CHAPTER FOUR

SUPER URANUS AND THE PRIMITIVE PLANETS

About one million years ago, our Sun, then a Super Sun, underwent a nova eruption because of a sudden or unendurable change in electrical conditions. Solaria Binaria was instantly born. The Sun fissioned and in a huge blossoming cloud there would have been found a diminished Sun. Within a concentration of gases from the old sun would occur an admixture of chunks of the old Sun's interior material (nucleus), including a body that became the binary partner, which we here call Super Uranus. Between the new Sun and Super Uranus lingered other fragments of the fission and great quantities of the material that were to be absorbed into the planets. This impressive electrical quantavolution occurred in a matter of hours. The separation of the two bodies increased rapidly.

In electrical and chemical terms, we begin to detail this quantavolution. The normal flow of electricity between a star (the cavity) and the surrounding space is inward as is shown in Figure 6. The original Super Sun was such a star transacting quietly with the electron-rich space around it. The Super Sun became unstable, as outlined in Chapter Three, when its galactic journey carried it into a less electron-rich region [28]. Here, the enrichment presumably was rapid and of great magnitude, producing a quantavolution. The resulting nova, which is an explosion of electrons that forces (requires) a material accompaniment, created Solaria Binaria. The Sun for a short time was relatively too electron-rich. In an explosive expansion the binary was born, not just from the solar atmosphere but also from the refractory materials normally hidden within its interior.

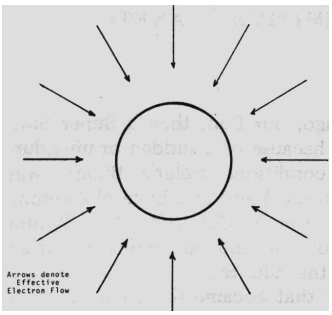

Figure 6. Electron Flow from Surrounding Space into a Star-cavity (Click on the figure to view an enlarged version. Caution: Image files are large.)

The Sun and the other stars represent electron deficient regions within the Galaxy. These regions, cavities as we call them, transact with the space around them gaining electrons during the lifetime of their central stars. When they become filled the stars they contain cease to exist.

The first state of Solaria Binaria is shown in Figure 7 below.

The nova explosion had propelled what temporarily was excess charge away from the Sun. This of course would be illusory, for the Sun, by its continued existence, remained a region of relative electron deficiency. Thus, the initial dismemberment of the original Super Sun quickly halted: the expansion of the => *plenum* of material, now surrounding the Sun, ceased both because of the Sun's need for electrons and because the charged surrounding medium continued moving because the charged surrounding medium continued moving in upon the cavity. The boundary of the plenum shown above is actually a quantitative concept to denote the region where the outward pressure created by the charged Solaria Binaria is equal to the inward pressure normally produced by the Sun's galactic cosmic transaction.

At birth the electrical state of Solaria Binaria was radially layered. The system can best be described in terms of the local charge density of both the material and of the space into which the material was ejected in the eruption. The highest relative charge density existed at the perimeter of the plenum. Inwards this density decreased. The fragments ejected from the Sun, the dÈbris forming the planets and Super Uranus, had progressively

higher charge densities than the Sun, which had the least charge density in the system.

The Sun seeks its lost charge. The easiest way to get that charge is to launch into the plenum electron-deficient atoms (ions). The proximity of super Uranus distorted greatly what otherwise would have been a radial flow of ions (as in the original transaction between the Super Sun and the Galaxy). A strong electrical connection coupled the Sun and Super Uranus; a lesser connection joined the Sun to the plenum, as shown in Figure 8 (see Technical Note E). This connection involved an inward flow of charge through the plenum. The charge flowed inwards either by direct transport of electrons or by indirect electron transport accomplished through the outward flow of electron deficient atoms (ions) (see Technical Note B).

