PROBING THE KORDYLEWSKI CLOUDS WITH THE TANLAW OBSERVATORY IN SRI LANKA

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Abstract. Following an extensive review by one of us (RT) of the history of data that relate to these "mysterious" clouds occupying the Lagrange libration points in the Earth-Moon system, new observations are urgently needed. Such observations may well be forthcoming with the deployment of a new radio telescope in Sri Lanka which is part of the new Tanlaw Observatory.

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1. Introduction

In the Earth-Moon-Sun three-body system there exist well-defined positions (points) where an object (cloud of dust or a spacecraft) can remain stationary relative to the Earth and the Moon. These are the L1, L2, L3, L4, L5 Lagrange libration points as depicted in Fig.1. L4 and L5 are the sites of the Kordylewski clouds, the history of which is discussed in an accompanying paper in this Journal by one of the present authors (Temple, 2025a). Figure 1 shows a schematic depiction of these points in relation to the Earth and Moon.

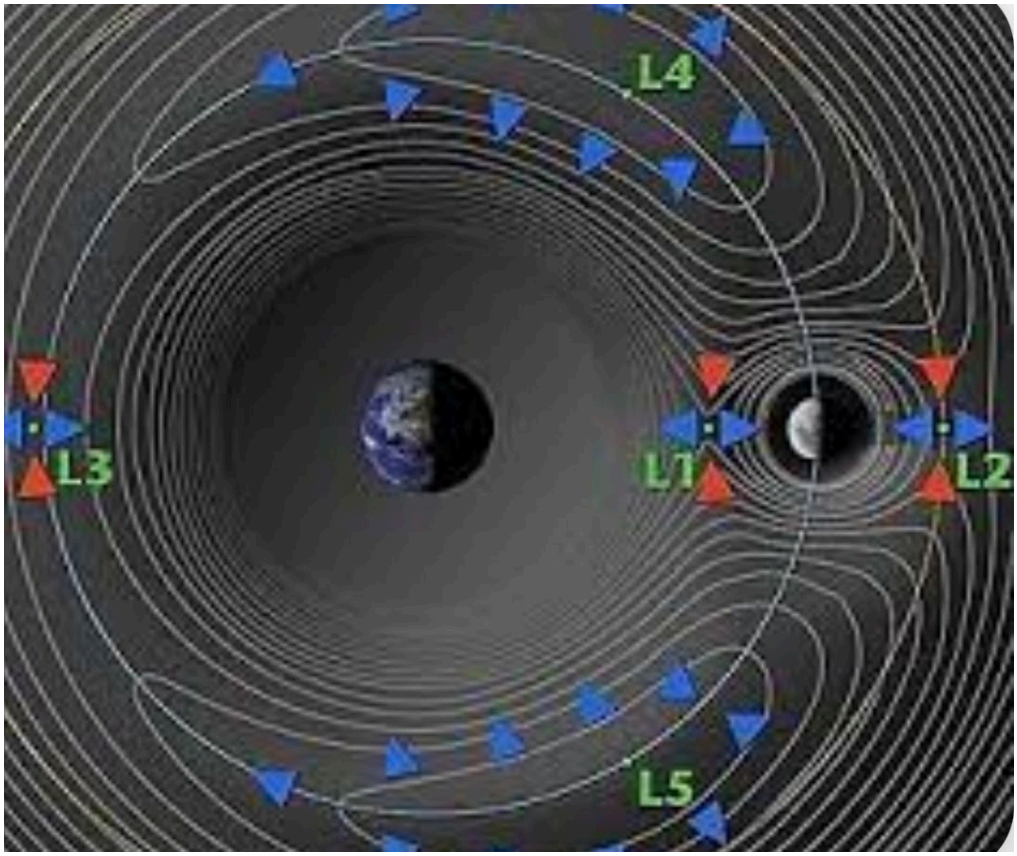


Fig.1. Lagrange points in the Earth-Moon system (Courtesy Wikipedia)

There has been tantalising evidence extending over close to a century suggesting that an "intelligent" source of communication signals at radio wavelengths *might* exist at L5, the centre of one of the Kordylewski Clouds in the solar system. An extensive set of data as well as the history relating to these clouds has been summarised and reviewed in a paper that has been published recently (Temple, 2025).

