

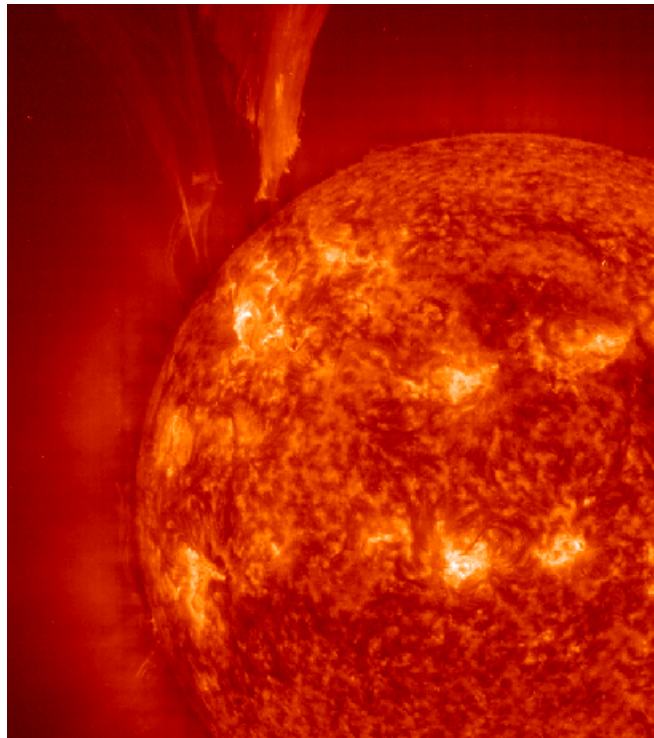
The Star We Live By

AS A MEDICAL DOCTOR, student of spiritual and natural science, and truth-seeking human being, I have long held a fascination for the way the world is explained in so many seemingly irreconcilable ways. Trying to reconcile these differences is an ongoing challenge. Equally important for me are the moral consequences of how humans view creation and their place in it. For it impacts to such a large extent on the health and illness of the individual as well as communal life. Consequently, the way the world is conceived is of no small importance. Rather than choosing one view over another, it seems more satisfying to find where each is actually justified and complements the other. By merging the natural and spiritual scientific world views, the resulting world picture is more complete and much richer than either would be standing alone. The following article is an attempt to make such an image with the sun as the object of study.

Pre-Grecian humanity, almost without exception, placed the sun at the center of their world view. To them it was the spiritual source of life, and made all things what they were. They ordered their cultural and agricultural calendars according to its rhythms—a practice which modern man has wisely continued. The central position of the sun is completely understandable, considering what our planet would become without its ceaseless outpouring of what ancient humanity called spirit life, and we today call energy.

Post-Grecian and particularly modern mainstream

Reprinted with permission from Stella Natura, the 1999 Kimberton Hills Biodynamic Agricultural Calendar, published by the Biodynamic Farming and Gardening Association, P.O. Box 29135, San Francisco, CA 94129, (888) 516-7797



The sun's turbulent, seething, corrugated surface is laced with erupting prominences and flowers of molten elementary matter.

science has attempted to replace this spiritual/ moral view of the star we live by, with a purely amoral/ material explanation for the phenomenon. Rudolf Steiner has attempted to update and expand the ancient conceptions with a modern spiritual one. It is these views that I would like to try to reconcile.

Each discipline presents a set of laws which must be satisfied, and which seeks to explain the percepts which present themselves to admittedly very different methods of investigation. Modern astronomy relies on instrument-augmented senses, physical laws and mathematical formulas to argue its point of view. Rudolf Steiner relies on spiritually augmented senses, spiritual laws, and the formulation of thought itself to present his world view. Let us look at what each method reveals about solar reality, starting with the astronomical view, and then presenting the spiritual scientific one. Then an attempt will be made to show that together these two views can be combined to offer a more perceptually

and morally correct view of solar activity.

The fundamental structure of the sun presented by solar physicists is one of a thermonuclear reaction standing at the center of the solar system, indifferently spewing out energy from its center outward into space. This theory is certainly consistent in many ways. It seems to be almost irrefutable, considering the copious amounts of data and mathematical calculations supporting such a view. However, its lack of moral content is disturbing, and it even violates some of its own basic laws, which leaves this picture vulnerable.