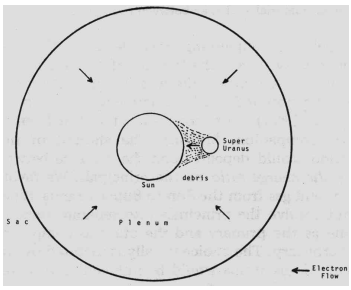

Figure 7. The Birth of Solaria Binaria (Click on the figure to view an enlarged version. Caution: Image files are large.)

At its birth Solaria Binaria was embedded at the center of a plenum filling a sac of electron deficient matter. Electron flow into the sac from the Galaxy was augmented by electron redistribution within the plenum and among the components of the binary system.

The strongest electrical transaction occurred between the principals; accompanying this electrical flow, and highly influenced by it, was the transfer of material from one of the principals to the other. Elsewhere, close binary systems exist where the flow is form the companion to the primary (Cowley *et al.*, 1977, p471); more common is the flow from the primary to the companion (Mitton, p85, p100). The amount of flow and its direction would depend upon the distance between and the => *specific charge ratio* on the principals. We favor the flow of ions and gas from the Sun to Super Uranus. Since we often cannot resolve the principals into separate stars, designation of

one as the primary and the other as companion is somewhat arbitrary. The choice usually is dictated by theory.

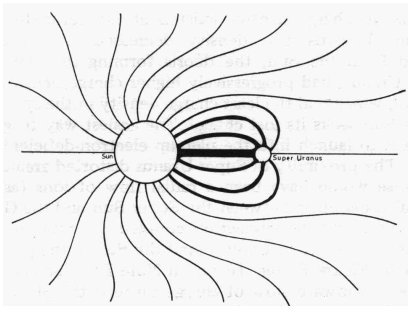

Figure 8. Material Flow Coupling the Sun, Super Uranus, and the Electrified Plenum. (Click on the figure to view an enlarged version. Caution: Image files are large.)

The creation of the Sun's companion, Super Uranus, greatly distorted the electrical flow between the electron deficient Sun and the Galaxy. The Sun's daughter, Super Uranus, like its parent, was short of electrons compared to galactic space outside the sac. The electrical flow coupling both the two stars and the stars with the Galaxy caused and directed a significant material exchange between the pair of stars.

Ionized gas atoms would be induced to flow between the principals. This flow of countermoving electrons and electron-deficient atoms would constitute a strong electrical current. As a consequence an intense magnetic field would be generated surrounding the current. This magnetic field would pinch the flowing ions producing a relatively narrow electrical flow channel (Zirin, p481). Collisions between neutral and electrified atoms would transfer the influence of the magnetic field (which affects only the electron-deficient atoms directly) to all of the gas between the principals; the result is a magnetic bottle (see Arp, pp213-5).

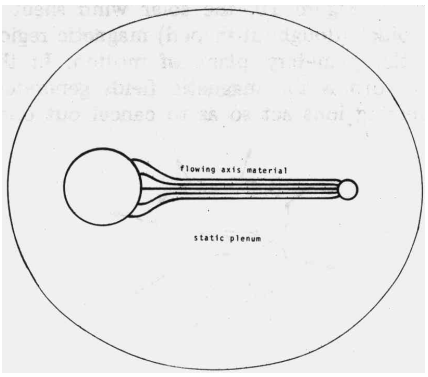

Figure 9. Flow of Material Between the Sun and Super Uranus under the Influence of a Self-generated Magnetic Field (Click on the figure to view an enlarged version. Caution: Image files are large.)

Electrically charged material flowing between the Sun and Super Uranus generated a strong magnetic field about the axis between the two stars. The effect of the magnetic field was to squeeze all material flow into a thin tube joining the stars. So constrained, the charged matter flow constituted a potent electric discharge, the arc, through the gases and matter of the plenum.

From the solar wind protons moving past the Earth, Juergens (1977c, p28) has calculated the current flowing away from the Sun in a sheet localized close to the ecliptic plane. If this same ion current was once flowing through the electrical channel, then the magnetic field generated was several thousand gauss in strength. Such a field would adequately constrain most of the gases producing a gaseous column or axis between the two stars. Material has been found along the interstellar axis in several binary systems (Batten, 1973a, p5).

