

SOME QUESTIONS CONCERNING THE UGC COURSE IN ASTROLOGY

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18 AUGUST 2001. Dr. Murali Manohar Joshi, the present Union HRD Minister and a former professor of physics in the Allahabad University, was invited to the IIT, Kharagpur, as the chief guest at an opening function organized on the occasion of its fiftieth foundation anniversary. The West Bengal Chief Minister Mr. Buddhadeb Bhattacharya was another guest.

As expected, Mr. Bhattacharya in his speech indirectly criticized the policy of the Union Government to introduce worn out subjects like astrology, paurohitya, vastushastra, yoga and human consciousness, etc., in the universities through the University Grant Commission (UGC). Dr. Joshi in his address, however, did not go into the trouble of explaining why his department was so keen on funding these antiquated subjects in the universities in spite of the opposition of the informed people of the country. Instead, he took an oblique route and reminded the enlightened audience that they should not ignore the “rich heritage” of ancient India in different fields of life. The Indian scientists, in his opinion, are unnecessarily too much dependent upon the “western science”. They should now engage themselves to create an independent structure of Indian science on the basis of the knowledge available in the ancient texts and scripts. “We are eulogizing Copernicus and Galileo for their contributions in propounding and proving the heliocentric theory of the universe, but,” Joshi alleged, “we don’t pay homage to the an-

cient Indian astronomer Varahamihira who in the sixth century AD spoke about the earth’s rotation.” Citing another fact in support of introducing astrology as a university course, he said, 16 universities of the country had already been offering astrology as a subject in various forms. So his government is doing nothing new. People should not oppose the astrology and other courses only on political reasons. There may be debates and arguments over the issue. The Government, he assured all, was ready to hear. So on and so forth.

It all had started when the UGC issued a circular on 23 February 2001 with a proposal to all the universities of the country to introduce UG and PG courses as well as doctoral researches in Vedic Astrology which it later renamed in parenthesis as Jyotirvigyan (astronomy). In another circular of the same date, it further proposed to introduce two other allied courses on Vastushastra and Paurohitya (originally called Karmakanda). The same UGC which is nowadays used by the Union HRD Ministry to squeeze financial grants to the universities, has expressed its commitments to provide all the necessary fund to initiate and run the courses — estimated to be around Rs.15,00,000 per course. Only for the astrology course it has decided to sanction 6 permanent posts (one professor, one reader, two lecturers, one library attendant and one computer operator), which will cost a regular recurring expenditure of 10-12 lacs of rupees per university per year.

Similar posts are to be sanctioned for the other courses too. All these additional expenses will be borne by the Union Government through the UGC. It is learnt that so far 45 universities have applied for these courses of which 20 have obtained approval of the UGC. Informed circles are wondering as to why the same UGC which has been asking the universities to curtail expenditures on all teaching menus (like journals, reference books, etc.) and to appoint teachers on part-time or contractual basis, is not advising similar prescriptions in the case of these new courses. This indicates that the UGC has already received a green signal for liberal fund sanction by the government for these courses.

The HRD ministry and the UGC, however, are not satisfied yet. As recently reported in the press, they have further decided to promote another course in Human Consciousness — this time in science — with ancient Indian elements like *Yoga*. Some 10 universities are reported to have already agreed to start the course with the UGC fund.

The UGC further notified that unlike other graduate courses, the students of these courses will be given credit for successful completion of every academic year. The first year pass-outs will be given a certificate, the second year pass-outs will be provided with a diploma and the graduated students will be conferred a B.A. degree.

This unusual move of the UGC has naturally evoked a mixed reaction in the country. Some people were happy at this and welcomed this exercise of the central government to recover and cultivate the ancient wisdom of India as stored in the ancient texts like the Vedas, Puranas and other literatures. But many eminent academics of the country sensed a danger in the entire game and saw in it another attempt to vitiate education with the communal ideology of the BJP, the main axis of the

NDA government at the centre. They ask a very cogent question: If Dr. Joshi and his Government were really eager to hear arguments for and against, why did they not first hear and then proceed? Once a department is opened — good or bad — it cannot be closed down, even if it is condemned later by the public debate and informed opinion.

We don't know what else are due in their next move. But what they have already brought in requires an elaborate analysis. In this essay we confine ourselves in the astrology issue.

PART — I PROBE INTO FUNDAMENTALS

The Official Arguments

At the outset we want to make it clear that *we don't consider all or most of the astrologers to be just a band of charlatans or cheaters, neither do we think it proper to criticize or reject astrology only or mainly for the very many glaring cases of its failure.* We first take into account the arguments of the UGC or the HRD Ministry and some others prevalent in the society, assume that all the official claims of and about astrology are true, and then review the consequences that follow from them. And finally we undertake detailed examination of each of these claims in terms of facts and in the historical perspective.

According to the UGC circular: "Vedic astrology is not only one of the main subjects of our traditional and classical knowledge but this is the discipline which lets us know the events in human life and in the universe on time scale. The distinguishing feature of this subject is that it makes us familiar with time, its nature and feature and its effects on human life and other events and that way it helps us to manage and make

optimal utilization of time.”

It continues: “It is a common feature that despite best method adopted for estimation the events happen in different ways and add to worries, tensions and frustration in life. Here Vedic astrology can help to see the unforeseen, it being the subject dealing with the time.” The UGC believes that introduction of this course “will also add a new dimension for research in the fields of Hindu Mathematics, Vastushastra, Meteorological Studies, Agriculture Science, Space Science, etc.”

Prof. Hari Gautam, the UGC chairman, while addressing a function of the Central Institute of English and Foreign Languages (CIEFL) at Hyderabad on 12 April 2001, stated in support of their venture into the past, “The great Indian Physicist and Nobel Laureate C. V. Raman also used to believe astrology to be a science.” [1] So in his opinion there is nothing wrong in introducing astrology as a university course.

Let us see how far these observations of the UGC agree with facts and truths.

‘Vedic Astrology’ — A Misnomer

Before entering into the discussion over the questions of validity and relevance of astrology we would like to clarify a fact. The UGC as well as the Ministry of HRD tell the people a damn lie when they describe the astrology prevalent in the country as “Vedic”. Dr. Joshi even claimed that “Vedic astrology is the oldest system of astrology. ...Vedic astrology, as I understand it, is based on information provided by the scholars of the Vedic times.” [2] One might say that practice of astrology has a long history in India. But to brand it as Vedic is to indulge in a gross distortion of facts. It may undoubtedly help them to play upon the prevailing sentiment of a large number of Hindus that ‘all valuable knowledges are ultimately

rooted in the Vedas’. The common people might be made to think that the astrology they want to introduce as a university curriculum is of Vedic origin, and is, therefore, not only very ancient but an original one too.

And yet all this is a vulgarization of facts. Those who have read all the four Vedic texts, the *Upanishadas*, all the *Puranas* including the *Ramayana*, the *Mahabharata* and the *Harivansha*, or the older *smriti-literatures* (the social codebooks), may recall that there is no trace of astrological practice or fate reading in them. It is true that one of the *Vedangas* is called *Jyotisha*, but the *phalita-jyotisha* (applied astrology) that has been practised since long past has nothing in common with *Vedanga-jyotisha*. It would, moreover, be wrong to think that the *Vedangas* were parts of, or, concerned with the study of only the Vedas. In fact, in ancient India the word ‘veda’ (from the root ‘vid’ = to know) meant knowledge as well as source of knowledge. Hence the tradition to attach ‘veda’ as a prefix or a suffix to any subject of knowledge, like, *Ayurveda*, *Dhanurveda*, *Vedanta*, *Vaidic Ganita*, etc. The six *Vedangas* were written much later than the Vedas when it was felt necessary to introduce the young uninitiated learners to the study of the grammar, meters, rhetorics, etymology, etc. of the Sanskrit language as well as to the method of watching the heavenly bodies and their movements, before they could read and understand the Vedas, Puranas, and other texts of literature, science etc. *Vedanga Jyotisha*, at that time — as it itself declared and as we shall shortly see — was concerned with observing the sky in order to count the intervals of time from the lunar phases, from a full-moon to a new-moon, and vice versa, and thereby locate some omens or specific auspicious moments for both daily chores and occasional rituals. There was no men-

tion of any planet in it — which implied its lack of knowledge about planet. Moreover, it was never concerned with the fate of any individual man. *It goes to the credit of the ancient Indian scholars that in giving physical names to each of the limbs (angas) of the Vedic literatures, they had rightly compared the Jyotisha with the eyes.*

The *Rigveda*, the oldest available literary document of mankind, is a grand collection of beautiful verses composed by the seers of the Vedic tribes while wandering through the forests and settling in the sub-Himalayan Sindhu-Ganga terrace. They were astonished as well by the grandeur of the celestial and terrestrial objects like the sun, the moon, the mountain Himalayas, the river Sindhu, etc. as by the beautiful natural phenomena like the ushering of the dawn, the outbreak of forest fire, etc. These feelings of awe and wonder at natural objects and phenomena were emotionally recorded by them in their verses. There is no trace of any thinking among them about the influence of the celestial objects on the fate of an individual man - as claimed by astrology. The *Samaveda* and *Yajurveda* are actually anthologies of instructions and mantras (incantations) about the design and construction of the sacrificial altars, the procedures of the various rituals and ceremonies, and the *slokas* to be uttered. The *Atharvaveda* is a grand book of magical performances about how to extract benefits from nature, ward off evil influences of man and nature, fight out diseases and cause harm to unwanted people. The Upanishadas were composed as the philosophical discourses about different religious questions of the time, about the mysteries of life and death of man, emergence of the world, source of human consciousness, nature of the so-called *atma* (soul) of man, etc. We don't find any astrology in all this.

The Ramayana and the Mahabharata — the two main epics among the Puranic literatures — also do not refer to any astrological feat. They contain no mention of *rashichakra*, *saptaha* (week), *bara* (week-day), individual fate-reading, palmistry, or any action based on these. There are references, following Vedanga jyotish, to various *tithis* (lunar days) with respect to the varying positions of the moon. But that is related to defining the auspicious or inauspicious moments for different ceremonial functions of the royal court. Planning any social festival or ceremony according to lunar time table while following the solar calendar for routine activities is an old practice in Indian traditional culture. Both of these time schedules are equally valid for all members of the community in question. There is nothing specific for separate individuals. The tradition is still living in India today. The *tithis* on which marriage and other social or religious functions are supposed to be auspicious or otherwise — as described in the almanacs — are so for *all* members of the society irrespective of their horoscopes.

Astrology in the current sense of the term (in which BJP and UGC are interested and which is called applied astrology by its practitioners) begins at the point when different arrangements of the celestial objects at the time of birth of different individuals are declared to define courses of life of those individuals in different specific ways. It ascribes not only different characters to the different celestial objects, but also different behaviours of the same object in different configurations. These features are absent in Vedic and Puranic literatures.

In view of all these available facts, we may call it *Indian astrology*. We should, however, also acknowledge the fact that in its original form it was brought to India from the west — from Babylonia, Greece and Rome.

Today the BJP lobby and others are busy to conceal this fact, but the ancient Indians were much more frank and honest to openly acknowledge their debts to the sources.

Let us give some examples.