The moral/spiritual view of Steiner is as sophisticated and complicated as it is heart-warming, but it must also be brought in line with the observed facts in order to be completely satisfying. Let us look at some percept/concept complexes which might help us to arrive at knowledge of the true nature of the sun.

It has been known for some time that the corona, or atmosphere of the sun, is many orders of magnitude hotter than the photosphere, the surface of the sun (named from the Greek word *photo*, meaning "light"). This presents a serious problem for natural science to explain, since their basic premise is that the sun is hottest at its center. It defies logic and common sense that the further you go from a warm object the warmer it becomes. Even more problematic, however, is that this condition violates the second law of thermodynamics! This is a major no-no, and is completely intolerable to physics. Thus, the very hot invisible corona presents one of the most puzzling paradoxes in solar physics.

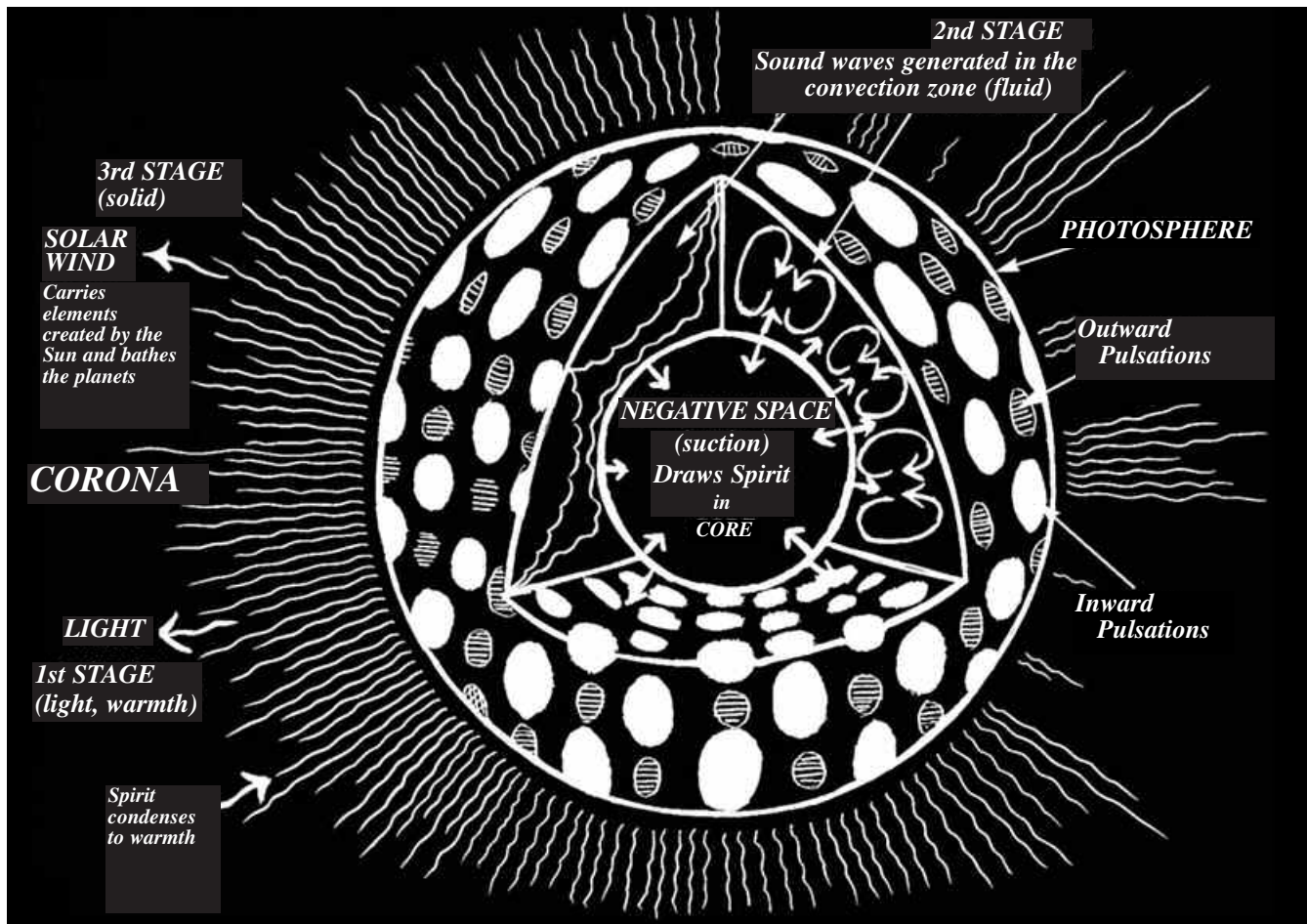
The research of Rudolf Steiner, however, is consistent with this fact. According to spiritual scientific law, the creation of warmth/fire is always a sacrifice of higher spiritual beings. Furthermore, when spiritual inner warmth becomes physically perceptible as outer warmth, a densification to air/gas occurs. Simultaneously, in the process a finer element is liberated; in this case it is light. This is exactly what is perceptually happening on the sun. Spiritual inner warmth streaming "in" from the cosmos condenses to outer warmth in the corona and liberates light at the sun's outer boundary, the photosphere. Spiritual beings sacrificing part of themselves to produce light and heat to sup-