The absence of an appreciable interplanetary magnetic field despite the magnitude of the electric current represented by today's solar wind is understandable in terms of a planar current sheet model.

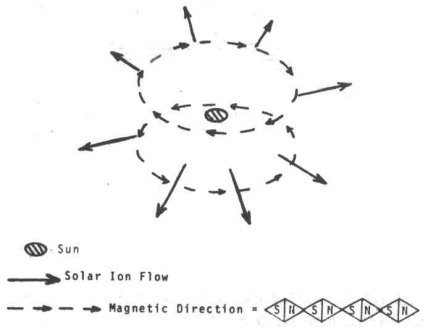

Figure 10 Magnetic Toroidal Field Produced by Solar Wind Current Sheet (Click on the figure to view an enlarged version. Caution: Image files are large.)

Assuming that the solar wind is concentrated about the plane of the orbiting planets, the outward flow of ions from the Sun would represent a sheet of electric current. A significant magnetic field, curved upon itself to form a doughnut (a torus), would be generated by the existence of the solar current sheet. This toroidal magnetic field should be found in the space above and below the space occupied by the solar wind.

As shown in Figure 10, the solar wind sheet produces opposed toroidal (doughnut-shaped) magnetic regions above and below the planetary plane of motion. In the region between the toroids the magnetic fields generated by the radially diverging ions act so as to cancel out one another as in Figure 11. The vector sum of the magnetic intensity cancels between the parallel flowing ions but survives on their perimeter, leaving the postulated toroidal field. So, the regions above and below the Sun could be strongly magnetic, while interplanetary space so far explored lies outside of the toroidal field region, and has been shown to be almost devoid of magnetism. The existence of the magnetic toroid above and below the Sun may be responsible for the planarity of today's planetary region and the enhancement of the solar wind flow in that plane.

The Sun's rotation began consequent to the nova discharge creating Super Uranus, Super Uranus thereafter wheeled about the Sun in close orbit. The magnetic field produced by their electrical transaction was instrumental in locking the rotation of the Sun to the motion of Super Uranus about the Sun. Strongly coupled together the pair rotated looking like an ever expanding but otherwise rigid dumb-bell. The gases and the planets as they formed remained trapped along the gaseous electrified axis between the principals.

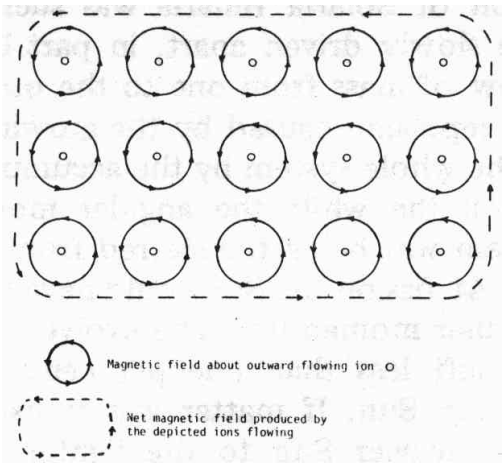

Figure 11. Magnetic Field Surrounding Several Flowing Ions
(Click on the figure to view an enlarged version. Caution: Image files are large.)

Each moving ion (or electron) comprises a unit of electrical current. It generates a magnetic field which appears in the plane perpendicular to its motion. When electrical charges flow radially, as does the ion wind from the Sun, only a tiny magnetic field is apparent in the region between the flowing ions because the magnetic effect of each ion is cancelled by that of its neighbors. A significant magnetic indication of the electrical flow is found only along the perimeter of the current sheet produced by the radial flow of the ions.