The two important sources of Indian astrology were named as *Romaka Siddhanta* and *Yavana Siddhanta*, the first parts of the titles of which directly refer to the Roman and Ionian sources of the systems described therein (the Greeks were called in Sanskrit *Yavanas* derived from the word *Ionia*). Similar is the case with another astrological text — *Paulish Siddhanta* — which had probably been borrowed by the Indians from a book written by Paulas of Alexandria (376 AD) in the fourth or fifth century. The absence of any astrology text with the title of 'Vaidic Siddhanta' or the like is quite significant. Dr. Meghnad Saha, one of the great scientists of India, had elaborately studied the original sources of Indian astrology and showed that the founders of Indians astrology had themselves put these facts on written record. For example, Varahamihira, the first astrologer of India, in his *Panchasiddhantika* had clearly placed the classical Indian source-books like *Paitamahasiddhanta* and *Vashisthasiddhanta*, which followed the lead of Vedanga jyotish, much lower than the Romaka, Yavana and the Paulish siddhantas, and called them "durvibhrasta" (strayed afar).[3]

One of the main source books of Indian astrology is titled as *Brihat Parashara Hora*, where the term Hora is surely a modified form of the word Horace, the sun-god of ancient Egypt. It may be recalled here that the term horoscope also derives from Hora (which in Greek means hour or time, and represents in Indian astrology lagnakhanda — that is, fraction of time-intervals).

Another system of Indian astrology is called *Tajika Jyotish* which is also known by its other name *Neelakantha Tajika* af-

ter its propounder who admitted having received it from the Arabs in 1587. *Tajika* in Sanskrit means an Arab. Thus the Arabs were another source, or, at least another medium for the passage of astrology from the west into India.

Shukra or *Shukracharya* in the post-Vedic tradition is an antigod, the teacher of the Asuras, and a distinctly masculine entity. But the current Indian astrology describes Shukra as the planet—goddess of love, which is in definite accord with the classical Greek tradition of describing Venus as the goddess of love, and sharply contradicts the ancient Indian tradition. Similarly, *Chandra*, the moon, has been considered a masculine member of the Puranic pantheon with not less than 27 prominent stars as his 'wives'. But in the Indian astrological literature the same moon has become a feminine 'planet' — again in consonance with Graeco-Roman characterization of the goddess Luna or Diana, etc.

It may also provoke a curious reader here to ask why the planet Mars, which was called by the ancient Indian observers as *Mangala* (goodness), was converted by the Indian astrologers into its direct opposite to represent *amangala* (harmfulness), again in strict conformity with Graeco-Roman tradition.

Palmistry, the system of study of the furrows in one's hand palm to 'read' his or her fate has been studied in traditional astrology in a treatise called *Hasta Samudrika Shastra* (trans-oceanic study of the palm). What is this if not an irrefutable record of the fact that it had come to India from overseas? It further illustrates the enviable honesty of the ancient Indians.

It is also interesting to note that the names and images of the 12 *rashis* (constellations — through which the sun is observed to proceed) in Indian astrology closely resemble those of the Graeco-Ro-

man tradition: *mesha* (ram — aries), *vrishha* (bull — taurus), *mithuna* (sex relation — gemini), *karkata* (crab — cancer), *sinha* (lion — leo), *kanya* (maiden — virgo), *tula* (scale — libra), *vrishchika* (scorpion - scorpio), *dhanu* (man with a bow — sagittarius), *makara* (crocodile — capricorn), *kumbha* (pitcher — aquarius) and *meena* (fish — pisces). Had it originated independently from within the Vedic and Puranic tradition it would have been more natural to adopt the names of *kurma* (turtle), *varaha* (pig), *vamana* (dwarf), *hanumana* (monkey), *jambuban* (bear), *byaghra* (tiger), *garura* (a bird), *ashva* (horse), *gaja* (elephant), *sarpa* (snake), etc. Apart from fish, which is actually a common element in the mythology of many ancient cultures including those of Babylonia and India, none of the ancient Indian elements has been taken. This is quite a strong evidence of the real source of Indian astro(nomy + logy).

Moreover, as far as facts are known, ancient Indians were better conversant with the movement of the moon, which is why all the important ritual and social functions of the Hindus are situated in the lunar calendar, on specific *tithis* — that is, lunar day. In fact, in *Manusmriti* the brahmins are advised to worship, among others, the moon, as the only celestial object considered a deity. The sun, an important god of the Rigveda, is relegated to insignificance. This means that by the time astrology had appeared in India the ancient people had found it easier to study the movement of the moon than that of the sun. They had rightly noted that the place of moon-rise every night shifts from the neighbourhood of one bright star to that of another. So they studied the moon's ecliptic in terms of such 27 nearby *nakshatras* (groups of stars) and not the solar ecliptic with its rashis. The solar calendrical system had been first developed by the Chaldeans in the Babylonia

wherefrom it passed on to Europe. Probably, it had entered India during or after Alexander's imperial invasion into India, with the Greeks. That explains the identical rashi- images and many other facts. But even after adopting solar studies into its astrology, the Indians astrologers — unlike their European counterparts — still determine the horoscopes of the people with reference to the varying positions of the moon only.

Swami Vivekananda, who was a great Hindu revivalist preacher of the 19th century, emphatically said: "I think the Greeks first gave astrology to India and took from the Hindus the science of astronomy and carried it back with them to Europe." [4] The great scholar of Indian languages and culture, Suniti Kumar Chatterjee is also reported to have said that, "India accepted Greek astronomy in toto as being more accurate than the Vedic astronomy which she abandoned by A. D. 420." [5]

Although there are many more evidences, we hope that these will suffice to make the point clearer. It is totally unhistorical to attach the epithet 'Vedic' to Indian astrology. It is not only a misnomer but a sheer untruth. It neither had originated in Vedic times nor was independently developed in India. The RSS lobby has been trying, with the shameless backing of the BJP government, and through the person of Dr. Joshi, the HRD Minister, to disown the historical fact of its origin and get that officially accepted by the academics.

Astrology versus the Concept of Time

Now let us examine whether astrology can at all provide any idea about time, or 'events happening in time scale'. It is true that the ancient Indian philosophies dealt with a concept of time (*kala* or *mahakala*) which irretrievably absorbs or consumes all events of nature and human life. For

the ancient people with primitive ideas and limited experience it was definitely a commendable effort to comprehend and represent the concept of time. As far as measurement of time was concerned, the ancients could not count below a small and subjective unit called *prahar* roughly equivalent to three hours (the whole day being divided into *astaprahars*). The still smaller units called *pal* were highly subjective.

Is man's idea of time still confined to that subjective concept? With the invention of the mechanical clock in the 15th century in Europe man was able for the first time to count time precisely as well as objectively. In India the clock entered still 200 years later. Today modern science has developed the concept of time much further and shown it to be an objective entity, related to motion of matter or change of events, a dimension in which motion or change of events takes place. Can we extract this modern idea of time from any ancient Indian text, let alone astrology?

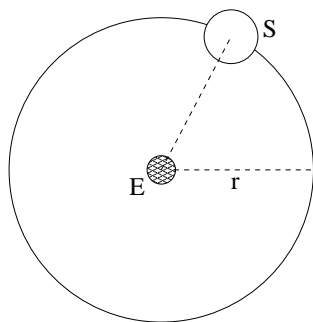


Figure 1: Earth-Sun system as per astrology.

Can astrology explain events happening in time-scale? Let us check with a simple example. Astrology held and still holds that the sun moves round the earth in 24 hours. This implies that the velocity of the sun in space is $2\pi r/24$ kmph, where r is the distance of the sun from the earth (see Fig.1), which is more than one thousand times the

actual value now known, involving an error of the same order ¹. Can such a subject which gives so gigantically erroneous a concept of motion of the sun so familiar to us, provide us with any idea of time today?

Today in the light of the relativity theory we know that time-scale differs with motion of the frame of reference with respect to which it is measured. Astrology, just like pre-relativity science, did not obviously know this. However, there are people in India who never think twice before extolling ancient Indian wisdom to any fanciful height: "The ancient Indians showed a keen interest in the metaphysical character of the universe and an almost Einsteinian understanding of time." [6] These people do not understand that Einsteinian concept of time has developed simultaneously with the Einsteinian concept of space. One is inseparably related with the other. Ancient astrology had no idea of space at the extra-terrestrial level (it placed all astronomical objects at the same distance from the earth on an imagined ceiling in the sky — on the inner surface of the so-called celestial sphere), and, therefore, no idea of time in the large scale. But has it acquired this knowledge even today? Obviously no! It has not absorbed the knowledge of science at the level of Copernicus or Newton till today. How could it approach Einstein? As we shall see below, astrology by its very nature is insulated from any new knowledge. Hence it is not possible for astrology to give us the correct concept of time.

Astrology and Future Forecast

According to the UGC circular, astrology "lets us know the events happening in

¹Since $r = 1.496 \times 10^8$ km., the velocity becomes 3.92×10^7 kmph or 1.09×10^4 kmph, whereas the actual value is nearly 3.21×10^4 kmph. This is an absurdly large velocity comparable only with the velocity of light, and hence impossible.

human life and in the universe on time scale". Moreover, while the events in real life happen differently than expected and "add to worries, tensions and frustration", they claim, "Vedic Astrology can help to see the unforeseen", and relieve us of the worries etc.

Let us examine the claim in detail.

The so-called predictions of astrology are based on two basic tenets, namely, (1) the course of events in a man's life is pre-determined by the special arrangements of the celestial objects in the sky at the time of his or her birth; ² and, (2) astrology, being able to study all such arrangements of the planets and stars at that time, can calculate the influences of these celestial objects on the life of that man and foretell his/her future.

Let us for the time being agree with astrology and then consider the following questions. 1) If the planets like Mercury, Venus, Mars, Jupiter and Saturn can exert influence on a man's life — good or bad — then why cannot the other planets like Uranus, Neptune and Pluto do the same? 2) If there is an influence of the moon on man's life, then should not the satellites of Mars, Jupiter, Saturn, Uranus and Neptune — some of which are much bigger than the moon (see Table-1) — also be supposed to exert influence?

But no. Astrology did not acknowledge the existence of the four new planets discovered by astronomy, namely, Uranus, Neptune, Pluto and our earth, as the most influential planet. Instead, it continued to uphold the two imaginary planets (in their parlance shadow-planets) — *rahu* and *ketu*

²Indian astrology considers the following three things at the time of the child's birth, to prepare their horoscopes: a) *janmalagna* — the rashi which rises in the eastern horizon of the sky; b) *janmarashi* — the rashi in which the moon is supposed to stay; and, c) *janmanakshatra* — the bright group of stars which is nearest the moon.

Table 1: Satellites of Other Planets Comparable to Moon.

planet	satellite	radius (km)	mass (One moon unit)
Earth	Moon	1738	1.000
Jupiter	Io	1816	1.214
	Europa	1563	0.663
	Ganymede	2638	2.027
	Callisto	2410	1.463
Saturn	Tethys	530	0.010
	Dione	560	0.014
	Rhea	765	0.034
	Titan	2575	1.849
	Iapetus	730	0.026
Uranus	Titania	840	0.016
	Oberon	850	0.011
Neptune	Triton	1900	0.776

Source: L. Berman & J. C. Evans *Exploring The Cosmos*; Little, Brown & Co., Boston; 1983; Table 6.5, p.125

— and the related explanation of eclipses, even when man could also observe the partial eclipse of the earth from the moon (who would eat up the earth during a *vishvagrahan*, dear astrologers?). It could not look much farther beyond the 18 degree zodiac to see the other stars. It knows only the five planets correctly and the sun and the moon wrongly; it does not even know that the sun is a star and the moon is a satellite and that they are not planets. In addition, it knows none of the asteroids in between the Mars and the Jupiter, none of the known 600 comets, none of the other so far known 72 satellites (see Table-2) of the Mars, Jupiter, Saturn, Uranus, Neptune and Pluto. These objects simply do not exist for astrology.

Astrology which sought to predict man's future from the influences of the stars and planets forgot to calculate the *influence of the earth* on a man's life — where he lives, collects foods from, receives the impact of the weather of, so on and so forth, that is to say, the maximum share of influences exerted by the most important planet for man. It does not know even today what is this earth — a planet, a star, or a satellite! But again no! There is no satellite in the astrological dictionary! It continues to talk of moon as a planet influencing man's life in certain ways even when some men have already set foot on the lunar surface and saw the earth as a celestial luminous object. What to speak of the lay astrologers, even Dr. Joshi is reported to have asked with exclamation "why then does the position of the moon affect the tides and even mould conditions of the human mind". [7] However, on this later. Let us go back to astrology's fund of knowledge.

