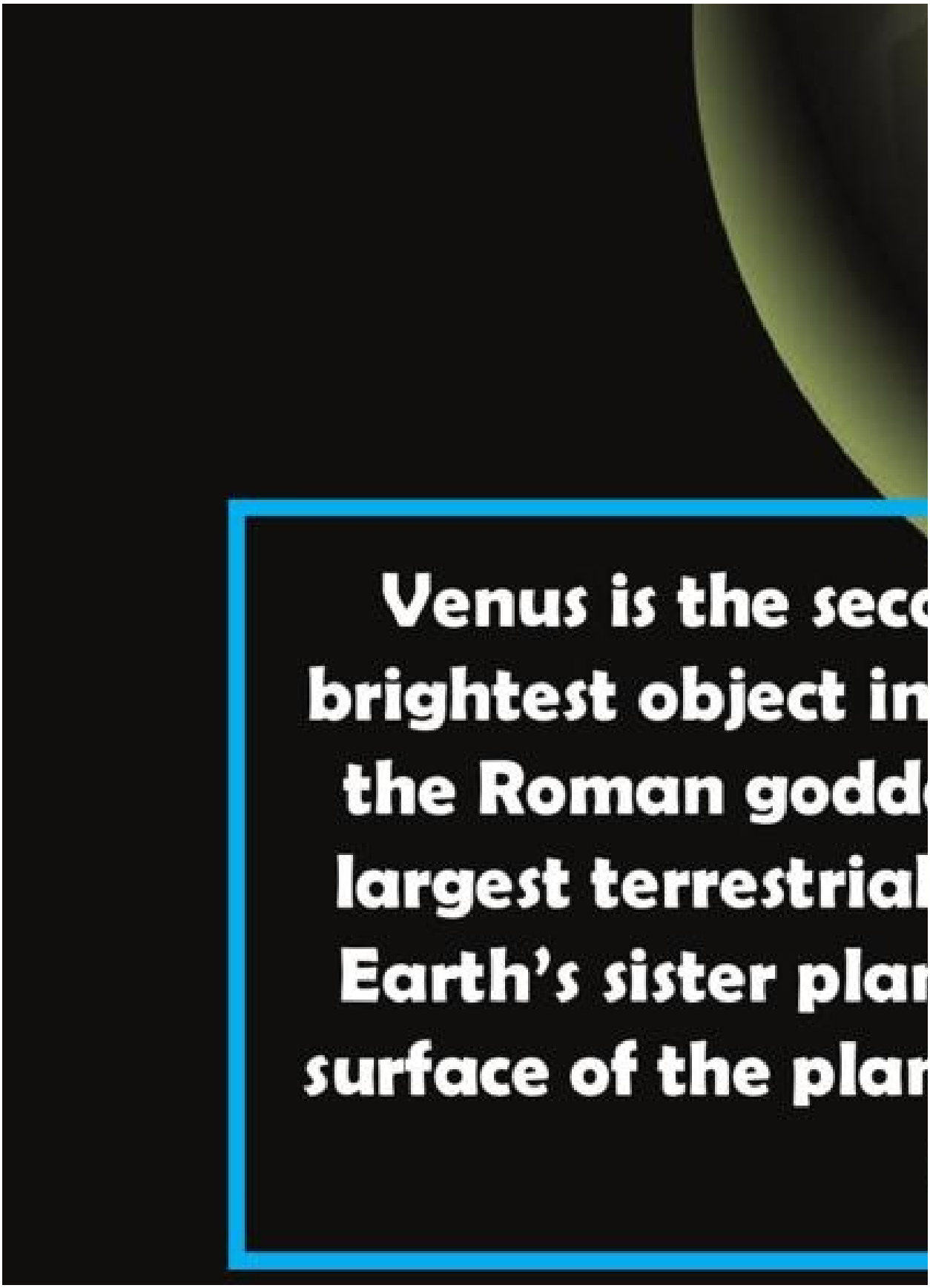
Surface Temperatu

-173 to 427°C

First Record:
14th century BC

Recorded By:
Assyrian astronom

A year in Mercury is
88 days long. Mer
is the smallest plan
the Solar System


Venus is the seco
brightest object in
the Roman godd
largest terrestrial
Earth's sister plan
surface of the plan

Facts:

Mass:

4,867,320,000,000,(

billion kg (0.815 x Ea

Moon:

None

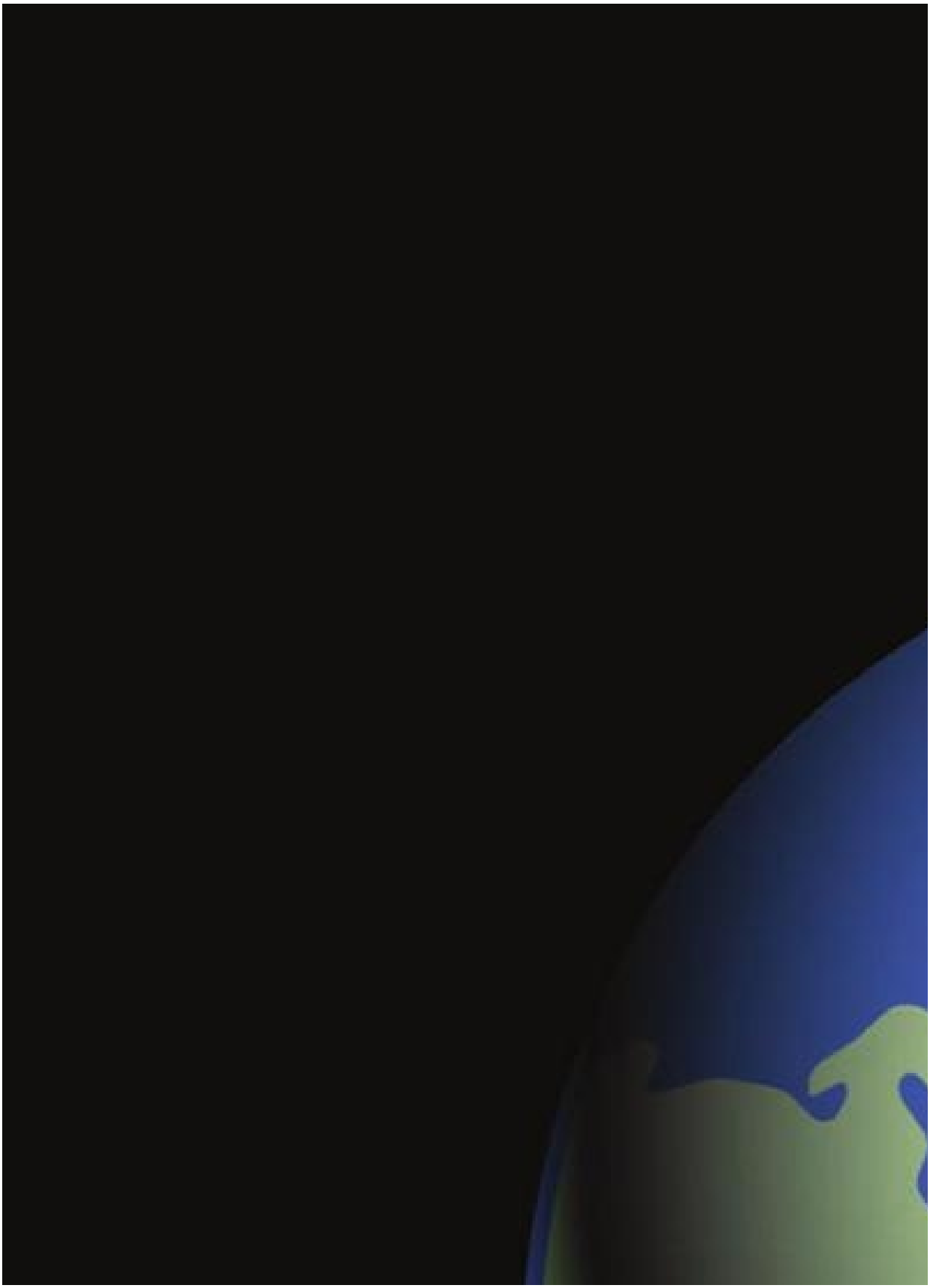
Surface Temperatu

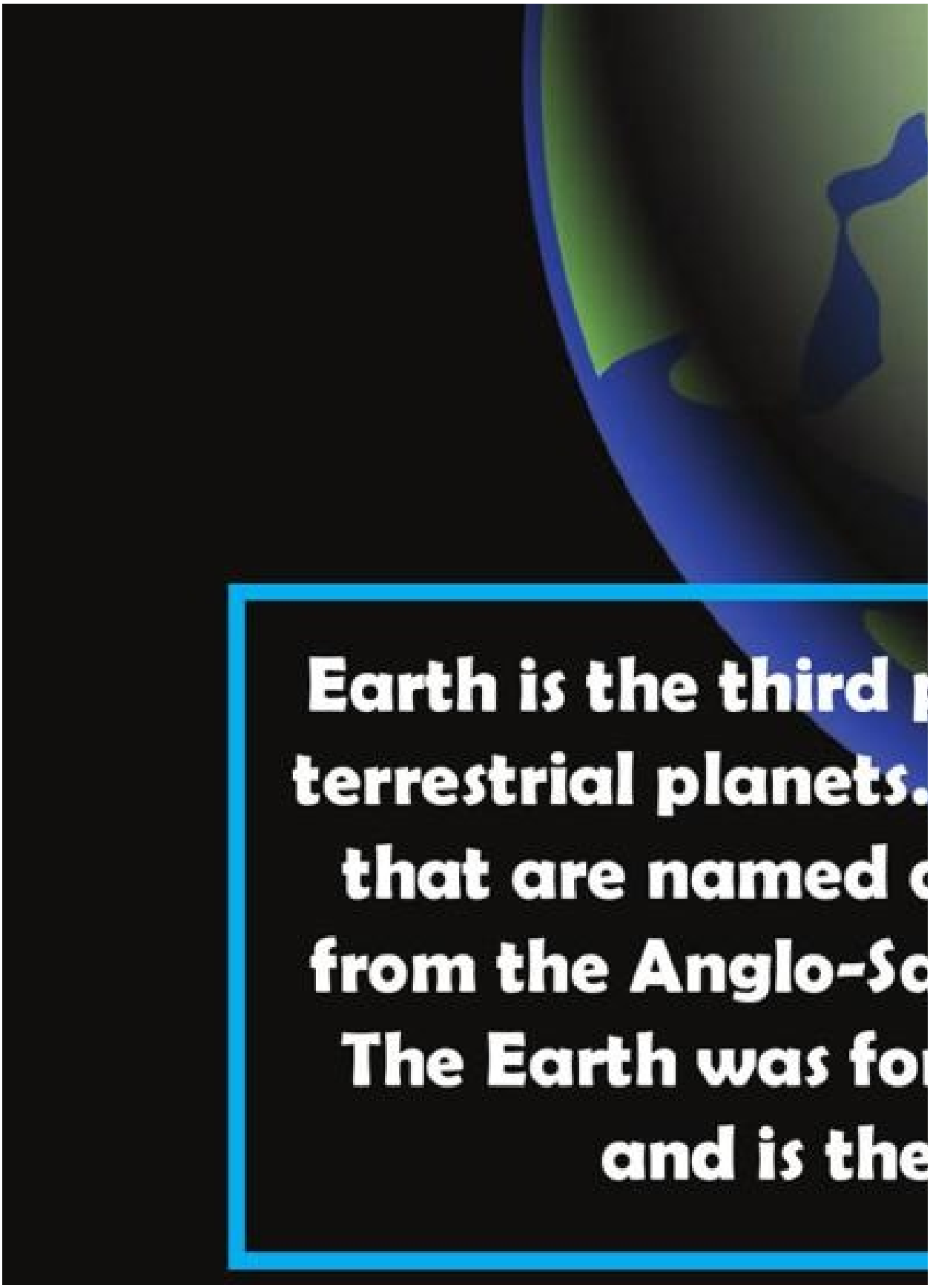
462 °C

First Record:
17th century BC

Recorded By:
Babylonian astronor

The Earth and Venus
very similar in size w
only a 638 km
difference in diamet
Venus having 81.5% o
Earth's mass.




Earth is the third
terrestrial planets.
that are named
from the Anglo-Sa
The Earth was fo
and is the

Facts:

Mass:
5,972,190,000,000,
billion kg

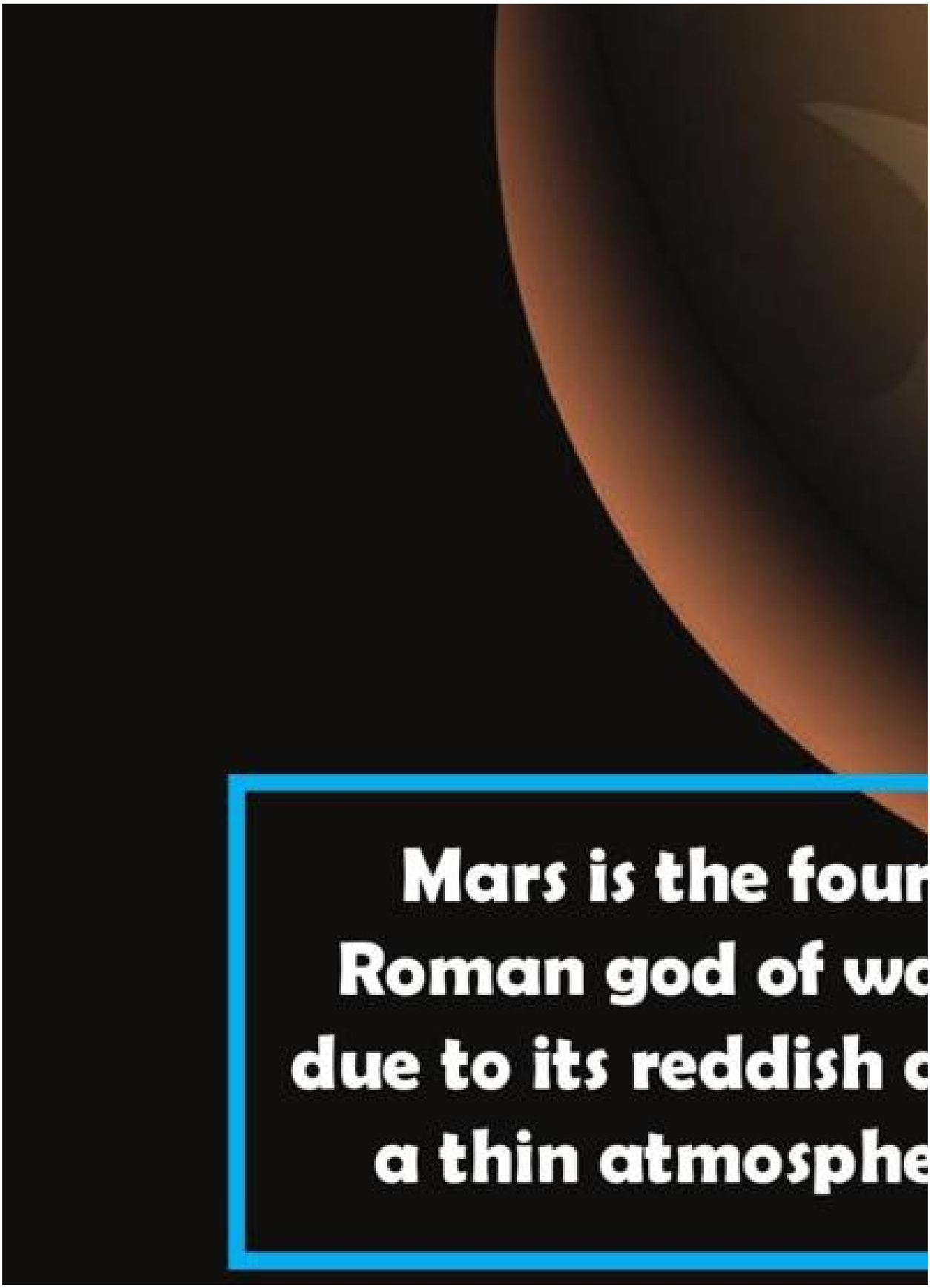
Moon:
1

Surface Temperatu
-88 to 58°C

First Recorded:
NA

Recorded By:
NA

Earth has a power
magnetic field. Th
phenomenon is ca
by the nickel-iron co
the planet, coupled
its rapid rotation