Plavec notes that the companion, if less massive than the Sun, can always be expected to rotate in synchronism with orbital motion. He states, also, that for all binary systems synchronism of rotation and revolution seem to occur for orbital periods shorter than ten days. For longer periods the synchronism falls except as postulated above.

Batten (1967, p36) notes that some semi-detached binary systems, particularly the Algol group, have primaries which rotate appreciably faster than would be expected for orbital synchronism [29]. We see these systems as a later stage of evolution of the binary. Solaria Binaria did not detach in this way until after the Saturnian period (see ahead, Chapter Fourteen).

The evolution of Solaria Binaria was such that the two principals were slowly driven apart, in part by the momentum of the flow of mass from one to the other and in part from increased repulsion caused by the growing level of electric charge in the

whole system by the accumulation of galactic electrons. All the while the angular momentum (spin) within the system was being transferred from the primary to its companion. At fission the Sun could have had over 80 percent of the angular momentum. The evolved binary (today's Solar System) left less than one percent of the angular momentum in the Sun. If matter was transferred mechanically from the heavier Sun to the lighter orbiting Super Uranus, the spin of the binary would decrease, but if the transferred matter is electrically driven, acceleration would be expected to accompany the transfer, thereby potentially increasing the spin of the binary. Even if no increase in spin occurs and even with a slight slowdown of spin, angular momentum is slowly lost by the Sun and gained by its companion and the primitive planets as the electric transfer continues.

The pulling apart of the principals was reflected in an increase in the binary's period of revolution. That is, Solaria Binaria wheeled more slowly about its center. There is a significant relation between the period of revolution of binaries and the observed "surface temperature" of the primary star. Certain stars called => *early-type* by astronomers tend to have companions with shorter periods (Russell *et al.*, 1927, pp703ff).

In its earlier stages, Solaria Binaria would have looked to a distant observer as a close binary with an unseen companion. We imply that the Sun was an early-type star but not in the usual sense of the term star. Within the => *sac*, where the two stars and the Earth were located, the energy flow may always have been similar to what we observe now. However the outer parts of the sac were transacting intensively with the cosmos and thus were radiating so as to appear markedly hotter. The perimeter of Solaria Binaria, then, would have appeared to radiate as an early-type star and not like the Sun does now (see ahead to Figure 21). Its period of light variation, radiation emitted, and flow of mass would have attracted the attention of astronomers elsewhere to Solaria Binaria.

Some curious "age disparities" exist between principals of binary systems. In the Sirius star system, a young => *main sequence* star is orbited by a less massive old white dwarf star (see Kopal, 1938). The B-emission stars (hot, very rapidly rotating main sequence stars surrounded by a shell of gas) are often spectroscopic binaries whose companions orbit in about

ten days. The companion is usually invisible and believed to be a highly => *evolved star* relative to the primary (Maraschi *et al.*). The highly evolved component admittedly often has so little mass that a nuclear synthetic evolution (see => *nucleosynthesis)* could no have aged it so rapidly (Kraft).

Both the age disparities and the size anomalies disappear if electrical evolution is considered. It is noteworthy that many of the interesting close-binary systems involve an unseen companion. The primaries in these systems range from very hot-type O-stars to very-cool-type M-stars. The sizes and masses within these star systems are inferred conventionally from the theory of evolution for the thermonuclear star (see => *thermonuclear fusion*). We do not agree with such an interpretation of this evidence.

We will not pursue the stages of early evolution of Solaria Binaria here (for that, see Part Two). The first aware men saw the skies in the => *Age of Urania* about thirteen thousand current years before the present (de Grazia, 1981). There were no humans capable of comprehending Solaria Binaria before it began to break up at the end of an Earth age that we shall be calling Pangea.

Super Uranus was first revealed to humans as a luminous object about twice the size of the Sun we observe today. The Earth was then located about two - thirds of the distance from the Sun to Super Uranus, because it was still electromagnetically bound to the axis between the stars. The objects found within the inner regions of galaxies seemingly orbit in this way - and probably for the same reason.