Astrology knows about the influence of only 108 stars in the above mentioned 27 groups of stars in the sky. However, there are approximately 12000 stars in the sky on both sides of the hemisphere visible with the naked eyes (let us forget for the time being the actual number of stars in the universe in billions of billions, as found out by modern astronomy with the help of telescope, radio-telescope and other means). That means, astrology fails to take into account the influence of 99.094 per cent of the nearer and/or visible celestial objects which it claims to know and apply (see Table-2). How can a subject with such an acute paucity of knowledge in its own specialized field tell the future events?

They say they can tell the future of a man by calculating the influences of the stars and planets. But actually, as seen from the above table, they are ignorant about the existence of more than 99 per cent of

Table 2: Celestial Objects and Astrological Knowledge Bank.

Name of objects	Actual number	Astrology knows
planet	9	5
satellite		
Earth	1	1*
Mars	2	
Jupiter	16	
Saturn	17	
Uranus	15	
Neptune	21	
Pluto	1	
Total	73	1*
asteroids	big 6 & many small	0
comets	600+	0
visible stars	12001+	109*
Total	12689	115**

Source: 1) Berman & Evans *op. cit.*; 2) Dr. Partha Sarathi Gupta *Vigyāner Aloy Jyotish* (Bengali); New Horizon Book Trust, Calcutta; 2001

* Of course its ideas about the sun and the moon is wrong.

** One may add the two so-called shadow-planets of Indian astrology – namely – *Rahu* and *Ketu*. But it does not increase the knowledge bank of astrology, rather shows its further lack of knowledge about the sky.

Hence, Astrology Knowledge Quotient = $(115/12689) \times 100 = 0.906\%$

And, Astrology Ignorance Ratio = 99.094%

the planets, satellites, comets, and visible stars, and, therefore, also about the same amount of their influences. How will they calculate?

Another point. The UGC tells us to believe that astrology knows the events happening "in the universe". But what are the length and breadth of this universe of as-

trology? Its knowledge-base does not cover even one-tenth of the solar system as such, let alone the milky way galaxy of which it is only an imperceptible point, and the billions and billions of other galaxies beyond (see Fig.2). With this vast expanse of (almost total) ignorance about the real universe it is made to enlighten us about the events "happening in the universe" at the dictate of the UGC and BJP pundits! Their ignorance about the universe really enlightens us about the universe of their ignorance!

To foresee the future is a much coveted desire of mankind which is but very difficult to fulfill. Man has always sought after some tricks to know the future in advance. Although man could correctly predict the eclipses of the moon and the sun only on the basis of empirical observations since very ancient times, an idea prevailed among them that some wiser men could foresee the future events in the life of an individual with their special power.

Astrology has been considered one such means they could adopt for the purpose. But all such efforts were proved unsuccessful. It is only with the emergence and growth of modern science since the renaissance that man has been able to know some of the future events in advance. The power has gradually increased with the sequential increase in his knowledge. Even then the power is very limited compared to what man wants to know.

When the learned members of the UGC claim that other "best methods of estimation" fail to correctly foretell the future, they should have discussed the reasons. The degree of accuracy of prediction depends on the background knowledge. If the knowledge about an event is more or less complete the prediction can be fairly good. In case the knowledge is not yet available, it will not be possible for anybody to predict

anything.

Let us take two simple examples of these two kinds in order to make the point clearer. If an average Indian unemployed youth asks whether he will get a job in near future, it can be answered with 90% success rate that he will not — whatever his star-signs be. If the father of a newborn baby wants to know the blood-group of the child, he has to arrange a blood test. In the first type of cases astrology is simply unnecessary. In the second type of cases it is hopelessly helpless.

So before claiming that astrology can "help us to see the unforeseen", it befalls the UGC as a duty to elicit their claims with some concrete cases of predictions where sciences have failed and astrology has succeeded — unless they want to prove to be a group of charlatans of the street astrologers' type.

We have, however, some cases at hand: the disastrous supercyclone of Orissa in 1999, the devastating flood of West Bengal in 2000, and the catastrophic earthquake of Gujarat in 2001. The possibilities of all these natural calamities were precisely predicted by the concerned scientific community well in advance. The fact remains that the State Governments of Orissa, West Bengal and Gujarat — run by different political forces — showed equal kind and degree of deafness to the warnings. Side by side, no astrologer of the country had even remotely hinted at such disasters to the people affected. How would the honourable members of the UGC explain this?

The simple point is that astrology by its very nature could not foresee these calamities. Because, according to it, the life and death of every individual man are uniquely controlled by his or her particular star-signs, which are usually different for different men. So any two neighbours taken at random in Paradeep, Bhuj, or Nabadwip,

with different dates and times of birth, different star-signs and hence different fates, could not be predestined, per se astrology, to die in the same incident. Or we have to come to the conclusion that “all the horoscopes of a cyclone or earthquake victims will reveal the same date [and also time] of [birth and] death” — which, according to Dr. H. Narasimhaiah, a former Vice-Chancellor of the Bangalore University, and well known science activist, it would be simply “preposterous to believe”. [8]

This implies *either* of the two things:

1. Astrology could predict these natural events on some other basis than individual star-signs, which would be common to all to be affected; in which case the time-honoured theoretical foundation of astrology would be proved ineffective for any future forecasting; or,
2. Astrology would stick to its principles, look into the individual signs of the zodiac for every individual and predict separate results for each of them; in which case it would obviously prove itself wrong.

Planetary Influence: A Case Study

When an educated man like Dr. Joshi equates the gravitational force of the moon with its so-called control of the human mind, it reminds us a comment of Ramendra Sundar Trivedi, a great scholar of the early 20th century Bengal and a reputed science popularizer. While discussing the pros and cons of astrology, he warned against the use of misplaced correlation of facts: “Don’t argue in the way that if the moon can cause high and low tides in the Ganga, why cannot it also cause Mr. Ramakanta to get a judge’s job?” [9] The essential point of this slant was that one cannot put at random a “because” and a “therefore” between any two clauses of a sentence. Such a sentence will be meaningful only if

there is a real causal connection between the two phenomena that the two clauses describe. Joshi’s quip can be rendered on simplification as: “Because the moon exerts a tidal force on the earth, therefore it may also affect the mental conditions of man.” This only demonstrates the need of cultivating Trivedi’s words with greater attention.

However, we are thankful to Dr. Joshi for giving us a chance to examine the claims of astrology with a concrete case study, namely, with respect to the influence of the moon on some specific aspects of man’s body and mind.

Ancient people thought that the moon was somehow responsible for mental disorders (incidentally let us remember that they did not call the phenomena as mental problems — this is a modern conception), that is, for the peculiar behaviour of men under stress. They looked for material causes for material phenomena — although in most cases they wrongly associated one thing with another as cause and effect simply by observing some overt similarity between them. The idea, in this particular case, occurred to them probably from the apparently erratic and irregular daily movement of the moon, that is, the daily changes of its shape and of the space and time of its successive appearances in the nights (which is known today as the cyclical phases of the moon). Hence the term lunatic was derived from Luna, the moon.

Modern psychology had long back salvaged the study of mental phenomena — both normal as well as abnormal — from the domain of magical cult like shamanism, possession, etc. In the process it has also shown, despite Joshi and his Vedic astrology, that man’s moods and mental diseases had no relation with the movement or gravitational pull of the moon. The two American astronauts Neil Armstrong and Edwin Aldrin, the first men to land on the moon in

1969 in the Spacecraft Apollo 11, confirmed that their stay for one hour on the surface of the moon created no mental stress or strain in them, apart from the ecstasy of the adventure. One might of course refer to the changing romantic moods of the poets the world over centring round the moon's appearance in the sky. But what has astrology or UGC or Joshi to do with it?

There is another popular argument about lunar influence on man — this time on his physical being. Those who have joint pain (arthritis) often complain that the pain goes up with the lunar cycle of full-moon and new-moon and subsides thereafter. Does it not show that moon exerts a direct influence on our life? And if moon can exert influence why not also the sun? And so on. Some people advance further and try to adduce a 'scientific' argument in support. Since the gravitational pull of the moon increases on those special days, it causes the oceans to undergo bigger high-tide. Life on the earth originated in the sea water. So even today man's life feel the pull of the moon on these days.

The argument is self defeating. Even if arthritic pain cycle and lunar cycle were collateral, the point is, does it work according to the time table of the individuals' birth? Is it not, on the contrary, supposed to be common for all arthritis patients, irrespective of their horoscopes? This proves that astrology cannot claim it as an argument in its favour regarding planetary influence on man according to their positions at the time of the man's birth. It goes against astrology. Then again, if the 'scientific' argument is true, why should only the arthritis patients feel the moon's pull? Why not other patients and the healthy people too? And in that case how does it agree with astrology?

Secondly, the fact, as it is already known from the science of medicine and from clin-

ical reports, is that the arthritic pain rises and subsides in a cyclical pattern no doubt following its own pathological conditions, but not in an exactly 29-day cycle, nor strictly from a full-moon to a new-moon. Those who believe in astrology mentally make the two cycles parallel and cotemporal. One may check the fact from a doctor's clinic and/or a medicine store. If the pain really increases on full-moon and new-moon, visitors to the physicians will increase on or around those days compared to the other days. Similarly, the sales of analgesic medicines also will go up on those days and diminish on others. None is the case.

Thus the only physical case study which it is possible to conduct and observe by any body at any large scale, simply demolishes the claims of astrology about planetary influence on man without the slightest shred of doubt.

Research in Astrology?

The UGC assures us that the astrology course "will also add a new dimension for research" in the field of — among others — "space science"! A bold, although baseless claim! A well-informed person may feel uneasy in a discussion like this. But we cannot avoid it since the point has been raised — and that too by some learned people.

Let us note at the outset that a subject can promote research if and only if (1) it is itself grounded on some positive knowledge; (2) it can assimilate all relevant advances in knowledge in the allied areas; and (3) it has the potency to advance its frontier to the benefit of human knowledge and society.

Does astrology satisfy any of these two criteria? Let us check.

1) Astrology, as we have already seen, does not know most of the things about the sky. Its knowledge bank is absolutely poor. It makes the entire universe rotate round

the earth. It does not even know that in spite of being much smaller in size than Jupiter by a fraction of 1/72, the moon exerts a much greater gravitational force on the earth, and in fact, the greatest proportional tidal force among all the members of the solar family including the sun (see Table-3). These are only the most rudimentary knowledge about the celestial objects, and, astrology is ignorant of even these things — let alone the higher body of knowledge! What will it teach others?

2) As to the second criterion, the picture is still worse. More than four centuries had passed since science came to know that the sun is a star and not a planet and that it is the earth which moves round the sun, not the vice-versa. Astrology could not learn or absorb this rudimentary lesson in these 458 years! Dr. Joshi told the Kharagpur IIT teachers that long before Copernicus it was Varahamihira in ancient India (6th century AD) who had been the first to propound the heliocentric theory. Forgive the learned Minister for his two minor mistakes that it was not Varahamihira but the great astronomer Aryabhata who in the year 499 AD had actually propounded the diurnal motion of the earth, and *not a heliocentric theory*. But with reference to this fact Joshi has to answer a more pertinent question: Why Indian or “Vedic” astrology could not absorb even this ancient Indian knowledge about the earth’s motion during the last 1502 years?

3) Lastly, if we look at the history of astrology and its contributions, we find nothing it has given man in the form of knowledge or application. No new knowledge has been gained from the study, cultivation and application of astrology. Neither has a new branch of knowledge developed from the womb of its practice. No problem in the life of man has been solved by astrology.