2. Theoretical constraints

In an earlier paper by Temple and one of us (NCW) we discussed recent astronomical observations which when combined with dynamical simulations led to a confirmation of the existence of stable dust clouds (Kordylewski Dust Clouds) at the Lagrange libration points of the Earth-Moon system. The new astronomical data also led to an estimate of the size of the cloud at L5 as well as of the average radii of the scattering/polarizing dust particles in the cloud's interior. The diameter of the cloud is somewhat less than 3 times the Earth's diameter, and the average grain radius is estimated at ~ 3 x 10^{-5} cm, consistent with bacterial-type cells, with a mean separation of less than 1 cm. Such grains, most likely elongated on the average (rod-like bacteria), and photoelectrically charged to a few eV, would acquire a spin through collisions with gas atoms and thus could act as emitters and absorbers of longwave electromagnetic radiation. We speculated that the entire Kordylewski Dust Cloud comprised of such particles has the potential to acquire electromagnetic connectivity with an information storage/processing capacity akin to a form of intelligence. It is worth noting in this context that precisely such a behavior was

discussed as early as 1970 by one of the present authors (NCW) and Fred Hoyle concerning dusty ionized clouds in interstellar space ("Radio waves from grains in HII regions", F. Hoyle and N.C. Wickramasinghe, *Nature,* **227**, 473, 1970"). Such behaviour involving fast spinning dust (even bacteria) has a reality that cannot be ignored.

Each Kordylewski cloud is approximately nine times the size of the Earth and the clouds emit little or no light. For this reason they are very difficult to detect by optical telescopes. The Kordylewski clouds can be regarded as dusty complex plasma clouds, each comprised of charged dust particles (assumed to be a mixture of spherical and rod-shaped particles) of extremely small dimensions, apparently micron-sized and nanometre-sized, and certainly too small by a power of ten at least to be detected by existing satellite dust collecting techniques. Thus a physical sampling of the constituents of the clouds awaits the development of better collection technologies. A satellite moving through the clouds (as is believed to have happened at L4) would detect no dust or solid objects until new techniques are deployed.

At first sight it would appear strange, even bizarre, to suggest that a cloud of charged dust particles, no matter how large, might constitute what we could justifiably call an "intelligent entity". However, as discussed by one of us (Temple: *A New Science of Heaven* 2022), laboratory studies carried out by a team of Russian scientists led by Vadium Nikolaevich Tsytovich (1929-2015) demonstrated precisely that - even small plasmoids of charged dust inside a laboratory can self-organise and create a complex internal structure. Moreover, they can exhibit unmistakable signs of intelligent behaviour of an AI kind.

3. Prospects for future observation/detection

In our view the best prospects for confirming the existence of the clouds and "understanding" and "unravelling" their role is to deploy the techniques of Radio Astronomy. Considering the weakness of the signals reported thus far the use of a 3-telescope interferometer would be of enormous potential value. This may become possible in the very near future, thanks to a generous donation of a Spider-300 radio telescope by one of us Lord Simon Tanlaw to the University of Colombo, Sri Lanka.

Lord Tanlaw's gift of astronomical equipment to Colombo - a Radio Telescope and an Optical Telescope – was channelled through one of us (NCW) who was born in Sri Lanka and who continues to have close ties with the country. The telescopes are expected to be installed and in operation by the end of the present year (2026).



Fig. 2 Spider 300 Radio Telescope and optical telescope to be in operation in Sri Lanka. One of us Lord Tanlaw in the foreground

Although the very existence of these clouds had been disputed for nearly 4 decades essentially because of their faint and hazy appearance, the reality of the clouds now seems to be established beyond doubt. This is largely due to the increased sensitivity of new techniques available for studying diffuse charged clouds emitting almost no light.