With such a configuration the Sun, if visible, would have been seen from the Earth's southern hemisphere only and would appear 2.5 times larger than Super Uranus, which in its turn was visible only from the northern hemisphere. The hemispheres referred to here are not those inscribed on the Earth - globes of today. They refer to the ancient references to the sky gods and their places. The Earth moved with its "north" locked towards Super Uranus (see ahead to Figure 18). No other major gaseous planet was in existence at this time.

As the solid-wheel binary evolved, the Sun eventually was separated from Super Uranus by 105 gigameters (about 0.7 astronomical units). Before the next great quantavolution the primitive planets Mars, Earth, Apollo, and Mercury ended up between the two principals in the region between 61 and 96 gigameters from the Sun. At such separation this would this would bring the planets Mars and Mercury closer to Earth by factors of four and six respectively. Even so these planets would produce visible discs which were only about one twenty-seventh the size of today's Moon. If they could be seen (which we doubt) they would still be observed almost as points of light in the sky [30].

The planets were originally debris from the Super Sun nova. They traveled out in the trail of Super Uranus, held in the electric and gaseous flow. They settled into their original positions rather than moving on because they were electrically less negative than Super Uranus. They distributed themselves in their magnetic cage along the axis in accord with the principle of maximum mutual repulsion (elsewhere known as "the principle of least interaction action"; see Ovenden, 1974).

Several cosmogonies involve processes occurring within a binary star system. Gunn proposes that planets arise from the break-up of a rotationally unstable star, the same process by which he accounts for the formation of a binary star system from a single star. Lyttleton (1936, p559) visualizes a process by which planets form during an encounter of a star with two other stars; for such an encounter between three stars to be likely the stars must formerly be members of a bound system of stars, a triple star system. Bruce (1944, p13), like Gunn, sees the process of planet formation as a special case of fission of one star into a binary.

From the beginning Solaria Binaria was enveloped in a cloud of solar material (gases and solids). As the binary evolved this sac became extended along the lengthening axis from Sun to Super Uranus. Compressed by the magnetic field generated by the flowing electrified gases, a stable gaseous tube surrounded the planets; indeed these gases pervaded the entire planetary region, enveloping all of the planets in a single sac of gases.

Within this dense gaseous sac, the contents of which the ancients called the *aether* [31], and we will call the plenum, the planets could receive biologically necessary temperatures from the axial electrical discharge connecting the Sun with Super Uranus (de Grazia, 1981). If today's aircraft had existed then, they might have flown regularly among the planets.

The approximate size of the gaseous tube within which the Earth and the other planets moved was at most the diameter of the Sun, and at the least a significant fraction of the diameter of Super Uranus. This tube confined the plenum which allowed life to develop and thrive on all of the planets of Solaria Binaria.

Notes on Chapter 4

28 The effect would be to make the star's surface suddenly quite electron-rich. Under such conditions the => *cosmic pressure* cannot hold the star's material together. The result is an explosive expansion. We cannot dismiss the possibility that a galactic electron storm suddenly enveloped the Super Sun, charging its surface to instability.

29 In cases of anomalous primary rotation, the anomaly is generally detected because the spectrum lines of the primary star are unusually bright. This line broadening could be, as well, evidence of electrical fields within the star's atmosphere (Stark effect).

30 The resolution of the eye is at best 20 arc-seconds; for night vision resolution is much worse than this (Greenberg, L.H.).

31 See Aristotle (*Astronomy*), where he argues that the outermost regions consist of an elementary kind of matter which is distinct from the other elementary substances (earth, air, fire and water). Also, in *Meteorology*, he notes that Anaxagoras thought that the upper regions were burning hot. Anaxagoras called the substance which prevails in those parts *Aether*. Aristotle adds that the ancients assumed that the *aether* is an eternal substance whose motion never ceases. It is like nothing else we know. There was controversy among the ancients as to whether the term aether (GK. *aither*) is derived from *aei-thein*, " to run always", or from *aethein*, "to burn". Aristotle favors the former (Gershenson and Greenberg), although Anaxagoras and modern etymologists prefer the latter.