In fact, the UGC members who are ex-

horting about new dimension added by astrology in promoting research, had better read the following, a very cogent remark of the astrological authorities themselves: “Some astrologers today, noting that science had discovered three more planets and numerous asteroids, assert that Jyotish is somehow incomplete and can be improved by adding these new bodies to its repertoire. ...Jyotish needs no more than these Nine Planets³ to describe reality because, as we shall see, these Nine Planets are more than mere material entities. *Those who seek to add new planets to Jyotish do so only because they have not yet comprehended its heart.*” [10]

Thus it is clear that astrology is ignorant about the things it talks about, and it could not learn anything new at least for the last 1500 years. At the heart it does not want to learn these new information. Can it help any learning activity — let alone research? We invite the UGC members to think over and answer the question.

Man has learnt a lot of things down the ages. In the wake of expanding knowledge in different fields of life, the different branches of natural and social sciences have been created and gradually enriched. Man has extracted three fundamental lessons from this history: (1) Knowledge in each and every field of life is cumulative; it grows slowly and bit by bit by gathering and synthesizing the truths learnt over time; (2) Knowledge must be accommodative; that is, man has to incorporate any new information into the appropriate body of knowledge; for this, it may also be necessary to modify or even reject some existing elements which are incompatible with the new knowledge; and, (3) Knowledge in different branches or fields are contiguous, that is to say, a truth acquired in one field

³This refers to the 9 planets as understood in astrology and not by modern science.

Table 3: Proportional Tidal Forces of the Solar Family Members

name	mass	distance	force
	(kg)	(a.u.)	(a.u.)
Mercury	3.302×10^{23}	0.55	198
Venus	4.869×10^{24}	0.29	19964
Mars	6.419×10^{23}	0.40	1003
Jupiter	1.899×10^{27}	4.40	2229
Saturn	5.684×10^{26}	8.60	89
Total			23483
sun	1.989×10^{30}	1.00	199×10^8
moon			
(perihelion)	7.348×10^{22}	0.00239	538×10^8
(aphelion)	7.348×10^{22}	0.00272	365×10^8

The tidal force is given as: $T = M/10^{22}.R^3$, where, T = proportional tidal force, M = mass of the concerned body, R = the distance of the object from the earth.

Source: Farhad Mahmood *Jyotish Bishwas: Kichhu Prashna*; in Tapan Chakraborty and Bhavani Prasad Sahoo (ed.) *Dui Banglar Kusanskar Virodhi Vigyanchinta* (Bengali); p.49

or branch cannot contradict another truth gathered in another field or branch.

Astrology fails in all these respects: 1) Its body of knowledge did not grow beyond the point it started with in the sixth century AD in India, and still earlier elsewhere. 2) It could not accommodate the new truths acquired by the sciences, because, it was not prepared to modify or reject any of its traditional beliefs. 3) It does not bother when its claims about the sun or moon do not agree with the current astronomical knowledge. In this sense, in the history of man's intellectual development astrology today represents a branch of "rejected knowledge", like witchcraft, demonology, occultology, magic, spirit-cult, etc. which are still practised by the so-called medicine men among a large cross-section of the tribal and rural people all over the world ⁴.

⁴We ask the readers to notice the term "rejected knowledge" as distinct from another cognate term "pseudo-science". The former is used in the cases which carry into the present history the burden of the

PART — II: ASTROLOGY IN HISTORICAL PERSPECTIVE

Origins of Astrology

To grasp the point it is necessary to know how astrology had evolved in history. It may be pointed out here that in the remote past astrology had appeared in history as an empirical study of the luminous objects of the sky (called *jyotiska* in Sanskrit), which were visible with the naked eyes, in relation to daily human affairs. Astrology was then identified with astronomy at its primitive stage, namely, study of the stars (in Sanskrit, similarly, it was called *Jyotish shastra* as it was engaged in the study of the *jyotiskamandal*). At that time the luminous heavenly bodies were, appar-

past, the ancient man's ideas and conceptions, proved wrong long back; and, the latter denotes those cases which represent the wrong application and/or interpretation of the present body of scientific information, with faked experimentation, e.g., social Darwinism, IQ theory, parapsychology, etc.

ently, related with the day-to-day struggles for existence of the earthly men. The sun was a constant source of light and heat in the day, the moon was another source of light for some of the nights for different lengths of time, and they together were also guides of man to differentiate time — day and night, summer and winter, dry and rainy seasons, high-tide and low-tide in the rivers and seas, etc. Similarly, the bigger planets like the Jupiter and Saturn, or the brightest planet, the Venus, etc., were also guides for man in the nights through the dense forests, in the rivers, lakes or mountain valley, for finding the way from and to their shelters. All the human groups in the world were then living a nomadic life with the most primitive tribal form of social organization.

However, human society has never been an immutable system. It continued to slowly change, evolve and take on new forms. In the wake of his relentless struggle with nature for existence and survival, man with his magnificent brain went on studying nature. While often he misunderstood it, in between he grasped some thing correctly and therefore advanced in his mode of living. It was in this process that the palaeolithic culture which had lasted for one or two millions of years, was subsumed in the neolithic revolution. Some groups of men in the “fertile crescent” of west Asia invented agriculture while others in the western hemisphere started domestication of animals. The heavenly bodies assumed now greater importance in this new form of productive activities of man in showing him the proper sowing season for different crops, the mating season of different livestock, the time of river-flood or of heavy or poor rainfall, etc.

Moreover, the different positions of these objects in relation to one another indicated proper times for the cultivation of differ-

ent vegetables, the time of availability or scarcity of various hunting games, etc. In order to locate these time-points more and more precisely, the agriculturist tribes had to learn to count time. The attempts thereof gradually led to the birth of the earliest forms of annual calendar — somewhere solar and elsewhere lunar — depending on whose movements they studied in greater detail for the purpose.

To achieve this they started observing the sky along the path of the sun and the moon and in the process located there some prominent stars in different periods of time. For their limited purpose it was sufficient to identify the stars falling on the imaginary orbital path of the sun and the moon in the sky, called *krantivritta* (ecliptic), as seen from the earth within an approximate angular width of, say, 18 degree — called the zodiac. And they did it superbly. Since the apparent orbits of the sun and moon viewed from the earth almost coincide, there was no major differences in their study. As they discovered it, the same specific stars are associated with the sunrise as well as sunset for some specific time period of the year, which are replaced after that time by other stars, and so on, until the first group is repeated when the same kind of season is repeated. Each of these associations of stars was called a constellation (sign of the zodiac) or *rashi*. Thus the now well-known 12 rashis were differentiated and given names. Each of them was allotted a house by dividing the 360 degree ecliptic into 12 equal parts and each of them was seen to make a complete rotation around the earth in a day (actually they appear to rotate because of the earth’s diurnal motion). Each of the rashis, as we know today, also appears to move eastward (owing to earth’s orbital motion) by approximately one degree per day (360 degrees in 365 days). So each of them stays in nearly the same position in the

Table 4: From Stars to Months

name of the star	international name	Indian month
Bishakha	α Librae	Baishakha
Jyestha	α Scorpionis	Jaisthya
Purba Ashada	δ Sagittarii	Ashada
Shrabana	α Aquilae	Shrabana
Purva Bhadrapada	α Pegasi	Bhadra
Ashvini	α Arietis	Ashvin
Krittika	π Tauri	Kartika
Rohini	α Tauri	Agrahayan
Pushya	δ Cancri	Pousha
Mogha	α Leonis	Magha
Uttara Phalguni	δ Leonis	Phalgun
Chitra	α Verginis	Chaitra

sky with respect to the sun for about one month. It is this clockwise movement of the rashis that had helped ancient man to count time with precision.

This is how the ancient astronomers constructed the idea of the so-called *Rashichakra* (Signs of the Zodiac). To remember the constellations, as we have already seen, they attributed various images of man, animals and things on to each of them. Then it was easy for them to define the various units of time in the descending order starting from year, through season and month, to week, day, etc. It was now also easy to divide the day in some still smaller units called hour.

It is to be remembered here that the ancient Indians had observed quite correctly a specific feature of the moon. The moon repeated its full-moon phase almost after every 29 days, but every time near a new group of stars. The names of the months in the ancient Indian calendar were given in accordance with each of these stars (see below):

Although the months are now adjusted

against the solar calendar year, and have therefore shifted from the monthly cycle of the full-moon by quite a large magnitudes, the importance of these observations cannot be underestimated.

All these were commendable achievements of the ancient men. They must also be given the credit for another significant discovery — the distinction between stars (*taraka* or *tara*) and planets (*graha*). They called those luminous objects planets (in Greek — wandering objects) which relatively quickly changed places in the sky compared to the stars. It was according to this definition of theirs that they identified the sun and the moon also as planets, since these two objects are daily seen to change position in the sky very quickly. The mistake that was involved in this was a product of their narrow empiricism. It required a wider database as well as a high power of abstract thinking and reasoning to overcome the limitation.

There were other limitations too. As per their psyche born out of the then magical culture, the primitive men considered every moving thing to be animated, living like themselves — the flowing river, the surging sea, the quaking earth, the sliding mountain rocks, the raging storm, the heavy downpour from the sky, and so on. Similarly, the planets and stars in the sky were also animated, given names like man's, and provided with man-like social and family relations among one another. They were supposed to possess volition, facilitate or disparage man's livelihood, according as the roles their movements appeared to play in his life. The sun and the moon were obviously good for man. The Jupiter and the Venus — also very luminous objects, observed over a longer period, and therefore helpful — were considered benevolent to man. On the other hand, the Mercury which because of its proximity to the sun is

rarely seen and the Saturn which with its peculiar ring moves slowly were supposed to be inauspicious. The Mars being reddish in appearance was supposed to contribute to warfare and bloodshed. So on and so forth. The primitive people of all countries more or less adopted this kind of characterization of the planets. Like their other rituals the primitive people had devised some magic procedures to propitiate the benevolent and exorcize the malevolent planets. The astrology of the time also had absorbed all these features.

Even then astrology was not called upon to foresee the fate of individual man. Because both these concepts — *fate* and *individuality* — were still unknown to the primitive man. From the enormous volume of data collected by sociology and anthropology about the culture and social organization of the primitive people of different parts of the globe, it is fairly certain that human society was till then divided into small units of tribes and clans living in scattered settlements on the river-sides, mountain caves, forest clearances, etc. Every community was a unified whole with no division into a privileged small group and a deprived majority. A member of a tribe or a clan had nothing like his or her personal interest apart from the group interest, and none had time or scope to be concerned about his or her own affairs. Every body lived in and through the collective — blindly but rigidly. The idea of some supernatural power called Fate, an invisible but inexorable distributor of the consequences in the life of an individual was then unthinkable.

The Rigveda, a valuable document of the ancient people in India, is a very good repertoire of evidences in point. In most of the verses in it the poets expressed their desires for corns, games, cattles, children, victory in war with the *Dasas* and *Dasyus* (the other heterogenic tribes) for a whole

community, and not for this or that individual. Almost all the prayers and appeals to the nature-gods were meant to cater to the needs of *us* and not of *me*. [11]

Naturally, the primitive man elaborated the role of the planets and stars in their life also in terms of their collective existence. All the objects had equal imports for all. Some of them indicated good crops for *all* members of the community, easy hunting for *all* of them, victory of their tribe against the other, on the one hand, and, some others stood for dangers like flood, landslide, hail-storms, drought, scarcity of foods and games, pestilence, etc. for them *all* alike. Astrology or jyotish till then was not concerned with the effects of the celestial objects on the life of individual men.

Class Division and Its Consequence

Advent of agriculture — the first technological revolution of mankind — led in course of time to the first social revolution with two important consequences. On the one hand, it could sustain an increasing population with the relative certainty of foods obtained, and at the same time required participation of a larger number of people to carry out the complicated and multifarious jobs of cultivation. In the process several tribes were compelled to unite into a bigger whole, thereby creating the possibility of a non-tribal form of societal organization. On the other hand, for the first time in the history of mankind, some stable property — namely, the cultivable land — was brought into being which could be located, preserved and multiplied.

