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# **It's Not in the Stars!**

**by**

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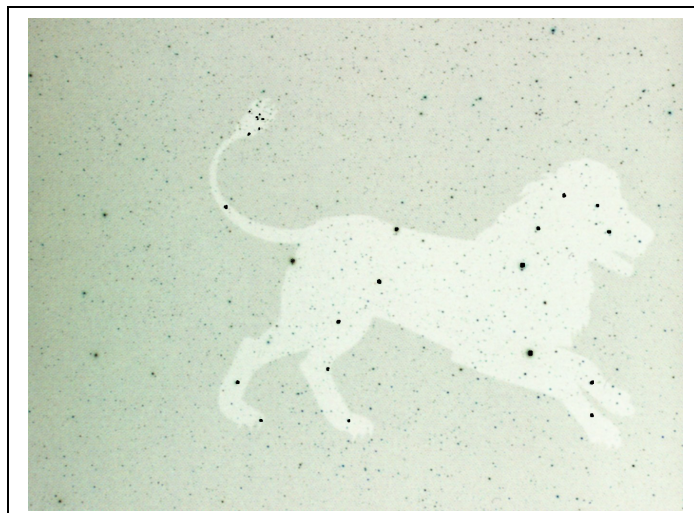
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## **It's Not in the Stars!**

I didn't read my horoscope today. When it comes to astrology I am an unbeliever. I like to think however that my unbelief is not an arbitrary decision, made without anything to back it up. In fact, my lifelong love of **astronomy** is the key to my scepticism. Without any attempt to insult those who scan and absorb the horoscope pages, I'd like to put the case for reason and logic against mysticism and gullible acceptance.

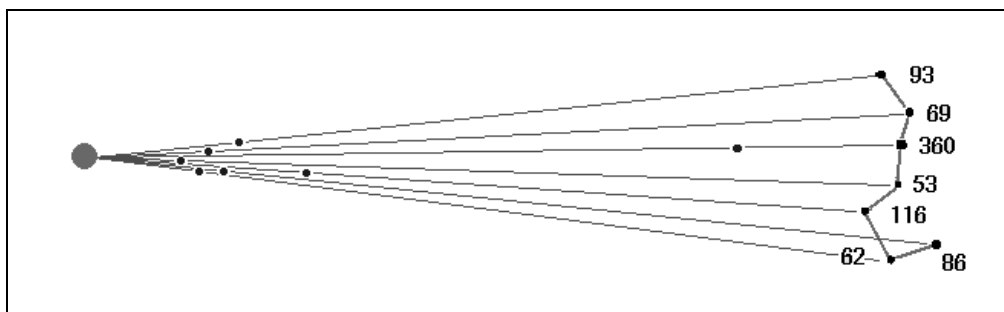
Let's start with those birth signs - Aries, Taurus, Gemini, Scorpio, Leo, Cancer and the rest. What are they? Odd as it may seem, astronomers are just as familiar with those names as astrologers, and use them all the time. The twelve "star signs" are in fact some of the many constellations, that is, groupings of stars in the sky with known shapes and clearly defined boundaries. The ancient Egyptian, Greek and North African Arab astronomers are largely responsible for the names - it is a very human characteristic to look for patterns and structure, and the layout of the stars in the dark skies of ancient times seemed to form shapes. Straight lines, curves, triangles and squares could all be discerned, and many of the brighter star groups could, with a bit of imagination, be likened to animals and mythological figures.

Some constellations are actually quite good - the stars of Leo for example really can be fitted into the shape of a lion without too much effort.



Others are much more obscure; Virgo and Libra for example take a lot of imagination. The point is however that apart from the visual patterns they SEEM to form in the sky, the groupings of stars have no significance whatever. There is no connection between the stars in any constellation. Constellations are merely line of sight effects, and would look totally different from any other direction - look at the picture below.

Probably the most famous constellation is The Big Dipper (US), or The Plough (UK). At the right of the picture below is the familiar seven-star outline as seen from Earth.



The numbers show the actual distance of each star (in light years) from us. As you can see, there's no connection between any of the stars making up that well-known shape in our sky. Look at the view 'from the side' as shown above - the seven stars form a totally different outline from that new angle. The shapes, figures, identities and, dare I say it, the astrological 'significance' of the constellations, are chance alignments.

The stars won't stay looking as they do from here either over the long term. They are all moving, independently of each other, and the shapes and extents of the constellations will change as years pass.

Why are just twelve out of the eighty-eight constellations singled out in **astrological** thinking? Why is no one born in the sign of The Dipper, Orion or Cassiopeia? The answer lies in the way our Solar System is configured, and the way we observe the planets. With the

exception of Pluto (which wasn't discovered until 1930, and is a bit of an oddball) all of the major planets in the Solar System, including our own Earth, orbit the Sun in more or less the same plane, in line with the Sun's equator. This means that when we see the planets, they will always be confined to the same relatively narrow band of sky. This narrow strip of sky is called the Ecliptic Zone by astronomers, and can be imagined as the plane of the Earth's orbit projected on to the apparent dome of the sky.

The old name for the Ecliptic Zone is the Zodiac. The line of the ecliptic happens to pass through twelve constellations of the eighty-eight, which explains why these particular star groups have become known as the Signs of the Zodiac. (Actually it passes through thirteen, but nobody seems to want to be born under Ophiuchus). They just happen to lie in that particular zone of sky. They won't always be - the Earth's axis of rotation slowly changes over a 26,000 year cycle, and the Zodiacal constellations will be different many years from now.

It follows that since the planets of our Solar System are local to us, closer than the stars by factors of many millions, they will always be seen against the backdrop of the stars, and will appear to be 'inside' one constellation or another wherever they are in their orbits. But that's all it is - a line of sight effect.