Mars is the four
Roman god of wa
due to its reddish c
a thin atmosphe

Facts:

Mass:

641,693,000,000,0
billion kg (0.107 x E

Moon:

2

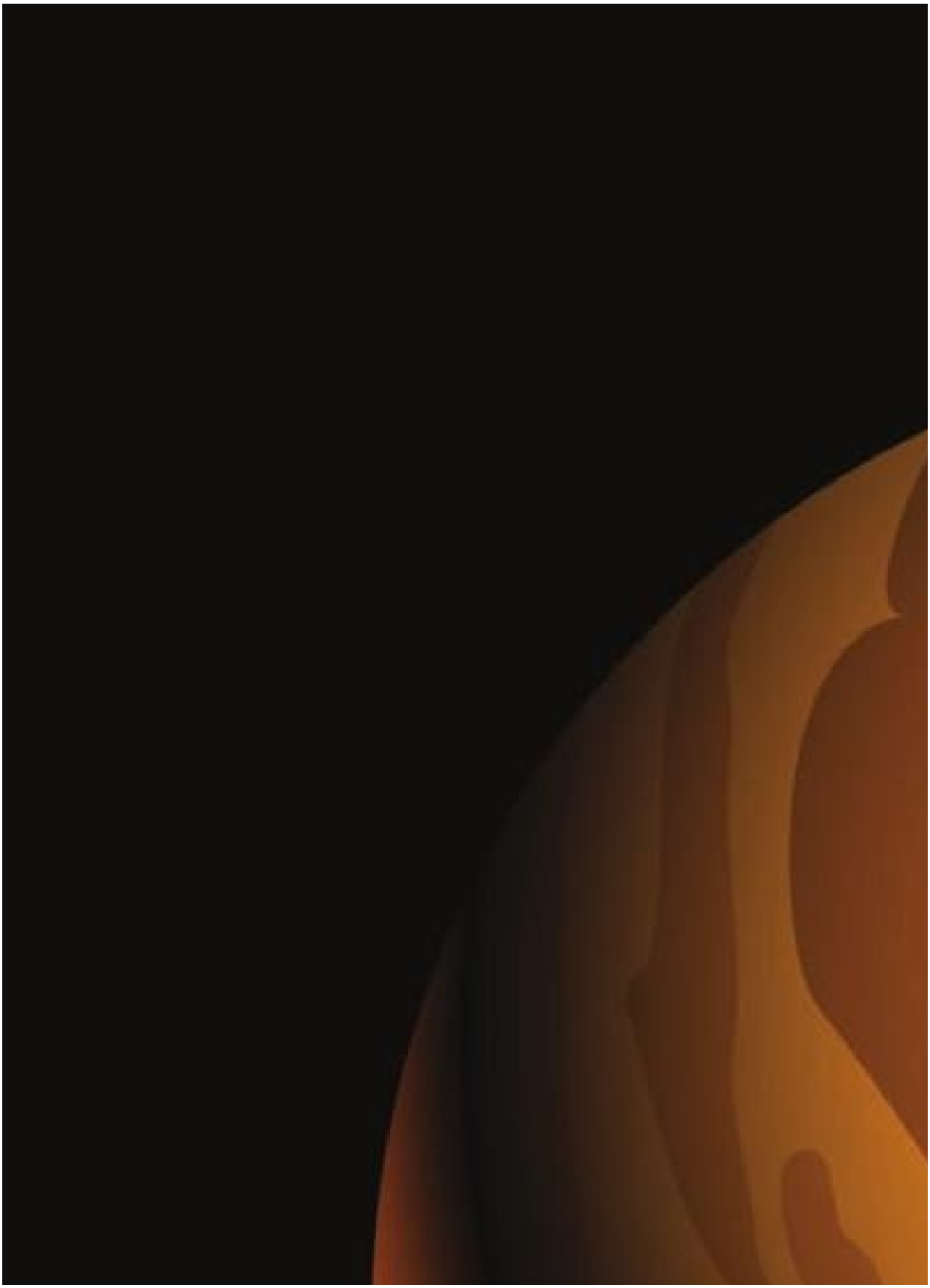
Surface Temperatu

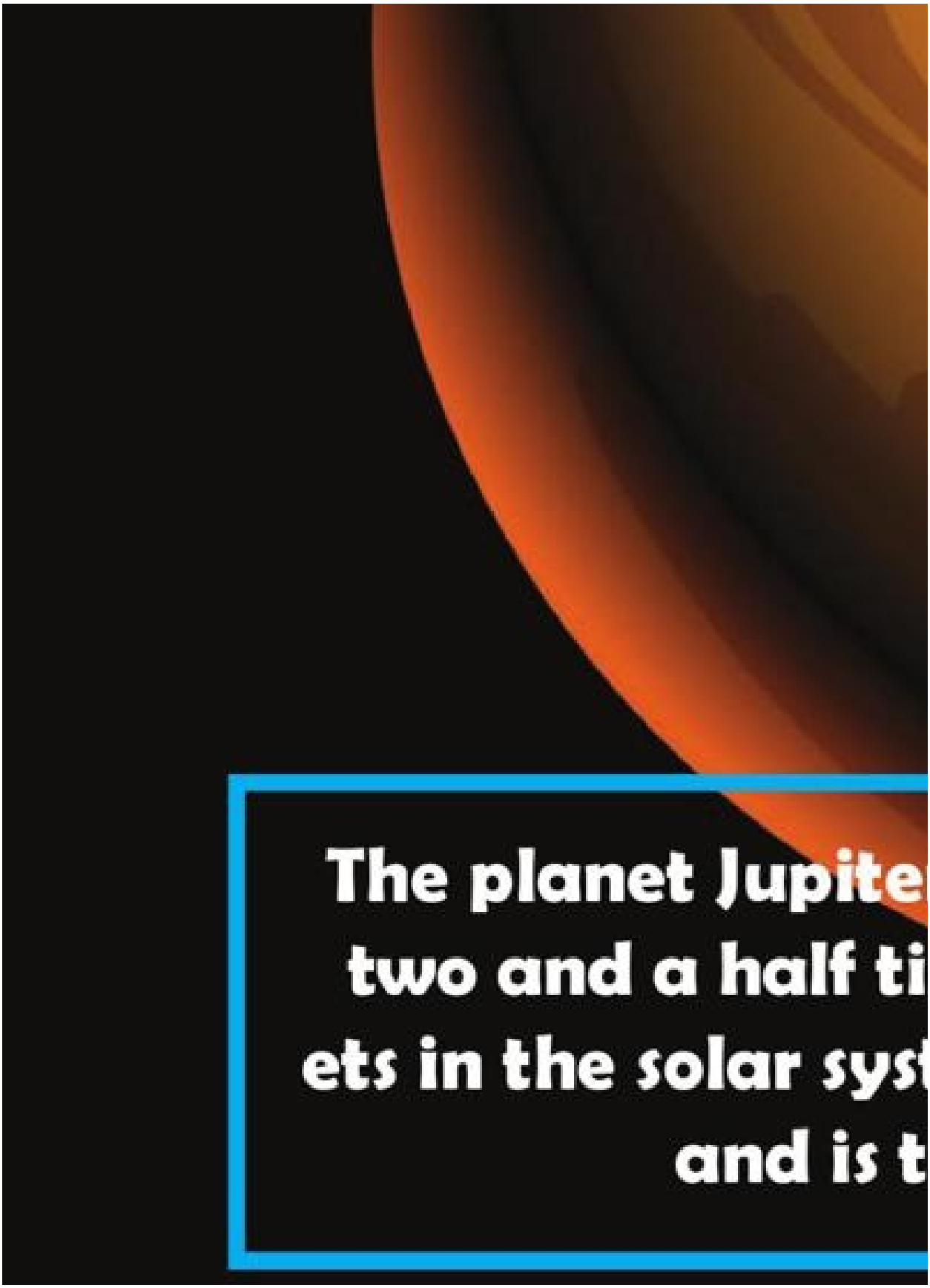
-87 to -5 °C

First Record:
2nd millenium B

Recorded By:
Egyptian astronom

Mars is home to tl
tallest mountain in
solar system. Olyr
Mons, a shield volca
21km high and 600k
diameter.




The planet Jupite
two and a half ti
ets in the solar syst
and is t

Facts:

Mass:

1,898,130,000,000,000
billion kg (317.83 x Ear

Moon:

67

Rings:

4

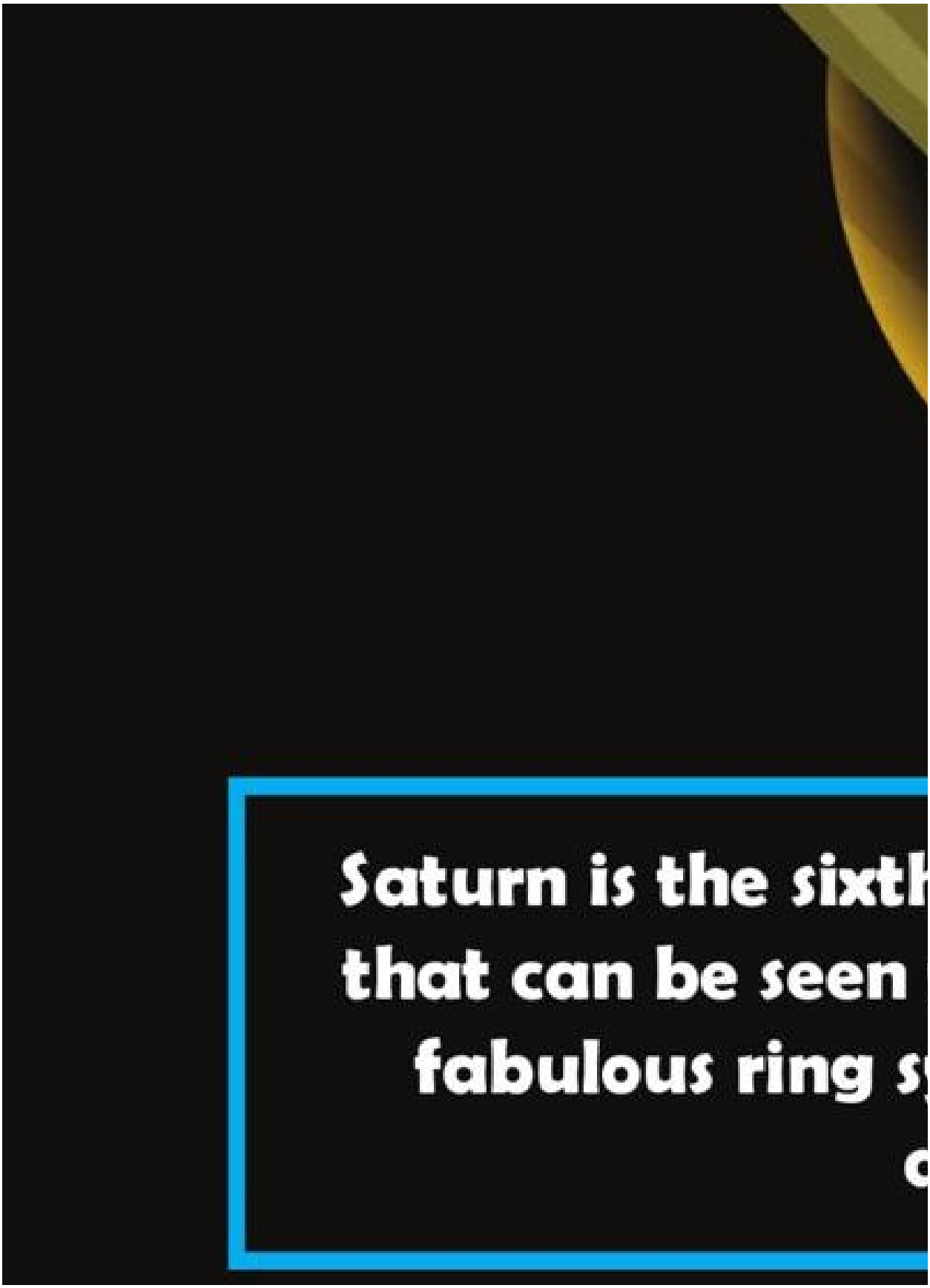
Surface Temperatur

-108°C

First Record:
7th or 8th century B

Recorded By:
Babylonian astronom

Jupiter is the fourth
brightest object in the s
system. Only the Sun, M
and Venus are brighter
one of five planets visib
the naked eye from Ea


Saturn is the sixth
that can be seen
fabulous ring s
a

Facts:

Mass:

568,319,000,000,000,
billion kg (95.16 x Ea

Moon:

62

Rings:

30+ (7 Groups)