From this resulted a major rupture in the common human relations within society creating class division. Until then whenever two tribes used to meet, (1) they would invariably clash with each other, and one group would rout the other; or, (2) the victorious group would kill all the members

of the other; or, (3) one group would seldom absorb the other to form a bigger community. But by now man had the experience that animals could be harnessed by him into his farming activities. So it gradually occurred to some people that members of the defeated tribes instead of being sent away or killed could rather be captivated and enforced into labour for the victors. This is how slavery had once started. However, it was not confined among the enslaved members of captured tribes only. The experience of employing slave labour gradually prompted a section of the victorious tribes to introduce it within their own community too. A small group of people converted all or most of the resources of the society into their private property and became the owning class and the masters of the society. The larger bulk of the remaining people were subjugated and enslaved under them.

From this historical moment there arose a separate personal interest of each member of the society. The present course of life and hence the future prospects — described under a sublime title of ‘fate’ — of men were no longer same for the two classes but were directly opposite to one another, in compliance with their respective social position. Here again some pertinent evidences can be cited from the later sections of the Rigveda, where for the first time an entity called bhaga appeared, distributing resources among some chosen few and depriving others. It is from this *bhaga* that the idea of *bhagya* — also called *niyatī* (meaning fate) — and the term bhagavan (powerful/resourceful) originated in the Indian tradition. In the 10th mandala (section) of the Rigveda, the primary intent of the prayers is seen to have been changed; it is no longer for the benefit of us, but for me.[12]

The course of life, and hence, the ‘fate’

of man ever since this moment of history had become different for different individuals. Most of the people then — as they are still now — were unaware of the real factors at work behind this sharp division. So they sought for an explanation in fictitious things or they themselves imagined things. Looking at the social order maintained by a king or any other ruler they contrived a governor of the entire natural and social order — a God. The heavenly luminous bodies, as distinct from this mundane earth, were considered to be the soldiers of this God. They carried his orders to define the fates of different men in different ways by sitting in special positions at the time of their birth.

These changes in men’s social positions and their outlooks were, therefore, also reflected in the sphere of their knowledge about the sky. Before the emergence of the class divided society, the celestial bodies too, like the terrestrial objects, were viewed by man as animated beings, and not as supernatural entities. But now with the change and the split in men’s social positions and functions, their attitudes to these entities also changed. These were thought to be possessed with some God-given supernatural and occult powers, including the power to decide and control the course of events in the life of every individual man in particular ways. The kings and slave-masters were the first to have become interested to foresee their future:

If they go out for imperial expansion and expeditionary war, will they be successful? When is it the most propitious time to launch the battle? Suppose, there are many expectants in a royal family waiting to occupy the throne; who will succeed? So on and so forth.

So the first generation of astrologers were all deputed to serve the royal families. In our country they were called in Sanskrit the *Rajajyotishi* [13]. That is why, whereas

Aryabhata, the great scientist of ancient India had engaged himself in the study of astronomy, men like Varahamihira, one of the nine jewels of the court of Ujjaini, devoted themselves in astrology. His *Panchasiddhantika* can be considered to be the first authentic treatise of Indian astrology. Similar thing had already happened in the western countries.

From this time onwards astrology lost its original function, namely, to study the heavenly bodies to learn about their movements. It stopped to study them any further but took things till then known for granted and final. On the basis of that knowledge it built up an esoteric system about the roles and functions of the handful of stars and planets it knew, and began to prognosticate their mystical influences on the life of an individual man in virtue of their special positions at the time of his or her birth.

Astrology now changed its function but retained the name. So those who continued to study the celestial bodies and discover new ones had no alternative but to coin a new title for their pursuit: astronomy (in India also it had to differentiate itself from jyotish shastra as jyotirvidya or jyotirvigyan). It is an irony of history that today the jyotish-lobby, behind the facade of the UGC and under the umbrella of the BJP Government, has to try to capture this new name too and label their course on astrology as 'jyotirvigyan'! Probably, at the inmost recess of their heart they are also aware of the real 'worth' of their astrology.

From this brief historiography it is now clear how astrology degenerated into a form of "rejected knowledge". It has remained static where it stood at the time of its divorce with astronomy, like the stagnant segment of a river cut off from the main stream when it had changed its course. Over the centuries man's knowledge about the objects of the sky continued to increase

and expand, gradually passed astrology by, in the process retained whatever valuable data it had till then collected, rejected its wrong perceptions one by one and went on absorbing all the new information that came in the way. The advancing frontiers of the sciences have long back left astrology far behind and shelved it in the museum of ancient history.

PART — III: APPLIED ASTROLOGY

Astrological Metallurgy

Now let us look at the other aspects of astrology. The astrologers do not stop at prognosticating the future life events of their customers. They also suggest remedies to improve the future. Usually nobody — even though a believer — goes to an astrologer when he or she is passing through good times. It is the unhappy people, jobless youths, parents with unmarried aging daughters at home, persons afflicted with chronic and incurable health problems, or involved in a complex tangle of lengthy litigation, etc. who go to consult the astrologers.

But, they are hardly ever aware that by going to the astrologer they contradict their own belief, namely that, every thing in their life is already pre-determined by the stars and planets in their birth charts.

The astrologers also never tell a client that the position he/she is bogged in has been created by the special arrangement of the planets and stars at the time of his/her birth, and it can't be helped. Right or wrong, it would sound logical enough. The conclusion would be consistent with the proposed theory.

They, on the contrary, suggest that the situation can be improved by neutralizing the actions of the *kupita grahas* (angry planets) with the help of some *tabeez*

(amulets) etc. made of astadhatus (eight metals), or wearing rings with special gemstones meant for the purpose. Before arguing the case against the efficacies of such practices, we would like to point out a serious problem.

Let us for the time being agree with astrology that the metals or gemstones can ward off the evil influences of the bad planets. But then, what does that mean in our objectively existing physical world — as studied by the sciences?

According to the astrologers, the entire course of events in the life of a man under question had been predetermined by the special positions of the planets and stars obtaining at the time of his/her birth. The horoscope of the man, if prepared by a well-informed astrologer, could accordingly predict all the afflictions he/she is now confronted with. Nothing could alter this divination of fate.

But if the astrologer now claims, he can change the eventuality by applying a suitable metal and/or stone, that implies he can change things created at the time of the man's birth. That further means that he can change what has already happened. He can change and influence the past by his action at present (see Fig.2) What an absurdity is this! To be able to extend his hand in the opposite direction of time!!

But we cannot help. Applied Astrology — or to be more precise — Commercial Astrology is bound to lead to such an absurd position.

There are some other vital questions too.

In nature there are 92 elements in all, of which 64 elements are metals and the remaining 28 are non-metals. The first series of questions is as follows:

- Why does astrology refer to only 8 metals?
- Why does it refer to only metals?
- Why does it not refer to any non-metal?

Astrologers or their 'scientific' apologists further claim that since there are many metals in the physical constitution of human body, like iron, use of metals in whatever form is bound to act on the body by virtue of the properties of matter. Many people are found to be convinced by this argument.

All right. Then we can put forward our second series of questions:

- Which metal is present in our body in the largest quantity?
- Which element — metal, or, non-metal — is present in our body with the largest quantity?
- Why does not astrology suggest these elements as the contents of the amulets?

These questions cannot be answered within the purview of astrology. Its apologists can only bypass the issues and digress to other issues with the shunting tactic, as Dr. Joshi did at the IIT, Kharagpur. But we can find out the answers to all these questions if we delve into the socio-historical perspective of the origin of astrology.

Let us elaborate.

Astrology had extricated itself from the process of man's active and continuous cognition at a time when man's knowledge about the natural elements did not go beyond the 8 metals of antiquity, namely, gold, silver, copper, lead, tin, iron, zinc and mercury. This is true in the history of both Europe as well as India. Man acquired the knowledge about the identity and process of extraction of the other metals much later, most of them only after renaissance, when modern chemistry was born. Astrology, being stuck at the old level of human knowledge and divorced from the process of assimilating new information, could not naturally learn about any new metal.

The same is true of non-metals. Alchemy, the precursor of modern chemistry, had no

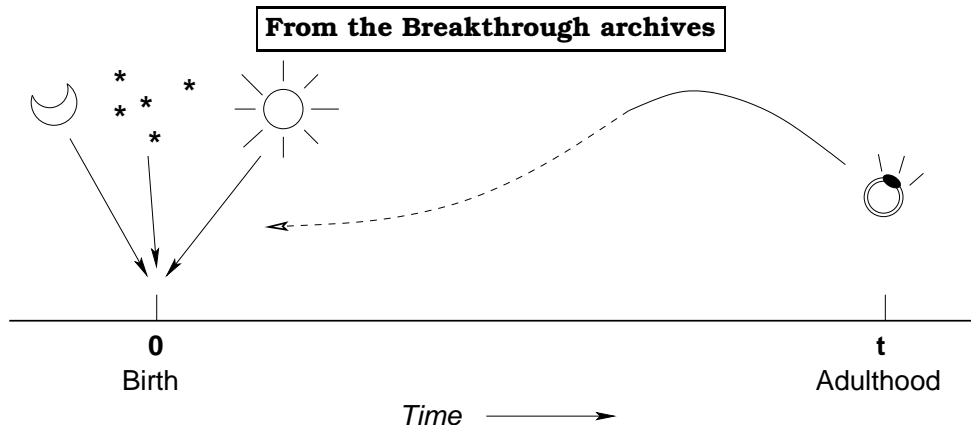


Figure 2: Action in time backwards. Jewels taken in adulthood acting on the planetary determination of fate at birth, per se astrology.

idea about the distinction between elements and compounds, and therefore, also no idea about the nature of the non-metals. The only non-metal it had been able to lay its hands on was sulphur. Besides, most of the non-metals are gases. It was not possible for alchemy to handle them. Again, it was only after the birth of modern chemistry following Lavoisier that non-metals were discovered, separated, and studied. Astrology, as we already know it, is quite securely insulated from the impact of knowledge. This is the reason that it does not refer to any of the non-metals.

After the development of chemistry, man's knowledge about human anatomy also expanded in all directions. Today it is well-known that — contrary to popular belief — it is not iron but calcium which is present in the largest quantity in the human body. Since it had been unknown in the past and since astrology stopped learning after that, it cannot prescribe any body to wear a ring made of 9 metals including calcium, or an amulet containing calcium. Similarly, although human body contains many other elements like magnesium, phosphorus, sodium, potassium, iodine, hydrogen, oxygen, sulphur, etc., in-

cluding some others as trace elements, astrology could not incorporate any of these in its application.

Here special mention should be made of oxygen. How many people are aware that more than half of their body weight is contributed by oxygen?

Let us explain. More than two-thirds of human body mass is actually composed of water. And water (H_2O) contains hydrogen and oxygen in the 1:8 ratio, that is to say, 8/9 parts of the mass of water is due to oxygen. This implies that at least 16/27 parts of the body mass (59.26%) of a man is contributed by oxygen. Will any astrologer therefore ask any of his customer to take a tabeez full of oxygen?

All these points go to show that the 'scientific' data base of astrology did not go beyond the level of knowledge rejected by man long ago.

Astrology and Gemstones

The same historical approach may help us to understand the social psychological background of astrology behind the prescriptions of different gems and stones. Since long past man had attributed various symbolic significances to the differ-

Table 5: Semiology of Colours

colour	symbolic significance
red	death / danger / stop / prohibition / fertility / war / bloodshed
green	life / creativity / safety / good news / approval
white	peace / compromise / gladness / sacredness / cleanliness
blue	expansive / vastness / aristocracy / venom
black	grief / mourning / sadness / bad omen / evil / darkness
yellow	stale / dry / barren
gray	infertility / sadness / worn out / dead / dying
orange	living / sacrifice / asceticity etc.

ent colours. This is a universal feature of mankind. Let us have a glimpse of that in brief in Table-5.