CHAPTER FIVE

THE SAC AND ITS PLENUM

The original Super Sun, prior to its nova, was accumulating electrons from the Galaxy consistent with the demands of the environment through which it was passing. As we have explained earlier, the Super Sun became too electro-negative and expelled material violently into its surrounding space. This material could not escape; its expulsion was opposed both by the post-nova Sun and by the Galaxy. It thus formed and filled a sac surrounding the newly created Solaria Binaria.

In the sac was the whole system of Solaria Binaria; the Sun, Super Uranus, the primitive planets, and the plenum (of gases and solids) of solar origin that nurtured the planets.

As the binary widens, the sac becomes conical in shape, narrowing from the size of the Sun at one end to about the size of Super Uranus at the other. A system of similar appearance has been postulated for the binary AM Herculis (Liller, p352). Wickramasinghe and Bessell describe gas flow patterns in X-ray-emitting binary systems. There, one may note a similarity in the shape of their pattern of maximum obscuration to the cone of gases proposed in this work.

Viewed from the outside the ancient plenum would have been opaque to light. Not so with the gas of the Earth’s atmosphere today, which is eight kilometers thick if the atmosphere is considered as a column of gas of constant density [32]. This atmospheric layer is of trivial thickness compared to the radius of the Earth, yet its importance to the environment is unquestionable. Even this negligible atmospheric layer removes 18.4 per cent of the incoming sunlight, mostly by diverting it from its original direction of travel.

Some of this scattered light returns to space, but most of it is redirected several times to produce the blue sky so familiar to

us. Atmospheric scatter is enhanced near sunset when the incoming light traverses an atmospheric column tens of times longer than near noon. The setting Sun is notably fainter and its color redder because of the increased scatter. If the atmospheric column were as little as 1280 kilometers thick (at the present surface air density) all of the sunlight would be deflected from its incoming direction. Light would still be seen but only after scattering several times; no discernible source could be identified with the light. So it was in the days of Solaria Binaria. To be precise, if, in the last days of Super Uranus, this body were about thirty gigameters from Earth and if Super Uranus was then as bright per square centimeter of surface as today's Sun, it would not have been directly visible unless the gas density in the plenum was close to that deduced today for the Earth's atmosphere at an altitude of eighty kilometers. To see the more distant Sun this density would have to be decreased another fourfold [33].

In the Age of Urania, Super Uranus was located about as far from the Sun as the orbit of the planet Venus today. This would provide the plenum with a volume of about 10^{20} cubic kilometers. If the plenum contained as much as one per cent of the atoms in the present Sun, the gas density would be several times that found at the base of the Earth's atmosphere today. Neither star would be seen directly, and only a dim diffused light could reach the planetary surfaces.

As the binary evolved, the plenum came to contain an increased electrical charge; it expanded, leaving less and less gas in the space between the principals. Thus it became gradually more transparent.

Astronomers see diluting plenum gases elsewhere in evolving binary systems. Batten (1973a, p10), discussing matter flow within binary systems, favors gas densities of the order of 10^{13} particles per cubic centimeter. Warner and Nather propose a much higher density for one system (U Geminorum-a dwarf nova system) where they postulate a gas disc with 6×10^{17} electrons per cubic centimeter. Unless all the gas is ionized, the neutral gas density would be higher than the calculated electron density. The gas densities that they mention are comparable to

those necessary to allow the early humans to discern the first celestial orbits.

In the earlier stages of Solaria Binaria the plenum was impenetrable to an outside observer; all detected radiation came from the surface layers of the cone-shaped sac, an area up to fifty-five times the surface of the Sun. The luminosity of the sac would arise from the transaction between inflowing galactic electrons and the gases on the perimeter of the sac.