Astrologers would have us believe that these utterly predictable movements of the planets against the well-mapped stars have some mysterious effect on us and our lives. That's like saying that when we see a high-flying jet aircraft passing in front of the Moon, there must be some significance to this visual aspect, and it will have some effect at ground level.

We hear about the 'influence' of the planets and their positions on us. What kind of influence can this be? To influence anything or anyone, there has to be some kind of applied force or energy. What is this astrological force which shapes and alters our destinies? To put it

another way, through which of the forces which exist in the Universe does the astrological 'influence' play its part?

Let's start by examining what kind of forces do exist in our Universe. There are four basic ones, all of which exhibit one fundamental characteristic - they operate over a distance with no requirement for any medium to carry them. (Sound energy needs a medium of transmission, such as air or water, mechanical energy need physical contact and so on). These four forces are gravity, electromagnetic radiation, the strong nuclear force and the weak nuclear force. These last two only operate within the atom itself and have no effect at distances greater than the very atomic particles they influence. That leaves gravity and electromagnetism.

Gravity is a force which pervades the whole Universe and profoundly affects its past, present and future. Every atom of matter in the Universe has its own tiny gravitational field, and when huge collections of atoms are built up, such as the Earth, the cumulative effect of all of these tiny attractions builds up into something very strong. The Earth's gravity pull is such that nothing can escape from it unless it's travelling at over 25,000 mph, and a fall of only a few metres in Earth's gravity field can kill a human being easily.

The effects of the gravitational fields of two other bodies in the Solar System are strongly felt here on Earth - the pulls of the Moon (small, but very close) and the Sun (colossally big, but very far away) combine on a regular daily and monthly basis to give us our cycles of oceanic tides.

What about the other planets? Yes, they all have their own gravity fields, but none of the pulls exerted by them can even be measured here on Earth. The reason is that as distance increases, the effect of a gravitational field falls away dramatically. Double the distance and the pull between two bodies goes down by a factor of four ( $2 \times 2$ ). Treble the distance and

that becomes a factor of nine ( $3 \times 3$ ). Five times the distance and the pull is only one twenty-fifth ( $5 \times 5$ ) of what it was. At the distances of the planets, even the pull of the mightiest of them all, Jupiter, cannot be detected on our planet's surface.

It would seem that gravity cannot be responsible for the astrological 'influence' the planets are supposed to have on us at the moment of our birth. Even if it were, then the gravitational pull exerted by the nurse or the gynaecologist standing beside our mother's bed would have been stronger than that of any planet which might have been in the sky at the time.

What about electromagnetism? Again, this force obeys the inverse square law - twice the distance, one quarter of the influence and so on. The only heavenly bodies whose electromagnetic fields are felt here on Earth are the Earth itself and the Sun. The Sun's output affects our upper atmosphere and our weather, causes the beautiful auroral displays and sometimes interferes with our communications equipment. Both the Earth's magnetic fields and the Sun's output influence every square metre of our planet, and it would be hard to imagine how individuals or groups of people born on certain days could have their characters, lives and destinies affected by these forces in some manner differently from people born at other times.

We know of no other fundamental forces in the Universe. Astrologers will have to postulate some hitherto undiscovered, undetectable and unmeasurable force which is somehow linked to the observed positions of the stars and the planets to give their predictions any credence, and so far they have singularly failed to do so.

Where does the belief in astrology come from? Early man was at the mercy of forces and events over which he had no control. The tsunami of Boxing Day 2004 shows that physically, things have not changed a lot. It seemed reasonable to attribute these things to the capricious acts of God or a number of gods. Mankind has always had the innate belief that

powers external to ourselves can influence our lives. Such beliefs are the source of all religions as well as superstitions, cults, sacrificial rites, UFOlogy and many other phenomena of the paranormal. While making sacrifices and performing other rituals to placate such forces, human beings also studied the world and skies around them, in an attempt to fathom causes and take back some of the control over our destiny which had been lost. Unfortunately, wanting something to have substance and to believe it and declare it so does not make it real.

Of course, humankind's ability to see patterns and our seeking to identify cause and effect is often useful, not to say vital for survival. Evolution favours any species which can identify a warning of a threat and thus avoid it, and that includes the human race. To be able to distinguish a pattern of vertical stripes from a cluttered background can keep one out of the jaws of the tiger. To move to higher ground when the rain starts is better than being washed up there.

However there have always been false cause and effect relationships which occasionally bolster beliefs in the 'power' of the stars. For the ancient Egyptians the re-appearance of the bright star Sirius out of the Sun's glow as the seasons progressed always coincided with the flooding of the Nile, the source of Egypt's fertility and wealth. This sight in the sky naturally occurred at the same time every year - it just happened to be near the time when the melt waters from the Ethiopian mountains poured into the Blue Nile and thereafter made their way to the flat flood plains of Egypt.

The priests of Egypt credited Sirius with the power of causing the floods - that's like saying that a large upsurge in the singing of "Silent Night" is the direct cause of a massive increase in the mortality rate of turkeys.

I make no apologies for taking a hard, scientific line on this topic. One of the strengths of the scientific method is that its predictions are amenable to proof by observation and repeatable experiment. I would be happy to see attested documentary evidence for predictions made and verifiable results obtained from any of the world's 'leading astrologers'. To date such evidence is very sparse.

For example, via the Internet, I have examined the horoscope pages of over twenty major newspapers here and in the United States for the morning of September 11<sup>th</sup> 2001. Not one of them contains for ANY star sign ANY prediction of death and disaster. Surely, if astrologers claim to be able to determine character and destiny down to groups born 'under certain signs' if not even to individuals, one of them, somewhere might have given a hint of what was to follow that day? None did.