Many of the symbols of the ancient people were based on these conventions. Yes, these were no more than just conventions, accepted by the members of the social groups concerned. These are still in use even in modern society as conventions, for example, in the railway and roadway traffic signals, celebration of peace, expression of grief at the death of some respected person, religious and cultural symbolism, etc.

But while modern people are in general aware of the mere semiological significance of these colours, the ancient people were not. They often mistook the symbolic representation as real message — as omens. That is how the reddish colour of the Mars was looked upon as a signal for warfare and bloodshed, the blue colour of the Saturn as old and vicious, so on and so forth.

Astrology had taken things at the ancient level of perception including this colour symbolism. So it built up its theory of remedies against the evil influence of the planets on the basis of matching colours of the planets with some of the stones (see Table-

6).

Now one might be interested to know what are the colour producing factors in these gem stones. During the last three hundred years chemistry has identified the chemical composition of these compounds and exhaustively studied their physical chemical properties. On chemical analysis it has been found that these are nothing but some mineral compounds of aluminium, silicon, calcium, sodium, potassium, etc. in the form of oxides as well as some organic products. (see the 5th column). Most of these compounds are colourless in their pure state. The peculiarity of their colours are actually due to the presence of some impurities (usually oxides of iron, copper, chromium, etc.) in certain lattices of the molecules of these compounds. In their pure state these would be totally irrelevant for astrology. Long live the impurities!

Be that as it may, we have to once again delve into the sociological history behind this practice. The use of the gemstones reflects the stage of ancient man's psychological development when they associated similar objects or phenomena together as cause

From the Breakthrough archives

Table 6: Gem Stones and Their Identities versus Astrological Significance

target planet	popular name		scientific name	chemical composition	colour
	Indian	International			
sun	chuni	ruby	corundum	$Al_2O_3 + Cr_2O_3$	red
	surya-kantamani	sunstone	quartz	SiO_2	white
moon	vaidurya	cat's eye	chrysoberyl	$BeAl_2O_3.(SiO_4)_3$	red, orange
	chandra-kantamani	moonstone	feldspar	$K_2O, Al_2O_3, 6SiO_2$ or $Na_2O, Al_2O_3, 6SiO_2$	whitish
Mars	prabal	coral	skeletal remains of an organism	$CaCO_3$	red
Mercury	pokhraj	sapphire	topaz	$Al_2SiO_4.(FOH)_2$	yellow
Jupiter	mukta	pearl	secretion by molluscs	$CaCO_3$	white
Venus	heera	diamond	a crystalline carbon	C	bright colours
Saturn	neela	blue sapphire	corundum	Al_2O_3	blue
Rahu	gomedh	Indian garnet	garnet	$Ca, Mg, Fe, Al Si_3O_{12}$	red
Ketu	panna	emerald	beryl	$Be_3(Al_2SiO_2)_6$	green
	opala	opal	amorphous silica	SiO_2, nH_2O	translucent
	gomedh	Srilankan garnet	zircon	$ZrSiO_4$	

and effect. They thought, dangers posed by an object from above could be thwarted by brandishing a similar object from below. So use red against red. If Mars holds out a bad omen, show it something red. If Saturn is sending evil influences ward it off with something blue. Since the moon is a benevolent entity, entice it further with white stones. And so on.

This kind of practice, quite prevalent in the pre-class society, is termed as sympathetic magic in anthropology. Although in these efforts the causes and effects were all misplaced and wrongly associated, one thing is surely appreciable. For the people of few thousands of years back it was a remarkable achievement to try to explain natural phenomena in terms of material fac-

tors and to work upon the external reality to extract services from it.

However, appreciation of ancient wisdom in its own historical background is one thing, but idolizing it as the epitome of knowledge and confining oneself within it when man's knowledge base has outstripped it far behind is a completely different thing. What astrology is doing today is adhering to those antiquated ideas about association of colours with functions. It is, thereby, again showing its position in history — a system of rejected knowledge.

Successful Prediction or Manipulation?

Some times believing people ask: If astrology is wrong, how does it correctly retrodict past events of a man's life? Why do its predictions about future often prove true?

Valid questions no doubt. Mr. X went to an astrologer to consult for the prospects of marriage of his daughter. The astrologer, just looking at the girl's horoscope for once, said, "Your daughter has some slight physical deformity." Mr. X is astonished. He starts propaganda about this pundit all around. Another Mr. Y had it stated in his horoscope that at the age of 40 he would suffer from a serious disease. Now he is suffering from acute acidity and insomnia. He is also telling every body how the effects of the planets are correctly studied by the astrologers.

Stories like these are galore. The problem with the believing people is that they keep in mind only those cases where the prediction or retrodiction tallied. They forget how many cases of forecast or extrapolation of the astrologers go wrong for one successful case. Whenever something happens that has a semblance of similarity with the event told, the belief of the credulous people is reinforced.

Actually, to ensure proper logical attitude to the question of prediction one should re-

member that there are two kinds of forecasting, namely, arbitrary speculation and systematic prediction. The first kind consists of those cases where the background and the result are not causally connected but sometimes happen in succession fortuitously. In the second case, the background of prediction and the result predicted are known to be causally connected and they most often (if not always) happen in succession necessarily. One should check which is the case with astrological prediction.

For example, suppose there is a mango tree in my garden. In the summer when the fruits are ripe, suppose one day a crow flew over the tree and a mango fruit fell down below. Can any body conclude from this that there is a connection between the two events? Can any body predict that whenever a crow will fly over the tree a fruit will fall down? The fortuity involved in such cases of accidental connection can be easily theoretically understood and/or statistically tested by taking large number of observations and comparing the data.

On the other hand, if we say that in the month of July gathering of dark clouds in the sky will indicate forthcoming shower, it is a necessary connection and can be easily theoretically explained as well as verified with respect to any number of observations.

In scientific procedures there is a definite rule for checking the fortuity. If a connection between two phenomena is not supported by at least, say, 95 per cent of the data (at 5% level of confidence), it is taken as spurious, accidental or fortuitous. In our example, the first case will not be supported by 95% of the data of crow and mango fruits. The second case will necessarily be found to be true in at least 95% of the observations.

The case of astrological prediction is of the first type. You can find it to hold in a few cases no doubt. You cannot see it to

hold even in more than, say, 30 per cent of cases. It fails in its predictions in overwhelming number of cases. But credulous people forget those contrary case histories. They remember only the fortuitous tallies. It was noted by Bacon, the great empiricist thinker, in a quite succinct way: "Such is the way of all superstitions, whether in astrology, dreams, omens, divine judgments, or the like; wherein men, having a delight in such vanities, mark the events where they are fulfilled, but where they fail, though this happens much oftener, neglect and pass them by." [14]

In addition, there are some tools of the game which ensure successes in prediction or retrodiction:

1) The intelligent astrologers, like an expert detective, can extract relevant information from their customers — bit by bit, disconnected, scattered — through suitable manouevres and talks, leading questions and suggestions. They are adept at reading the psychology of the customers. They pursue or change the line of conversation depending on the degree of progress of the talk or the type of reaction of the latter. The majority of people visiting astrologers are usually of weaker personality and feeble mind. They, moreover, come to an astrologer usually when they are in some trouble or distress, and, when they themselves do not find any way out or have lost all hopes of any other earthly solutions. They come to the astrologer with the hope to get some miraculous remedy. So when they start talking and reporting their problems, in most cases they remain virtually unaware that they themselves supply most of the information with which the astrologers surprise them in retrodiction. The function of the latter is to keep a good memory of the separate bits of information and gradually reconstruct a complete picture of some of the past events of the visitors.

It would be worth recalling here some observations of Swami Vivekananda who was very unequivocal in this matter: "I have seen some astrologers who predicted wonderful things; but I have no reason to believe they predicted them only from the stars, or anything of the sort. In many cases it is simply mind-reading. Sometimes wonderful predictions are made, but in many cases it is arrant trash." [15]

2) According to the law of probability in any system of events a particular event has a certain probability of occurrence, that is, if the system is run for sufficiently long time, that event will come about at least once at some instant whatsoever. It is on the basis of this law that man can play ludo, cards, chess, dice, etc. So is the case with eventualities of real life. If the astrologers forecast some moderate phenomena which may occur with an appreciable frequency, there is every likelihood that the speculation will come true sooner. Speculations like "You may earn/lose money", "Your health will show improvement/deterioration", "You have a predisposition for an accident", "Those you trust most will betray you", etc. etc. are fairly possible eventualities. In all such cases of prediction the chance of success is very high.

3) The speculation of astrology is always very hazy. The influences of the planets are not stated in simple and straightforward terms. It is described in terms of very many complicated relations of the planets with one another (most of them simply meaningless) which only the astrologers can decipher from the birth hour of the person concerned. So almost all the speculations of the astrologers are of the non-exclusive type. Whatever happens go to prove one or another of the results predicted by the astrologer. One cannot apply the falsifiability test criterion (as suggested by Popper) to astrology.

From the Breakthrough archives

Let us explain.

Suppose, a student goes to an astrologer and wants to know whether he/she will pass the M.A. examination which is ahead. The astrologer looks into the star-signs of the student and tells him/her: "Your days in near future are going through a good time. Jupiter is the ruling planet for the time being. Naturally there is nothing to worry. Of course Mercury is not friendly with Jupiter. So it will try to pull you out of Jupiter's influence. Better you take a sapphire in your ring to ward off Mercury. It might strengthen Jupiter's power."

There may arise any one of the following four situations:

	sapphire taken	sapphire not taken
the student	passed failed	failed passed

In each of these cases, the prediction of the astrologer will appear to be true. If the student passes after taking the sapphire, or fails without taking it, the result is obviously in conformity with the prescription of astrology. On the other hand, if the student fails in spite of taking the sapphire then Mercury is still holding power over Jupiter; or, if he/she passes without sapphire that shows Jupiter's strength. There is hardly any possibility of such type of predictions to fail. Hence it is also meaningless to say that astrologers' predictions come true.