Further confirmation of the existence of KDC's and intensive studies of the clouds is clearly desirable and we hope this will be done in the near future. It will also be important to unravel the fine structure within the clouds, including their internal dynamic properties, but these cannot easily be studied from Earth. Such studies will require investigation by a dedicated satellite in addition to ground-based astronautical studies at some future date.

We might thus be tempted to view the "Lagrange Dusty Plasma Balls" as highly structured "intelligent" systems capable of storing and processing "information" and consequently they may have some exceedingly surprising and unexpected features. Indeed, such huge stable entities which have presumably endured for astronomical timescales and have steadily grown in complexity over billions of years, may display spontaneously evolved phenomena that might resemble those of the most complex living entities or a super AI entity.

4. The Black Cloud

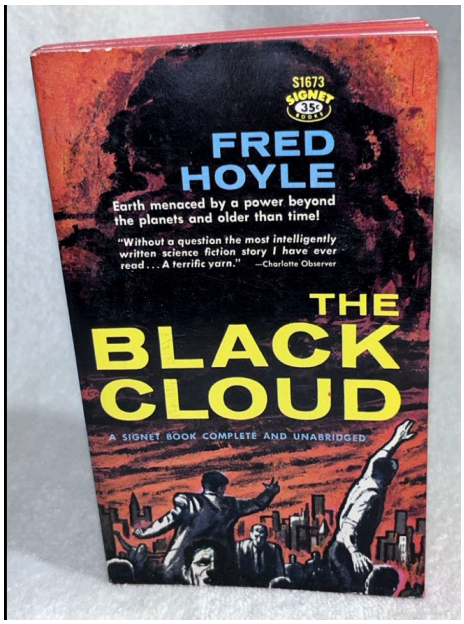


Fig.3. Cover of Fred Hoyle's science fiction novel *The Black Cloud*

Fred Hoyle's classic science fiction novel "The Black Cloud" is a story that is set in the late 1960s and deals with the societal response to the discovery near to our planet of a vast cloud of gas and dust that seemed to be approaching the Earth. The story is based on the idea that such a cloud of cosmic gas and dust, innocuous as it appears, could be endowed with an intrinsic intelligence that might be capable of threatening our existence and even

the existence of all life on the Earth. The narrative starts with a Norwegian astronomer discovering a mysterious dark cloud whilst he was routinely observing the night sky. An alarm is immediately raised and a meeting convened of the world's leading astronomers. The group of international astronomers includes a Hoyle-like figure in the person of one Dr. Christopher Kingsley, at a University - none other than Cambridge! As time proceeds and the cloud continued to approach the Earth, scientists predict many disastrous consequences might ensue. Among the catalogue of predicted outcomes and disasters is climate change which is of course a major hype in the world today. In an effort to manage a difficult and uncertain situation, Christopher Kingsley sets up a dedicated research centre in the middle of a field, and after intensive studies of the cloud declared to the world that the cloud is sentient and fully aware of understanding and processing human concepts. In fact the cloud might consider humans of the 20th century to be a primitive tribe compared with the huge range of intelligence that must pervade the universe,

It is often said anecdotally that the human brain contains more neurons than there are observable stars in the night sky. But the human brain only fits inside a small skull. A stable dusty complex plasma ball of immense size which has possibly endured for aeons and experienced continual growth and expansion over countless millennia is in principle capable of developing something resembling a much more complex nervous system than a human brain over its average lifetime of perhaps a hundred years. A complex Kordylewski-type dust cloud (KDC) which has existed for many millions of years might even have become self-aware…. with all that this implies. It is conceivable that Fred Hoyle's fictional *Black Cloud* has a reality in the form of the Kordylewski Clouds - which of course Fred Hoyle could not have recognised in 1957, four years prior to the initial discovery of the clouds by Professor Kazimierz Kordylewski in 1961. It is worth pointing out that Kordylewski's discovery so alarmed the Polish Government, and perhaps the Soviets also, that he was ordered to stop his research and drop the subject. (Information privately provided by Kordylewski's great-grandson.)

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