The plenum, at formation, was electron-rich relative to the stars and the planetary nuclei centered within it. These latter electron-deficient bodies promptly initiated a transaction to obtain more electrons by expelling electron-deficient atoms into the volume of the plenum. The charge differences within the sac were modulated with time. In other words, the plenum was losing electrons from its perimeter to its center. In response, the size of the sac collapsed under cosmic pressure. In time this charge-redistribution might have diminished the volume of the sac by as much as tenfold, compressing the cone of gases into a cylinder or column of smaller diameter.

Running along the axis between the Sun and Super Uranus was an electrical discharge joining the two principals. Moving with this electrical flow was matter from the Sun that was bound for Super Uranus. Some of this matter would be intercepted by and incorporated into the primitive planets.

Induced by the electrical flow a magnetic field was generated which encircled the axis and radially pinched the gases. The pinch effect is self-limiting in that the more the current, the more the pinch. An infinite current in theory pinches the current carriers into an infinitesimal volume, extinguishing it (Blevin, 1964a, p214). Material would be extruded at both ends of the pinched flow by the pressure induced in the pinch.

This circular magnetic field, a magnetic tube, would induce randomly moving ions of the plenum to circulate along the field direction. The circulating motion of the ions eventually would be transferred by collision to the neutral gases. The result would be that in the outer regions flow would be dominated by revolution around the circumference of the tube. Everything here would eventually revolve uniformly.

The innermost regions of the column were dominated by flow along the axis. Considerable transaction occurred at the junction of these two separately moving regions of the column, the central and the peripheral.

Some luminosity would arise from the transaction of electrons and ions deep within the magnetic tube. The ions electrically accelerated towards Super Uranus were neutralized at some point along their trajectory. At neutralization X-rays were produced. Some of the ions would be neutralized upon collision within the magnetic tube, most upon reaching Super Uranus; but, because of the pinch phenomenon noted above, some ions would be extruded and neutralized near the perimeter of the sac behind Super Uranus. Despite the high gas density in the original plenum, X-ray emission would be observable from the outside. That such is the case elsewhere is indicated by Brennan.

As the plenum diluted with time (in a manner to be discussed in Chapter Eleven) the outside observer would see deeper and deeper into the system, and eventually all of the X-ray emission would come from the interface between the magnetic tube and the surface of Super Uranus. As in other binary systems, a partial eclipse of the main X-ray source would then be seen as the dumb-bell revolved (see Tananbaum and Hutchings for data on other binaries).

Matsuoka notes a positive correlation between X-ray and optical emission in binaries. Radio-emitting regions surround many binary systems (Wickramasinghe and Bessell). Spangler and his colleagues claim that radio emission from binary stars is noted for stars that are over-luminous. The radio emission is generated by electrons transacting with the magnetic field associated with the inter-star axis. That this emission is enhanced when a stronger transaction occurs between the stars causing the over-luminosity is understandable, using our model.

At the perimeter of the plenum, optical effects would show to an outside observer an apparent absorption shell associated with the hidden binary within. Like many of the close-binary systems, the stars of Solaria Binaria would not be resolvable in a distant telescope, but the binary nature of the system could be known

because observable differences would be produced as the dumb-bell revolved.

Gas-containing binary systems as described here, and elsewhere (Batten, 1973b, pp157ff, pp176ff), represent the stake of Solaria Binaria at various epochs, and especially in its last days. As the binary system collapsed, the plenum thinned, allowing direct observation of light produced by sources inside the sac. The gas disc, theoretically implied to surround the stars of other binaries, is waning in the late translucent plenum. The gas streams detected flowing between certain binary components are present in Solaria Binaria along what we call the electrical arc. The gas clouds, whose absorption spectrum leads us to believe that they envelop entire binary systems, correspond to the perimeter of the early opaque plenum. As Solaria Binaria evolved, each of the classes of circumstellar matter noted by astronomers became observable in their turn.