Surface Temperatu

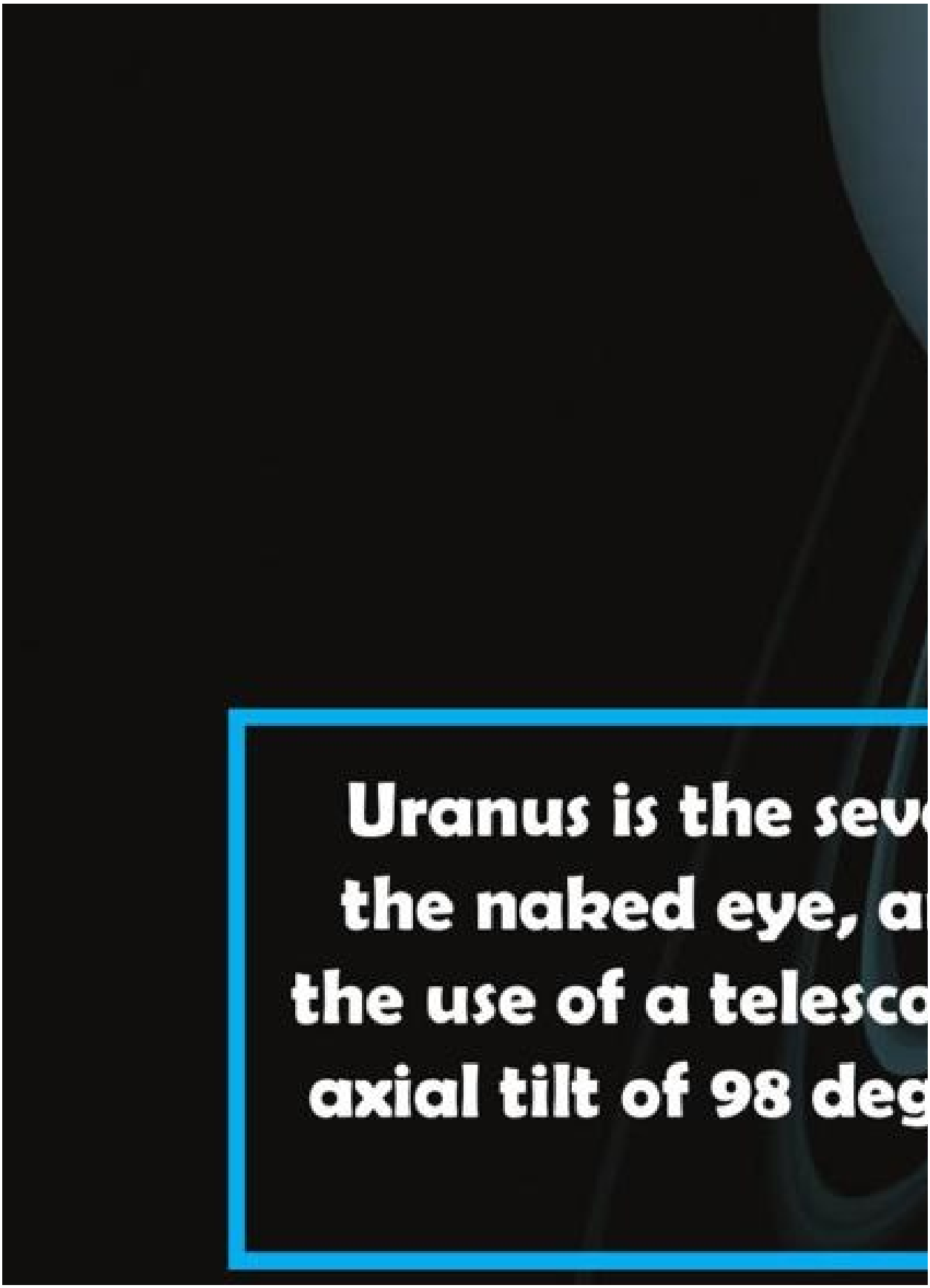
Surface Temperatur

-139 °C

First Record:
8th century BC

Recorded By:
Assyrians

Saturn can be seen wit
naked eye. It is the
brightest object in t
solar system and is
easily studied through
small telescope.


Uranus is the sev
the naked eye, a
the use of a telesc
axial tilt of 98 deg

Facts:

Mass:

86,810,300,000,000
billion kg (14.536 x Ea

Moon:

27

Rings:

13

Surface Temperatu

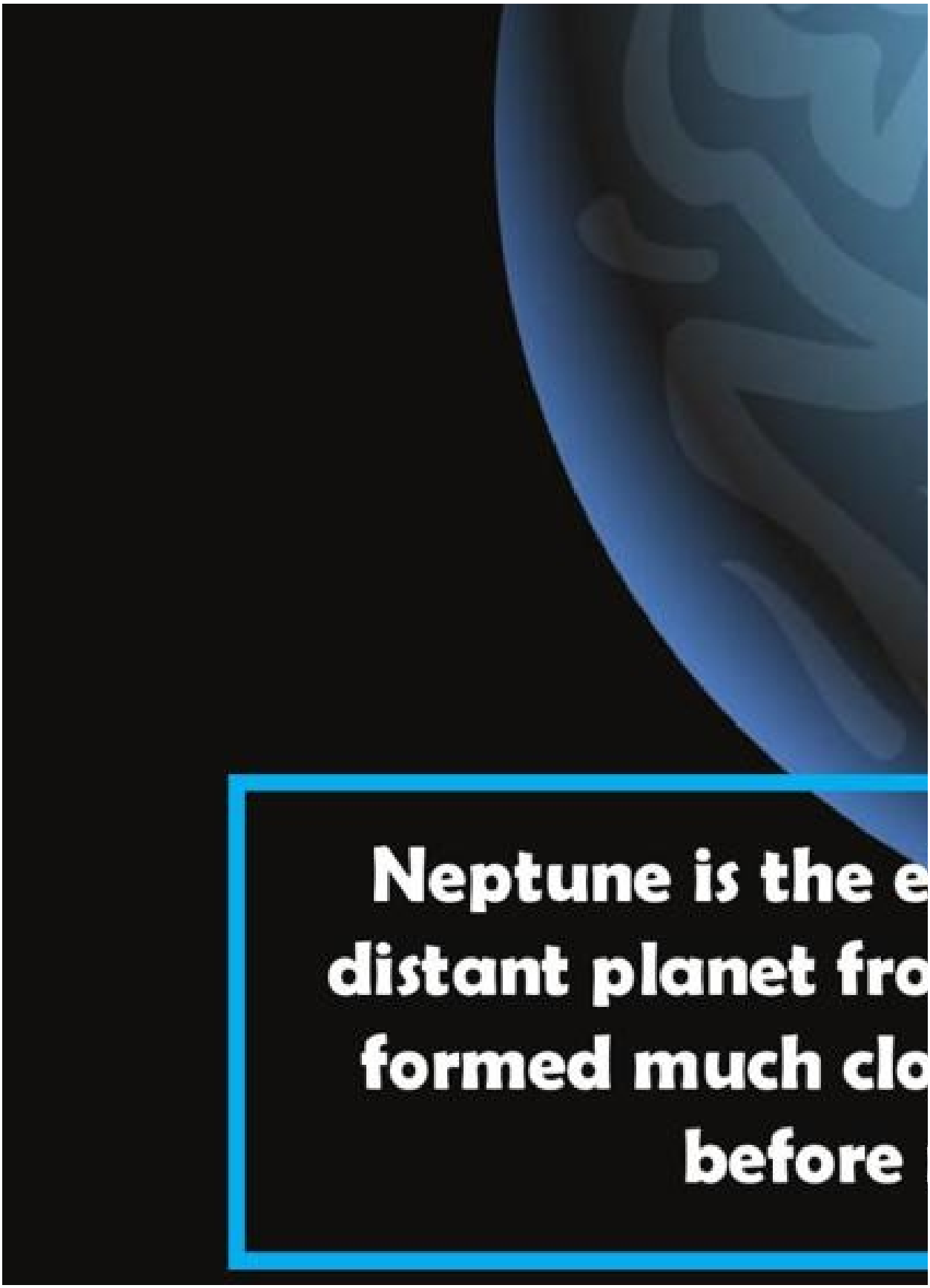
Surface Temperatur
-197 °C

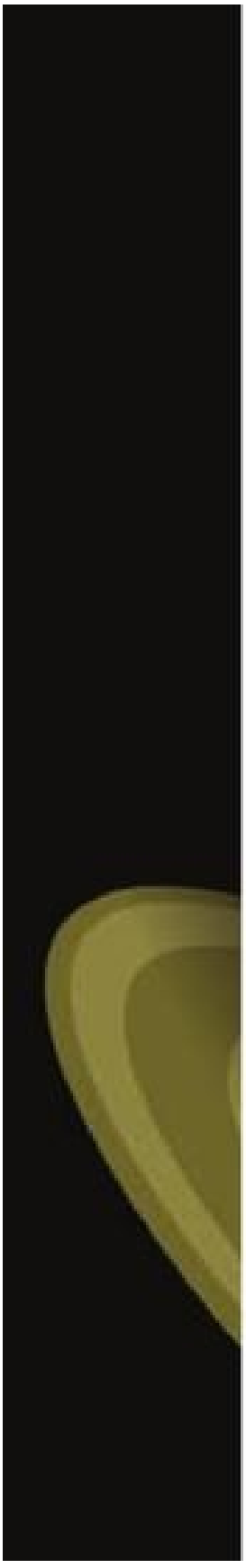
Discover Date:
March 13th 1781

Discovered By:
William Herschel

Uranus makes one
around the Sun ever
Earth years.

