

Extract from "The Black Cloud" by Fred Hoyle

---

[The black cloud is communicating with scientists on Earth]

"Your first transmission came as a surprise, for it is most unusual to find animals with technical skills inhabiting planets which are in the nature of extreme outposts of life."

[It] was asked why this should be so.

"For two quite simple reasons. Living on the surface of a solid body, you are exposed to a strong gravitational force. This greatly limits the size to which your animals can grow and hence limits the scope of your neurological activity. It forces you to possess muscular structures to promote movement, and it also forces you to carry protective armour against sharp blows --- as for instance your skulls are a necessary protection for your brains. The extra weight of muscle and armour still further reduces the scope of your neurological activities. Indeed your very largest animals have been mostly bone and muscle with very little brain. As I have already said, the strong gravitational field in which you live is the cause of this difficulty. By and large, one only expects intelligent life to exist in a diffuse gaseous medium, not on planets at all.

"The second unfavourable factor is your extreme lack of basic chemical foods. For the building of chemical foods on a large scale starlight is necessary. Your planet, however, absorbs only a very minute fraction of the light from the Sun. At the moment I myself am building basic chemicals at about 10,000,000,000 times the rate at which building is occurring on the whole entire surface of your planet.

"This shortage of food chemicals leads to a tooth-and-claw existence in which it is difficult for the first glimmerings of intellect to gain a foothold in competition with bone and muscle. Of course once intelligence becomes firmly established, competition with sheer bone and muscle becomes easy, but the first steps along the road are excessively difficult --- so much so that your own case is a rarity among planetary life forms."

"And so much for the space travel enthusiasts," said Marlowe. "Ask him, Harry, to what we owe the emergence of intelligence here on the Earth."

The question was put, and after a time the answer came:

"Probably to the combination of several circumstances, among which I

would rate as most important the development about fifty million years ago of an entirely new type of plant: the plant that you call grass. The emergence of this plant caused a drastic reorganization of the whole animal world, owing to the peculiarity that grass can be cropped to ground level, in distinction from all other plants. As the grasslands spread over the Earth those animals that could take advantage of this peculiarity survived and developed. Other animals declined or became extinct. It seems to have been in this major reshuffle that intelligence was able to gain its first footing on your planet."