However, some scientists and enquirers made some objective and empirical studies on the results of astrological forecasting. For example, Michel Gauquelin and his associates conducted a large scale statistical experiment in 1978 testing the possible connection of the star-signs on the job successes of 15,560 persons from 10 different fields of profession. "Results were entirely negative", implying thereby that there

is no relation — positive or negative, whatsoever — between job success of a man and his/her birth signs. The same group undertook another, still larger study — a comparison of the biographical descriptions of 2,000 eminent personalities with 52,188 character traits and their horoscopic predictions. The huge volume of data were computed and analyzed with the help of a sophisticated computer program "to test a possible correlation between zodiac and personality". The scientist concluded: "The results of our study are clear-cut and need few comments. There is no correlation between character traits of the subjects and the signs under which they were born.... All this presents a large body of evidence against the alleged influences of the twelve signs." [16]

Similar tests have been carried out by others too. John Mcgervey, a physicist of the Case Western Reserve University, USA, collected the birth-dates of 16,634 scientists and 6,475 politicians from standard biographical sources and checked their corresponding star-signs. They found that "the distribution of these signs were as random as for the public at large." Professor Silverman, a psychologist of Michigan, USA, explored the relation between successes and failures of marriages and the matching of star-signs of the married couples, by comparing the relevant data of 2,978 couples who had married and 478 couples who had divorced in 1967-68 in the state. He found no correlation of these data with astrologers' predictions. "Those born under 'compatible' signs married and divorced just as often as those born under 'incompatible' signs." James Barth and James Bennett of the George Washington University studied the frequencies of the Mars (sign of war and courage) and the Venus (sign of love and beauty) in the birth charts of those who had re-enlisted them-

selves in the Marine Corps during 1962-70. They found nothing special about the planets and the profession.[17]

Many people in the western countries believe that the lunar cycle has a direct bearing on the number of childbirth, that the numbers of live births during full-moons are much greater than at other times. Two scientists undertook an extensive study of the matter. They collected the details of the data about 11,691 live births at a hospital for a period of 51 synodic months (involving lunar phases) from 17 March 1974 to 30 April 1978, and prepared a day-by-day chart of the number of births. They found no special rise or fall in the number of births on any full-moon or any other day. These authors referred to some other statistical studies on the distribution of suicides, homicides and admissions to mental hospital, "none of which shows any correlation with the phases of the moon". [18]

Let us finish this excursion into the validity of astrological speculation with some interesting episodes. When the astrologers have to predict something very discrete and specific, their entire profession is put to a serious test. Let us take three such cases:

1. Elderly people may remember that in 1977 Indira Gandhi miserably lost the election and the Janata Party came to power. But In 1979 there were internal squabbles in the Janata Party and a mid-term poll loomed large. Mr. B.V. Raman, the supposedly greatest astrologer of India and the editor of the Astrological Magazine, published in his magazine the following predictions: a) "There is no indication of the Government of the Janata Party collapsing. Jupiter in the ascendant saves the situation." (July 1979) b) "For the Janata Party, the planetary movements during 1980 Dasha Bhukti period are favourable. As such the Janata Party will emerge as the ruling party and will form Government at

the centre." (November 1979) c) "Therefore, we conclude that Mrs. Gandhi can at best help her party in improving its position. Improvement in her present status is practically ruled out." (ibid)

What happened to the Jupiter etc. of the Janata Party's fate is now too well-known to need any comment.[19]

2. Mrs. Gayathridevi Vasudev, the daughter and illustrious successor of Raman's, had predicted the following about Indira Gandhi and her son, Rajiv, in their magazine (February 1984):

a) "While these indicate her strong desire to see her progeny in her own place after she quits the scene, the astrological factors would thwart her designs at the last moment or just when she is beginning to gloat over her anticipated success in her plans."

b) "Since [according to the horoscope of Rajiv Gandhi] the Rajayogas are relegated to the 12th house, power in this case may only imply 'near power' and alliance with it but never 'power proper' The Prime Minister's wish of her progeny occupying the gadi may be the proverbial case of a slip between the cup and the lip." [20]

3. A renowned astrologer, Shukracharya, the President of the Calcutta Astrological Society, had predicted the immediate future of Mrs. Indira Gandhi on the basis of her birth chart in September 1984. The forecast was published in a well-known journal of astrology. It ran thus: "The Saturn and the moon have exchanged places, so the Saturn will not be ominous. It is a mahayoga (great coincidence). Since the Saturn is the ruling planet of Srimati Indira Gandhi, there is no chance of Srimati Indira losing power or falling from the present seat of leadership within this great period (up to November 1989)." [21]

But alas! Indira Gandhi was murdered at her official residence within a month of the forecast. And Rajiv Gandhi became the

Prime Minister thereafter. One may only ask, what happened to the stars and planets, the mahayoga of Mrs. Gandhi's horoscope? And also of the Rajayogas in the 12th house of Rajiv's horoscope?

There can be only one explanation of these facts. All these astrologers - all their planets, stars and horoscopes notwithstanding — pinned their forecasts on their own readings of the prevailing political situation of the country. When Janata Party's rule had appeared stable, they predicted accordingly. In the early 80's it was again quite natural to expect a longer and safer political career of Mrs. Gandhi. So they forecast the same and saw no chance for Rajiv Gandhi's coming to power. There are many such concrete and glaring instances where the predictions of the reputed astrologers failed in the face of the subsequent hard facts. This clearly shows that the entire foundation of astrology is based on subjective readings and crumbles down at any such serious test.

Computer and Astrology

Nowadays, many astrologers are using computers to attract their clients. The common people have a common psychology to idolize machines like computers as all knowing all solving kits. If such an equipment supports astrology then why should we doubt its validity as well as efficacy?

Actually however computers help us to show the real place of astrology in the history of human knowledge in two ways:

- a) No text of astrology had ever predicted the coming of computers in the aid of man; and
- b) Computer can add nothing to the expertise of astrology.

The first point needs no elaboration. You have only to recall the texts of the jyotish shastra in India to see the point. Moreover, one should ask oneself, why does astrol-

ogy which could not assimilate any of the knowledge gained by man from the time of Aryabhatt through Copernicus to this day, go to use computer? In fact, as long as computer had been at the stage of the 'analog' system, when it was very difficult to handle even for the technical people and when it could not give out well-printed sheets of result, no astrologer thought of using the computer. Today, with the invention of the digital type desktop PC and the laser printer, it is now not only easy to handle the data with a computer but also possible to supply a nice-looking and precise print out.

As to the second point it has to be understood that computers are only tools of man's practical works extending highly intricate services. It is primarily a new and highly sophisticated system of information storage and retrieval. The content or quality of knowledge is not changed or improved with any change in its storage system. It works on the basis of the information it has been fed. It cannot go beyond what it has been taught to do and how it has been designed. The rapidly growing differences in the level of performance of the computers from generation to generation within the last few years amply testify to this fact. You cannot make a 486-type computer do all things that you can get from a pentium-III type one.

So also the computer of an astrologer is fed the primary data of astrology on the basis of which it functions. It answers the questions of the visitors on the basis of these data. Apart from its sophistication it is in no way different from the astrologer's parrot often seen on the roadside to foretell man's future. The parrot picks up a card in response to a query of a customer. The man is stunned by the superiority of knowledge of the parrot to his own. But an alert and intelligent man would easily discover

that the bird picks up the cards according to his master's instructions tacitly conveyed in the form of conditioned signals.

Or one may think of the tickets obtained from the weighing machine which, besides giving the figure of weight of a man who pays a one-rupee coin, also provides a comment on the man. Most of the comments are so framed that they will fit or please any person of any description. And there are only a few comments which are printed on all the tickets and are repeated from time to time. There is nothing specific about a particular man. If a same man takes weight and collects many tickets one after another, he or she will get different comments on the successive tickets.

Computer astrology is of the same type. Apart from the technical services no advanced knowledge is involved in it. It is still in the stage of "rejected knowledge". One might also feed data of demonology or witchcraft in the computer. Would it thereby raise them to the level of modern knowledge?

PART - IV: SOCIOLOGY AND SOCIAL PSYCHOLOGY

Why People Believe?

Thus ultimately we come to the moot question of the problem. We who are trying to build up a new science movement in our country have to address this question in order to find the ways and means to dispel the disparaging impacts of astrology and other forms of antiquated superstitions. The social psychology of the people who subscribe to these false systems of beliefs has to be understood. The sociology behind the continued existence of these beliefs has to be carefully explained.

Astrology had originated at the point of social development when the human society underwent for the first time a major rift

into two class formations — the exploiters and the exploited. The course of life, and hence, the 'fate' of man had become different for different individuals. Most of the people then — as they are still now — were unaware of the real factors at work for this sharp division. So they sought explanation in fictitious things or they themselves imagined things as we have already seen.

In course of social development, man's knowledge about the world has gradually improved. With the advent and onward march of modern science man's knowledge-base has increased manifold and is continuously growing every day. However, the relative position of the different classes — the owners of the productive resources of the society on the one hand, and the actual producers divorced from all the major resources and most of the products of their own labour on the other — did not change, but is heading towards a complete polarization. It is, therefore, a tragedy of history that man's knowledge about nature, that is, natural science, has not led to a uniform distribution of the fruits of science and technology among the people at large under the class divided societies.

It is another tragedy of history that man's knowledge about society and history has not been commensurate with his knowledge of nature. The reason is obvious. Social sciences, the sciences involving various activities of man in society, have a direct bearing on the various interests of man. The laws and theories about social development, about interrelation and interaction among different aspects of economy, politics, etc., about structures and functions of different human institutions, the role of ideology in human affairs, and so on, — all these involve concepts that either legitimize or condemn an existing social system. Whereas, even the most reactionary regime cannot totally dispense with the cultivation

of natural science and its procedures, every existing ruling elite in every epoch of history has an active interest in promoting only those ideas, concepts and analysis which justify their rule, their role and function as the ruling body, and in suppressing those that may prove to be indicting them.

It is for this reason that the social scientific knowledge of man, in general, is dominantly vitiated by this ruling class vision of society. The same man who understands causality in natural phenomena, if he/she is guided by the ruling class philosophy, may not understand operation of causality in social phenomena. This explains perhaps why even some renowned scientists also sometimes fail to follow and uphold the scientific principles in matters other than their specialized fields.

In this connection we must point out a fact: It is not true that Professor Raman believed in astrology or believed it to be a science — Dr. Gautam has created the episode for his role. In his Bombay (now Mumbai) University Convocation Address in 1932, Professor Raman had openly called upon the literate gathering to fight all variants of superstitions: “Let the dogs of conservatism, ignorance and fanaticism bark, but the glorious caravan of the Indian nation will move on with irresistible force.”

But there are some others who may believe in astrology and its cures, who may even hold that it has some scientific basis. But because one is a good scientist this opinion does not become true. In such cases we must remember that truths of science and the statements of a scientist are not always and necessarily the same thing. We must be able to see this point.

For the common millions the situation is still more precarious. They take the existing order of things for granted, as a permanent establishment, in which they find himself placed in an unalterable predica-

ment. A father is not sure whether his children will get education properly, an educated youth is afflicted by unemployment, an employee is constantly under the threat of retrenchment (nowadays sublimated as “voluntary retirement”), an average citizen always trembles under fear that he or she may suffer from a disease that is incurable and/or economically unmanageable. In a certain sense, the uncertainty in life of man has increased hundred fold in modern society compared to the previous feudal epoch. War, share market crash, economic collapse, erosion of real income, etc., have become the other major threats before man. But the average man does not understand the causes behind all these regular social hazards in life. He does not see the spade, nor the spade holder. He attributes all these disorders to chance, to fate, to some inexorable destiny. He views all these malaise as his personal problems and therefore seeks redressal to these at the personal level by somehow manipulating that fate or destiny on the basis of chance factors. He does not understand that man can create a social order completely different from what exists today where the life of every individual could be governed by a common cause of social wellbeing. Education, employment, medicare, old-age security, would be ensured by the social mechanism itself. He therefore cannot stand up and declare, “I will control my fate”.

This is where astrology comes in. This is where Jupiter and Saturn take the hold. This is where even a parrot appears wiser than the believing man. This is where some pieces of metal, some impure chemical substances, some fossil-crusts of lower animal origin, seem to be able to command over the distant planets and therefore attract his unbound respect.

Vivekananda had quite candidly described this astrology-philia as a mental

weakness and mental sickness in his characteristic language: "Weak men, when they lose every thing and feel themselves weak, try all sorts of uncanny methods of making money, and comes to astrology and all these things. "It is the coward and the fool who says, "This is Fate" — so says the Sanskrit proverb. But it is the strong man who stands up and says, "I will make my fate".....You will find that astrology and all these mystical things are generally signs of a weak mind; therefore as soon as they are becoming prominent in our minds, we should see a physician, take good food and rest." [22]

In point of fact, as regards astrology, magnificent results were obtained by a section of humanity in some parts of the world for quite a long time - where astrology was rendered redundant for man as soon as his problems had been addressed to and redressed by the system. In the erstwhile USSR from 1920 to 1970 and in the People Republic of China during 1950-75. Large number of people in these countries had once believed in and practised astrology — for reasons enumerated above. But from the moment the uncertainty had gradually begun to vanish from life, the differences in sharing the opportunities of life were gone, all resources whatsoever were equally available to all irrespective of their stars and planets, and all the hardships had to be similarly shared equally by all no matter who was born in which constellation, when it had become a concern of the state to keep all the citizens healthy in body and mind — the profession of astrology, palmistry, numerology, etc. found little or no clientele in seeking forecast about health, job, education, marriage, etc., and therefore, little or no practitioner to advise the people in these areas.