Uranus is often referr
as an "ice giant" plar


Neptune is the e
distant planet fro
formed much clo
before



Facts:

Mass:
102,410,000,000,000,
billion kg (17.15x Eart

Moon:
14

Rings:
5

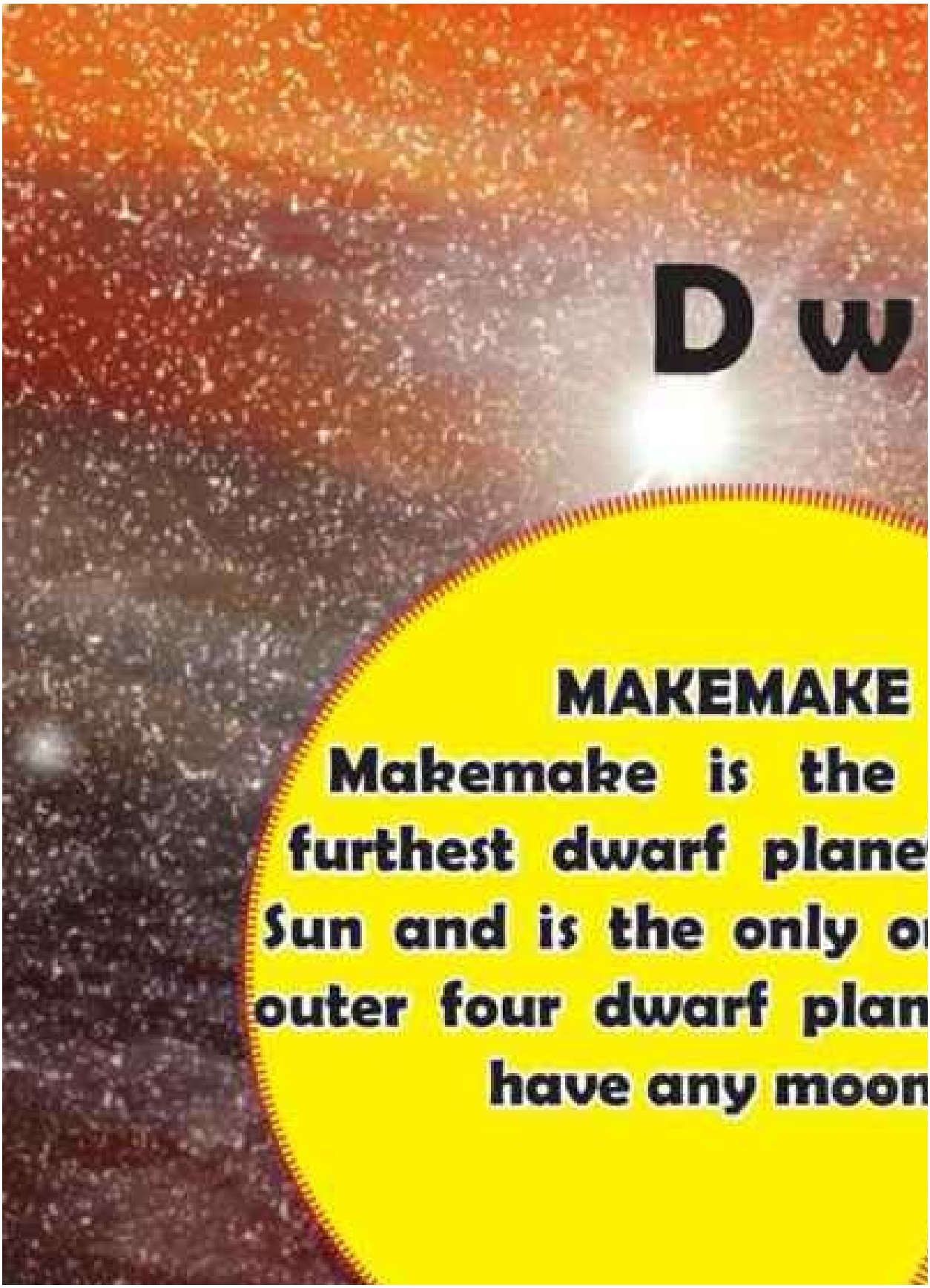
Surface Temperatur

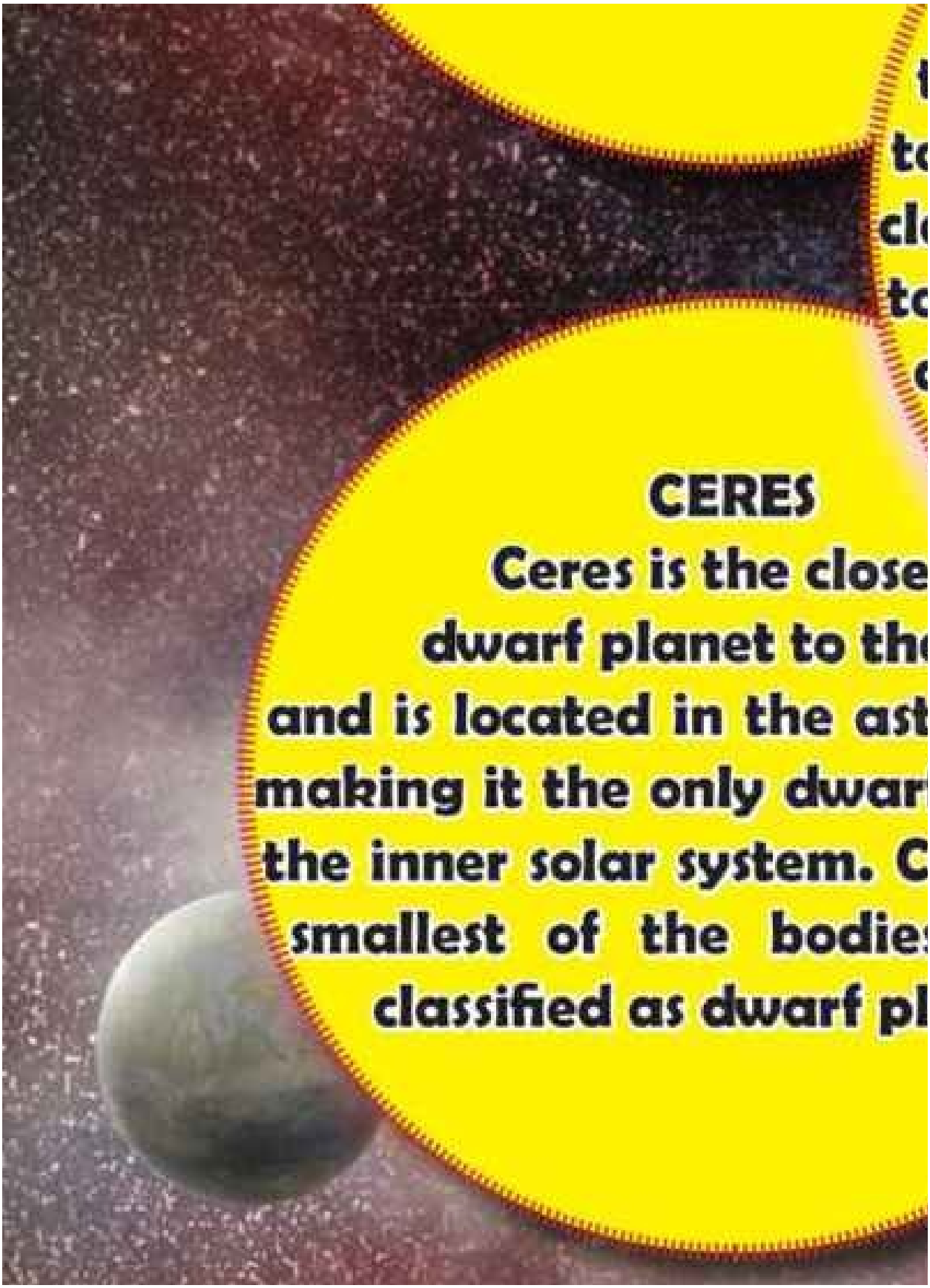
-201 °C

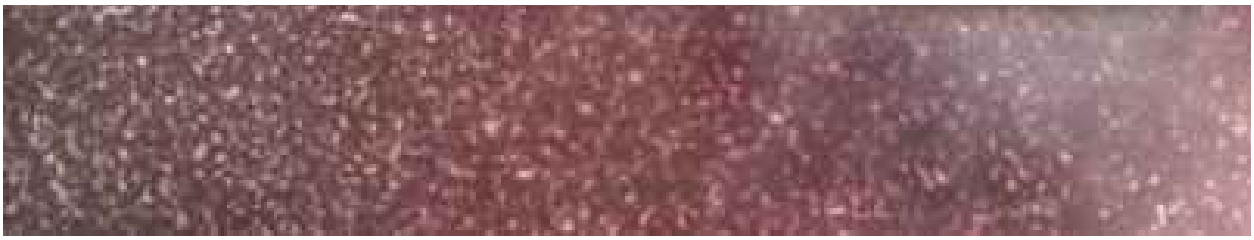
Discover Date:
September 23rd 184

Discovered By:
Urbain Le Verrier & Joh
Galle

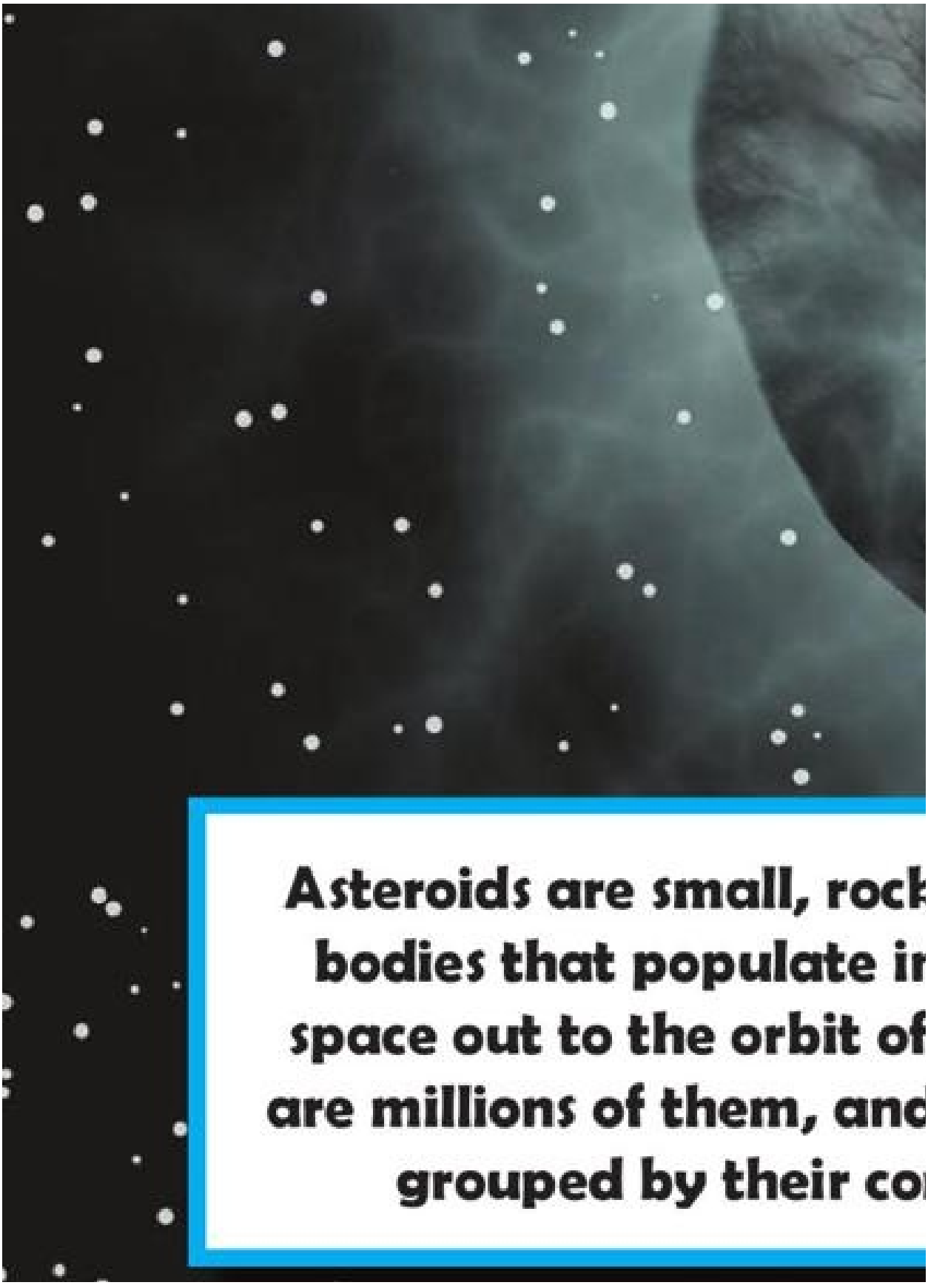
Neptune is not visible t
naked eye and was fi
observed in 1846. Its pos
was determined usin
mathematical predictio
was named after the Ro
god of the sea.

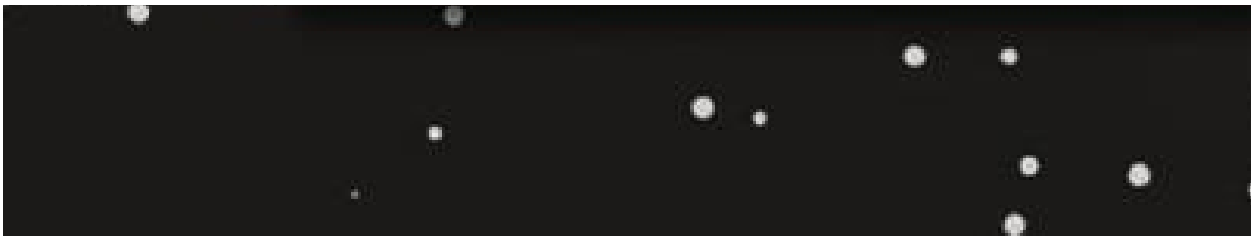

D w
MAKEMAKE
Makemake is the
furthest dwarf plane
Sun and is the only o
outer four dwarf plan
have any moon