Inferable from the above is the degree of visibility from the Earth's surface, or from any point of the planetary belt within the plenum. Overall there is a translucence. Objects near at hand might be distinguished, certainly after the half-way mark in the million-year history of Solaria Binaria was past. Sky bodies were indistinguishable from Earth.

With passing time, the level of light would increase. In the beginning, the light is scattered and the sky is a dim white. As the plenum thinned electrically, the sky bodies would emerge as diffuse reddish patches. During this process, the sky would brighten and become more blue. Thus, as they emerge, Super Uranus and the Sun brighten and whiten while the sky becomes darker and bluer.

At a time related to the changes soon to be discussed, around fourteen thousand years ago, the Earth is suddenly peopled by humans, and one may investigate whether any memories remain of the plenum. There seem to be several legendary themes that correlate with our deductions about visibility.

Seemingly, aboriginal legends describe the heavens as hard, heavy, marble-like and luminous. Earliest humans were seeing a vault, a dome [34]. Probably in retrospect, to the heaven was ascribed the human qualities of a robe or covering, and, by

extension, part of an anthropomorphic god. Thus, the Romans saw Coelus, the Chinese T'ien, the Hindus Varuna, and the Greeks Ouranos. Vail (1905/1972) presents ample evidence that day and night were uncertain and that the heavens were continuously translucent. When Hindu myth says that "the World was dark and asleep until the Great => *Demiurge* appeared", we construe the word "dark" as non-bright relative to the sunlit sky that came later. Heaven and Earth were close together, were spouses, according to Greek and other legends. The global climate of the Earth in the plenum was wet; all is born from the insemination of the fecund Earth by the Sky, said some legends. There was so much moisture in the plenum that, although the ocean basins were not yet structured, the first proto-humans might confuse the waters of the firmament above with the earth-waters. In some legendary beginnings, a supreme deity had dispatched a diver to bring out Earth from the great primordial waters of chaos (Long, 1963).

The earliest condition was referred to as a chaos, not in the present sense of turbulent clouds, disorder, and disaster, but in the sense of lacking precise indicators of order, such as a cycle that would let time be measured. T'ien is the Chinese Heaven, universally present chaos without form. The gods who later give men time, such as Kronos, are specifically celebrated therefore (Plato).

Sky bodies were invisible. Legends of creation do not begin with a bright sky filled with beings, but speak of a time before this. When the first sky-body observations are reported, they are of falling bodies. The earliest fixed heavenly body in legend is not the Sun, the Moon, the planets, nor the stars, but Super Uranus, as will be described later on.

Nor was the radiant perimeter of the sac visible. It lay far beyond discernment as such, and was in any case practically indistinguishable from its luminescence. The electrical arc would have been visible directly only in its decaying days, being likewise sheathed from sight by the dense atmosphere of the tube. That the arc or axis appeared along with the sky bodies before its radiance expired is to be determined in the next chapter, where its composition and operation are discussed.

Notes on Chapter 5

32 The actual atmosphere does not have a constant density throughout its volume. If condensed to constant density it would become an 8-km column of gas at the atmospheric density found presently at the bottom of the atmosphere.

33 The retention of a more dense, thin atmospheric skin surrounding the Earth (and the other planets) would not affect the visibility of the binary components more adversely than does the Earth's atmosphere today.

34 Vail (1905) collected ancient expressions from diverse cultures testifying to perceptions of the heavens as "the Shining Whole", "the Brilliant All", the "firmament", "the vault", "Heaven the Concealer". Heaven was the Deity who came down crushingly on Earth, and the heavens are said to "roll away" and to open to discharge the Heavenly Hosts; great rivers are said to flow out of Heaven. In other places we read of the gods chopping and piercing holes in the celestial ceiling, of a Boreal Hole that is an "Island of Stars", a "star opening", "Mimer's Well". Heaven was perceived to become ever more impalpable and tenuous with time, so that not only the memory of it but also its names, adjectives and metaphors lost their strength of meaning.

Click here to view
the next section of this book.