Even if there be a strong social movement in a country for a better society, if the con-

sciousness of a larger section of people be raised to a higher level, this fortune telling profession suffers a serious setback. At least among those who are participating in these movements, those who have read the lessons of history, science and the history of science on the one hand, and tasted the power of people's united struggles on the other, the idea will find a fertile soil that human destiny is made (in its both good and bad aspects) by man himself. It is the strong-willed man who makes it for himself, and he makes it for the feeble-minded too.

How They Enforce?

At the same time, we have to keep in mind that there are social forces which require to sustain astrology for their own interests. Otherwise we shall not be able to understand why the NDA government, the HRD Ministry and the UGC are so bent on introducing these antiquated courses.

It is true that there is a pressure of the RSS lobby to carry out its hidden agenda in the field of education. A deeply in-circle man and a long-trusted RSS veteran, sufficiently streamlined and orthodox, Dr. M.M. Joshi, as soon as he had taken the charge of the HRD ministry, went ahead with the Hindutva agenda and started taking one programme after another, for example:

- a) Introduction of Sarasvati vandana in all schools;
- b) expulsion of the qualified scholars like Satish Chandra, Bipan Chandra, Sumit Sarkar, Ram Sharan Sharma, K. M. Panikkar, T. K. V. Subramaniam, and many others from the authoritative bodies like ICHR, ICSSR, UGC, NCERT, and from the Indian Institute for Advanced Studies, Simla, etc., and, induction of RSS men or reliable yes-men like K. G. Rastogi, G. C. Pande, Kireet Joshi, Hari Gautam, J. S. Verma, J. S. Rajput, etc. in their places;
- c) withdrawal of authoritative history text-

books written by the afore-mentioned historians from circulation;

d) recommendations via the channels of the NCERT for (i) introducing a compulsory course of the so-called Vedic Mathematics at par with general mathematics in schools, (ii) making science and mathematics optional in classes IX and X, (iii) teaching of the Sanskrit language and a religious course compulsory in all classes of schools, (iv) replacing the different subjects like history, geography, civics, economics, social studies, etc. by a single condensed course prepared in line with the RSS imagery of India;

e) curtailment of fund for the research projects of the ICSSR, ICHR, etc. while liberal sanction of huge fund for the RSS-led Deen Dayal Upadhyay Research Centre.

f) Side by side, attempts are afoot to rescue the so-called Rigvedic Sarasvati river by drawing water from the existing channels and filling up some of the dry channels west of Yamuna, to show some factual relevance of the Vedic history and geography;

g) There are concerted efforts through various statutory bodies (i) to revise and rewrite ancient Indian history, (ii) to transfer the credit of Harappan civilization (estimated to exist in between 3500 to 1800 B.C.) on to Vedic culture (which started not earlier than 1500 B.C.), (iii) to throw back the time of onset of the Vedic culture to a preposterous period of 6000 B.C., (iv) to claim that the original home of the Indo-European language groups (who are wrongly called Aryans) was in India wherefrom they had scattered northward and westward, (v) to eulogize the Gupta era as the golden epoch of India and brand the entire Muslim period as a consistently anti-Hindu tyrannical rule — in strict compliance with the colonialist British policy of using history as a tool to pollute the mind of the people, etc.; so on and so forth.

Although many of these things have not yet been included in formal curriculum, Joshi wants to keep the initiative running. If these programmes are successful, very well. And even if they fail, the Hindus as the majority community can be given a signal that they can do nothing for the Hindus, the 'original Indians', because of the coalition politics and opposition of the rationalists, secularists, Marxists and the minorities, etc. Unless the BJP is alone in the government, it can do nothing further.

However, that is not the whole picture. Dr. Joshi was honest enough when he told the press: "My position is very clear. If the 1986 NEP (National Education Policy) was a move towards saffronization, then my policy too is so, for I have not moved an inch from the NEP." [23] It is a fact that Mr. Rajiv Gandhi, the late Congress Prime Minister had adopted this policy and offered a broad scope to introduce any ancient and antiquated subject into the formal curriculum in the name of national heritage etc. The NEP stated: "Efforts will be made to delve into India's ancient fund of knowledge and to relate it to contemporary reality." [24] It continued: "The pre-occupation with modern technologies cannot be allowed to sever our new generations from the roots in India's history and culture. ... Education can and must bring about the fine synthesis between change-oriented technologies and the country's continuity of cultural tradition." [25] It was not meant to promote a thorough study of the ancient history of India, but to underscore some relevance of ancient wisdom even today, as was clarified by the expanded "Programme of Action" of the policy. It declared that the excavation of the ancient knowledge was taken up "with a view to establishing the validity and relationship of the knowledge and experience embedded" in the classical languages of antiquity "to contemporary scientific thought

and technological development.” [26]

Similarly, Mr. Gandhi could claim that he had inherited the charge from his mother's programme. Mrs. Indira Gandhi, when she was the head of the central government had also promoted a course in the name of “value orientation” which foreshadowed many of these things. The Working Group set up under the chairmanship of Kireet Joshi, then advisor to the of Ministry of Education (the same Kireet Joshi now enrolled in the RSS panel of intellectuals to replace the unwanted members of the academics), on the future Teachers' Training Programme towards Value Orientation, recommended in its Report an elaborate course design about what to teach in the name of “values”, for example: “Aim of human life — supra-cosmic, supra-terrestrial, cosmic-terrestrial, integral; Education of the in-most being and values of psychic and spiritual culture; Philosophy and the idea of the God, Proofs of the existence of God, Attributes of God; The Problem of evil, suffering and death; Psychology of worship and prayer; Psychology of action without desire; Psychology of concentration, meditation and contemplation; Central spiritual experience, Liberation from the ego, Cosmic consciousness, Transcendental consciousness; Yoga as practical psychology, Yoga as science of spiritual experiences, Systems of yoga, Integral yoga of Aurobindo, Synthesis of science and spirituality; Telepathy and Clairvoyance;” etc. etc. [27]

It is very difficult to find out any trace of values in these foamy areas! But it reveals the long existing persistently obscurantist tendencies in the field of education in India among a large cross-section of the policy makers.

And Why.....?

In fact, it is a still older problem. It started in the days of Indian renaissance

when some revivalist movements, launched under the guidance and inspiration of Bankim Chandra Chatterjee, Ramkrishna, Dayananda, Vivekananda, Aurobindo, and many others, sought to reverse the efforts of Ram Mohan, Vidyasagar, Phule, and some other great personalities of the time to lead India towards modern education and culture. Instead of fighting against the age-old ideas, values, superstitions, beliefs and customs prevailing among the people, they sought to justify them, glorify them and called upon the people to uphold them as the national heritage of the country (although Vivekananda, as an Advaita Vedantist, was opposed to astrology, as we have already seen).

During the freedom movement also the revivalist trend continued. Political leaders like Gandhi or scholars like Dr. Radhakrishnan took to the path of glorifying the ancient India and her religion, culture, customs, outlook and the way of life. Very few personalities like Sarat Chandra Chattopadhyay, Premchand and Bhagat Singh made serious efforts to convince the people about the futility of pursuing this long trodden path of antiquated habits and cultural stagnancy. However, for many historical reasons their attempts were not successful. Anything past became the symbol of India's greatness, no matter how irrelevant or even harmful that might be for the progress of the country. This created a serious hurdle on the way to cultivating the logical bent of mind, critical outlook, rational approach among the common people.

After independence those who rode on the saddle of power and began to control the country's economy and politics, found in all these old things a good opportunity to keep the teeming millions in darkness about the why behind the what of their life. Whatever the ruling class does in its profiteering interests and however harmful that may be

for the common millions, the people, under the spell of astrology, will not be able to see the root cause of their problems in them. They will at best accuse their stars and their fate.

That is why all the successive governments at the centre have encouraged inclusion of these things into education — no matter who were in the office, what were their jargons or what colours of flags they brandished. Today, however, the BJP government has surpassed all previous examples in renouncing even the last residuals of rationality. But note that the non-BJP secular champions within or outside NDA have not registered the faintest of objection against these Hindutvavadi steps of the HRD ministry. Some Congress leaders, notably the chief ministers of MP and Kerala openly supported the astrology course. While the chief minister of West Bengal, Mr. Buddhadeb Bhattacharya, was protesting against the communalization of education, the Executive Council of the Rabindra Bharati University of his state (dominated by his party lobby) applied for the astrology course.

In this respect, let us note in passing, the Indian ruling class is not alone. The present capitalist economic system the world over has for long been submerged in an insoluble all round crisis. The entire system is trembling in fear of popular outbursts and insurgency against it at any time anywhere in the world. Almost all the capitalist states — big or small, developed or undeveloped — are therefore trying to engage the people's attention and energy in this or that conservative, reactionary and fundamentalist ideas and actions so as to divert their mind from the temporal sufferings as well as from the real course of liberation. They will then seek consolation in the hope that they will be rewarded post mortem in the heaven (if Christian or Mus-

lim), or in the next birth (if Hindu or Buddhist), by the God himself. Other countries are doing it by dubious means, through various propaganda channels, programmes and publications. The present rulers of India has taken a step ahead. Here the central government is going to introduce formal educational courses for the purpose.

That is the background of the astrology course. On the one hand, common people's belief in astrology will be further reinforced, it will earn a dignified status in society. On the other hand, this will lend an additional force to their belief in blind fate and their abject surrender to fatalism. The educated youths who are unemployed will blame their star signs. If crores of people starve while tonnes of food-grains rot in the FCI godowns, that is their predestined fate. Who can fight with the stars and planets and avoid the pre-divined eventuality? You had better pray to the gods or the God, consult the astrologers and the priests certified by the universities accredited with UGC courses, and seek redressal through pujas, homs, yagnas, offerings, amulets, rings, gemstones, and so on. Don't believe the scientists, social scientists and the Marxists, don't find fault with the social system, the economy, or the policies of the governments. Work, work and work hard without asking anything from anybody. It is only then that the God and destiny will be pleased with you and fulfill all your needs. The ruling elite knows it for sure that since you have no desire, and since there is no god or fate, none of these indoctrinations has any chance to be disproved in time.

Let The Clock Move Clockwise

This has, however, a serious implication for the cultural, intellectual and scientific achievements of the country. The necessary courses which create rational mind and prevent superstitions are being system-

atically undermined in divergent ways at the school level and higher up. If astrology and the other allied UGC courses enter the campuses of the universities, the highest seats of learning, its ideological, philosophical and epistemological levels will surely leave a gravely negative impact — directly or indirectly — on all subjects of study.

The impact would be of either of the two kinds: 1) If the courses are based on teaching true material content and level of the basic original texts available on the subjects, which represent some specimens of the ancient man's knowledge of the time, it will, first, undermine the intelligence and sensibility of the people who will come to teach as well as to learn; and then, it will effectually degrade the standard of learning in all subjects taught in the universities. 2) Otherwise the courses will be framed by incorporating the large stocks of information from many different subjects to make them appear uptodate, but be presented to the students as being recovered from the Vedic and other ancient Indian sources; which will be a sheer plagiarism and rank falsehood. And false courses can never render true knowledge. It will only help to spread falsehood in other academic areas of the universities.

Whatever happens, it will put the clock of progress backward.

The message is clear to all who can read the wall-writings of history. A formidable attack is going to be launched on education, science, culture, scientific outlook and morality. Those who can understand must rise up in defence of logic, science and civilization! It is not enough to argue and deliberate, we must act and fight. We must oppose introduction of anti-sciences in the precincts of education. We must not allow any group or lobby to vitiate the mind of the people with their sectarian and reactionary ideas from the seat of power. We must ad-

here to science and scientific truths. We must keep the clock moving clockwise! □

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