port our own spiritual and physical life is how the sun presents itself in this view.

The activity of the corona reveals yet another law of the spirit. This law states that when spiritual life-forces move in one direction, matter and energy flow in the opposite direction. This principle is clearly demonstrated by the super-hot corona. The corona exerts a powerful measurable outward pressure on the globe of the sun. This outward pressure opposes what astronomy calls gravity, and Steiner describes it as a negative suctional space at the sun's core. It is the negative space that draws in the spiritual forces; as they stream in, matter flows the opposite way drawing out the surface. The combination of these two forces results in the spherical shape of the sun.

This picture of opposing forces, delicately balanced in dynamic tension, combining to create the sun's form, helps to explain another observed solar phenomenon. The surface of the sun often ejects large amounts of substances into the corona. When these so called coronal mass ejections occur, the sun convulses over large areas of its surface. This observation confuses scientists, since a large heavy star should not be so shaken by what is actually a relatively minor release of energy. However, when the surface of the sun is conceived as a thin skin balanced between the outward pull of the corona and the suction of the hollow core, it is understandable that disturbances on the surface should reverberate throughout the surface, as, indeed they do. Now a new picture of the sun takes shape that is both morally satisfying and perceptually confirmable.

The corona as a whole is also being investigated by NASA satellites. As it streams out from its beginning at the photosphere, it becomes what is known as the solar wind. The spacecrafts Pioneer and Voyager are involved in this study. They have sped past Jupiter, Saturn, Uranus and Neptune, their original objects of study, and are now racing toward the limit of the influence of the sun in space, sampling the solar wind as they go. The exact extent of the solar wind is still not known to astronomers, but they do know it is vast. It bathes all the planets with its content, and then continues to travel far beyond the solar system. It finally ends at what is called the heliopause, a spheroidal



egg-shaped bubble surrounding the whole solar system. The heliopause acts as a barrier to direct contact with interstellar space.

To the surprise of astronomers, the solar wind does not slowly and gradually mingle with the local interstellar medium, but comes to a sudden violent stop, creating a pulsating fluctuating shell. When the solar wind stops at the heliopause, the temperature and magnetic field strength of the wind is increased many fold. From this boundary flow cosmic rays of helium, hydrogen, nitrogen, oxygen and other elements toward the sun. The creation of these elements is perplexing, and difficult for scientists to explain. These percepts, however, are able to be illuminated and explained quite clearly by Rudolf Steiner. He describes how fixed stars work. and describes the sun in the following way, "There is a continual stream of life force flowing from the sun to the outermost boundary of its system and then stopping and turning back again." Now we can understand from what was

said previously, how spiritual beings reaching the limit of the solar system condense at the heliopause, give rise to warmth, and metamorphose out of the streaming solar winds the basic building blocks of life, sending them back toward the planets in a moral spiritual deed of creation and sacrifice.