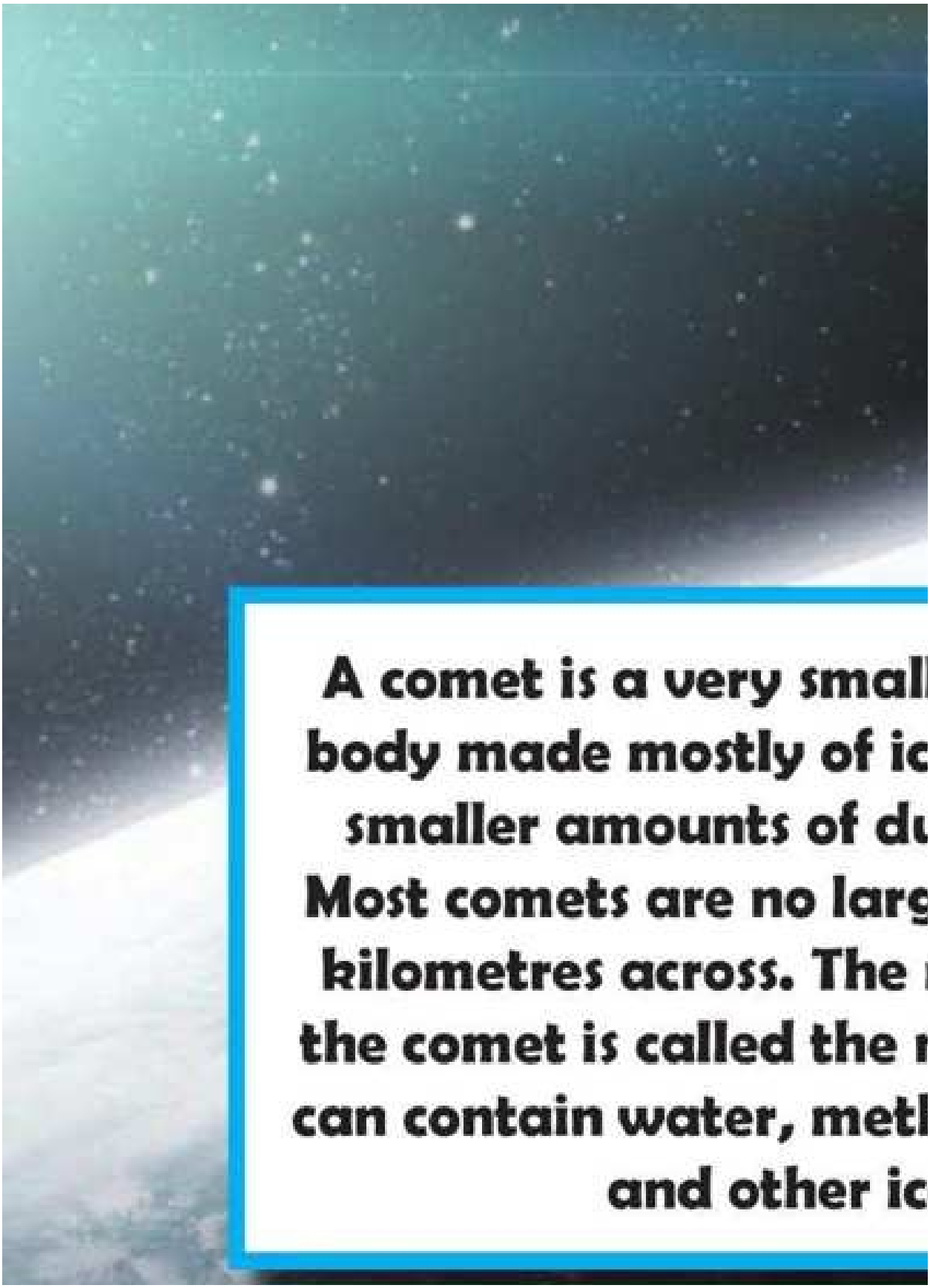

CERES
Ceres is the close
dwarf planet to th
and is located in the ast
making it the only dwar
the inner solar system. C
smallest of the bodie
classified as dwarf pl

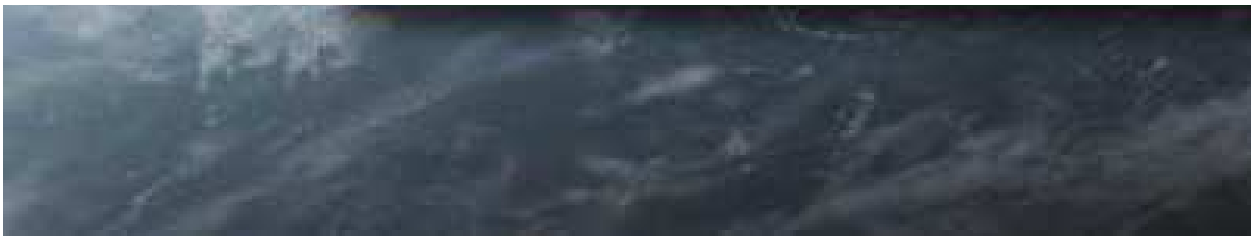



AS

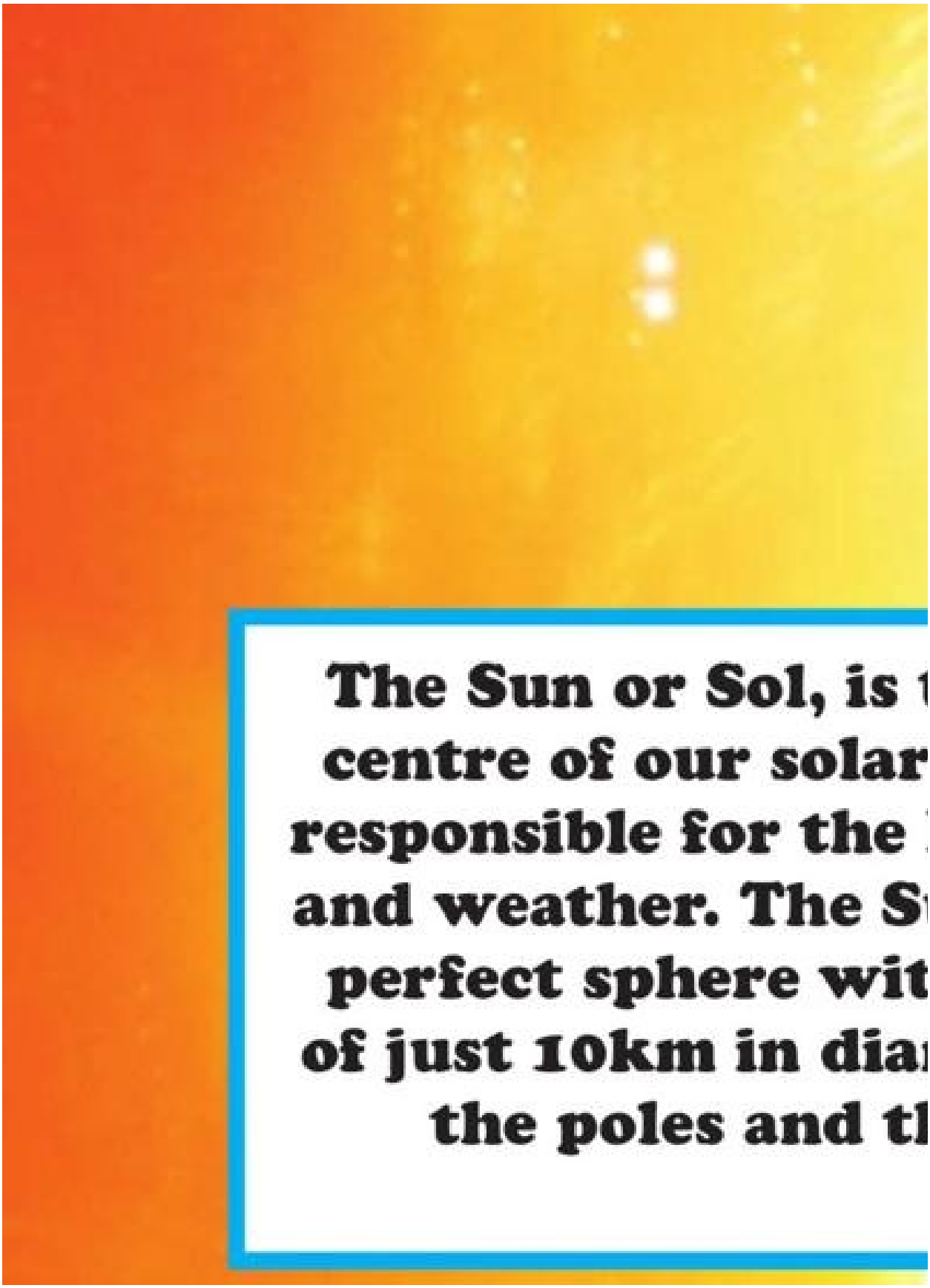

Asteroids are small, rock
bodies that populate in
space out to the orbit of
are millions of them, and
grouped by their co




A comet is a very smal
body made mostly of ic
smaller amounts of d
Most comets are no larg
kilometres across. The
the comet is called the
can contain water, met
and other ic




The Moon (or Luna) is
natural satellite and
billion years ago arou
million years after the fo
system. The Moon is in sy
with Earth meaning the
facing the


The Sun or Sol, is
centre of our solar
responsible for the
and weather. The S
perfect sphere wit
of just 10km in dia
the poles and t