APPENDIX V

The Angular Momentum of the Solar System

In the following table the parameters from which the angular momenta of the planets can be estimated are listed. To simplify the data the planetary orbits are deemed to be circular. The data are in Earth units, the mass, orbital radius and annual rate of revolution in orbit being taken as reference. The sun, with an estimated angular momentum, is included to facilitate summation. All the angular momenta are in the same direction as all planets rotate on the same sense as the sun rotates about its axis.

Body	Mass	Orbit radius	Years per revolution	Angular momentum
Sun	332800	------	-----	20 approx.
Mercury	0.05	0.387	0.24	0.03
Venus	0.82	0.723	0.62	0.69
Earth	1.00	1.00	1.00	1.00
Mars	0.11	1.52	1.88	0.135
Jupiter	317.8	5.20	11.86	724.6
Saturn	95.2	9.54	29.46	294.1
Uranus	14.5	19.18	84.01	63.5
Neptune	17.2	30.07	165	94.3
Pluto	0.11	39.44	248	0.69

The total angular momentum of the solar system may be estimated by summing the last column. It is found to be about 1200 Earth units. The Earth mass is approximately 6.0×10^{27} gm and the Earth's orbital radius is approximately 1.5×10^{13} cm. The Earth rotates in orbit through 2π radians in a year comprising 3.15×10^{7} seconds. Thus one Earth unit of angular momentum is 2.7×10^{47} gm cm^2/s. 1200 such units makes the total angular momentum (AM) of the solar system some 3.2×10^{50} gm cm^2/s.

If ω denotes the angular velocity of the sun at creation when its mass M was no doubt very much the same as its present value of 1.989×10^{33} gm and its radius R little different from its present value of 6.96×10^{10} cm, then based on its mass density being uniform, as has been deduced by reference to Appendix IV, then:

$$(AM) = 2MR^2\omega/5$$

and:

$$\omega = 8.3 \times 10^{-5} \text{ rad/s}$$

This is an empirical value based on data found by observation and measurement of our solar system. The fascinating achievement of the theory discussed in this work by reference to aether spin and Appendix IV is the value of ω indicated by equation (8.13) in chapter 8.

$$\omega = \rho_m (4\pi G/\rho_\omega)^{1/2}$$

which, since the term in brackets is known to be 5.39×10^{-5} rad/sec per gm/cc and since the mass density of the sun is 1.41 gm/cc, tells us, by theory alone, that the angular velocity of the sun's aether at creation was 7.6×10^{-5} rad/s. This differs by less than 10% as a comparison between theory as applied to an event billions of years ago when the sun was created and the evidence before us today from the data we have about the solar system. A little speculation might then suggest that, since we have shown in chapter 8 why the sun's aether has to have a greater radius than

the sun itself, the sun's aether at creation was locked into sharing the angular spin velocity of the sun itself, but this came about before the sun had acquired its full inflow of mass and angular momentum. In then spinning faster than the $G^{1/2}$ factor times 1.41 gm/cc allowed, the sun ceased to share its aether spin angular velocity and, lost all chance of recovering that spin-lock, once it traversed a space domain boundary and shed its planets. I am, of course, in these final words indulging here in speculation, but my object is to tempt readers to find better answers, all in the onward pursuit for truth in our research into Mother Nature's realm of Creation.

Aspiring students of cosmology might be interested in working out how stars cluster over time so that there can be several sharing a space domain, whereas over large expanses of space between galaxies there will be many space domains unoccupied by stars. One could conceive of two stars created with much the same mass as the sun, but yet are not created as a binary pair, moving under gravity in a common space domain and so being drawn together, either to form a new star of double the sun's mass or settling into a stable dynamic system and forming such a binary star combination. With that and the fact that the above equation for ω does not depend upon stellar mass in mind, such a student might have his or her curiosity aroused upon reading the passage I now quote from P. M. S. Blackett's article in *Nature*, **159**, 658-688 (1947):

> "From statistical evidence on stars of similar type the probable values of these quantities (stellar mass, radius and angular velocity of rotation) in terms of the values for the sun are found to be:
>
> $$M = 2.3 \quad R = 2.0 \quad \omega = 25."$$

The message I read in that ω factor 25 is that most stars have escaped the experience of giving birth to planets. Maybe at

creation they acquired more linear motion than did our sun and so they traversed their first and subsequent space boundary encounters at a much higher speed, so that gravitational upheaval during transit had insufficient effect.

That figure of 25, as referenced on our sun, clearly says that most stars of the same type as our sun exhibit a rotational speed of approximately once per day, given that the sun rotates once every 25 days. Our Earth's once per day rate of rotation corresponds to an angular velocity of 7.27×10^{-5} rad/s.

Is it not then quite fascinating to find that our theory for the creation of a star, as based only on our analysis of aether structure plus what we know about the hydrogen atom, tells us that stars at creation spin at 7.6×10^{-5} rad/s? Such analysis does not depend upon space domain size, though the latter, given that speed of rotation, does determine the mass of the star.