Much of the current picture of the sun that modern astronomy has arrived at comes from a satellite called SOHO (Solar and Heliospheric Observatory) which orbits the earth and the sun in a unique position called an inner Lagrangian point. There, SOHO is balanced between the pull of the earth's and the sun's gravity, and thus exists in a state of non-gravity. Its 12 instruments examine the sun in unprecedented detail. They downlink several thousand images a day through NASA's Deep Space Network where anyone can see them by accessing the SOHO home page <<http://sohowww.nascom.nasa.gov>>.

Among the astounding new findings offered by SOHO, I offer the following for closer inspection.

The sun's outermost visible surface, the photosphere, oscillates. The entire surface of the sun rises and falls as small discrete areas with a slow rhythmic period of about 5 minutes. These oscillations, which can be tens of kilometers high and travel a few hundred meters per second, arise from sounds that course through the solar interior. The entire orb flickers and twinkles like a giant strobe. According to current astrophysical theory, the sounds are produced by the turbulence of hot gases near the surface. Once created, they are trapped inside the sun, propagating toward the center. They reflect and reverberate throughout the solar interior, and eventually return to the surface, striking and disturbing it, thus causing it to rhythmically rise and fall. There are about 10 million separate notes, each of which has a unique path and pitch.

This remarkable image, given to us by SOHO, presents some theoretical challenges to solar scientists, the details of which go beyond the scope of this article; however, it might have been predicted from the work of Steiner. The pulsating mulberry image described by NASA is a recurrent picture described by Steiner of what takes place during the evolution of planetary bodies, which all begin as masses of warmth. It is brought about by the workings of the Exusaiai (spirits of Form [associated with the Hierarchy of Scorpio]) which cooperate with the ruling spirits of the sun in a complicated interaction among the various hierarchies. The production of sound in the sun is the fulfillment of another spiritual law. As mentioned above, when a spiritual substance condenses, part of it falls to the denser stage of existence, while simultaneously a finer element is released. When the air element condenses to the fluid stage, what is liberated is sound or tone. The inner substance of the sun is certainly denser than the corona and even though the fluid element cannot physically exist within the sun, the turbulent convection where the solar sound is created acts just like boiling water. It follows the laws of fluid dynamics in its motion, and the laws of spiritual creation in its physical manifestation.

Steiner continually attributes the creation of form to the activity of the sun, a concept which astronomy has in a round-about way confirmed. SOHO has discovered that the solar wind carries

many elements from the sun. Among them are sulfur, argon, calcium, silicon, iron, nitrogen, carbon, oxygen, phosphorus, chlorine, potassium, titanium, chromium, manganese and nickel, suggesting that Steiner's observation that the sun is a source of the various and varied forms in the solar system is indeed justified.

Yet the contrasting views of the nature of the sun presented in this article could not be more different. I cannot help but ask myself, how can two such different pictures of the same natural phenomenon arise from the sincere human striving for knowledge? It is too easy to simply say that one view is wrong and the other correct; there must be something more. I believe the answer lies in the following thought: The spiritual scientific view of the world holds that just as the force of gravity is diminished the further one travels from the earth, so likewise do the earthly laws lose their applicability the further from the earth you go. This explanation of the world-order helps to make sense of the current dilemma in which modern cosmology finds itself. When the earthly laws are projected onto objective cosmic facts, ever more fantastic explanations are devised to reconcile the problems that arise. This has led to the current crisis that plagues this scientific discipline.

In conclusion, one is left with a picture of the sun which is very different from the conventional one of a ball of fusion existing as a result of physical earthly laws, to one of a sphere of spiritual beings sacrificing themselves to allow a new hierarchy, "humanity," to exist and develop on this planet called Earth. The moral consequences of such a picture are profound. I would encourage you to ponder these thoughts, and when working in your fields or gardens take a moment to think about the spiritual nature of the sun, and picture to yourself all the beings who make your work fruitful and allow you to grow the food that provides the basis for the life you lead and the thoughts you think. How we think about the world is by no means unimportant. Our thoughts are realities, and they are the first stage in the perception of the beings that work ceaselessly in bringing the world into existence. □

—Robert McCracken, M.D.