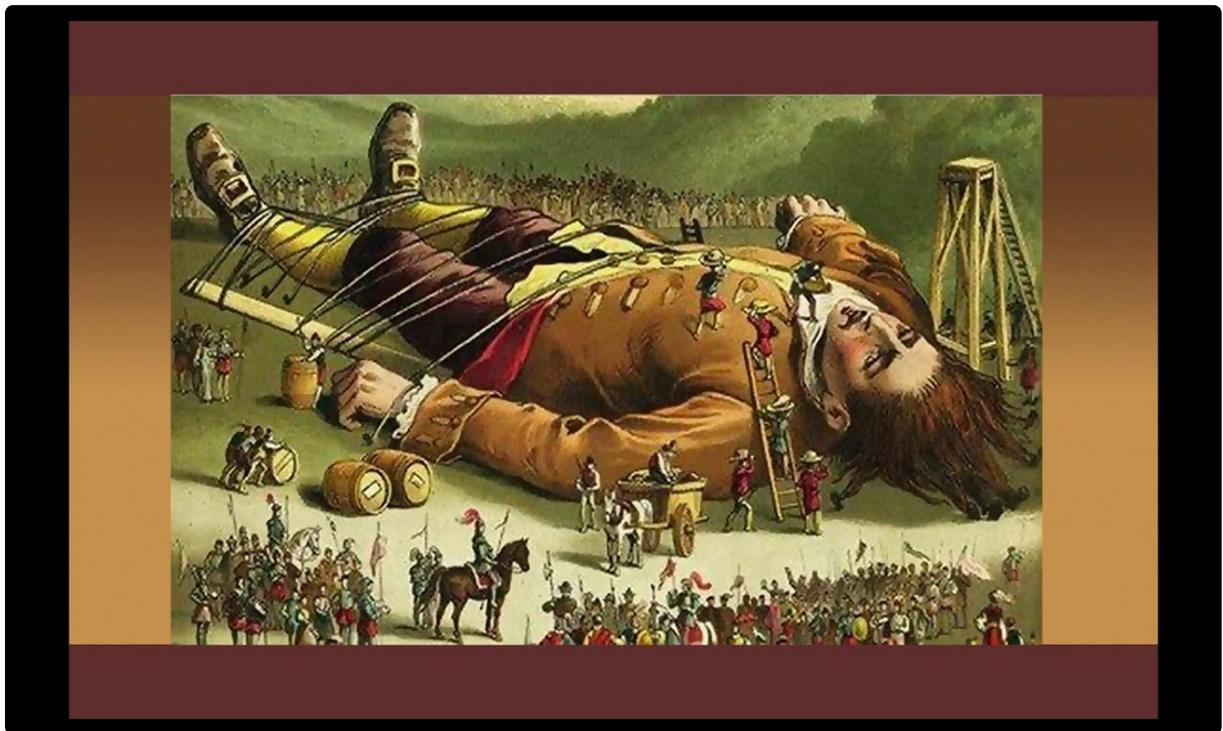


PERSPECTIVE . . .

**LIKE GULLIVER, HUMANS ARE STRANGERS IN
A FOREIGN LAND?
PONDERING A NEW PARADIGM**



BRIEF SYNOPSIS OF GULLIVER AND THE LILLIPUTIANS

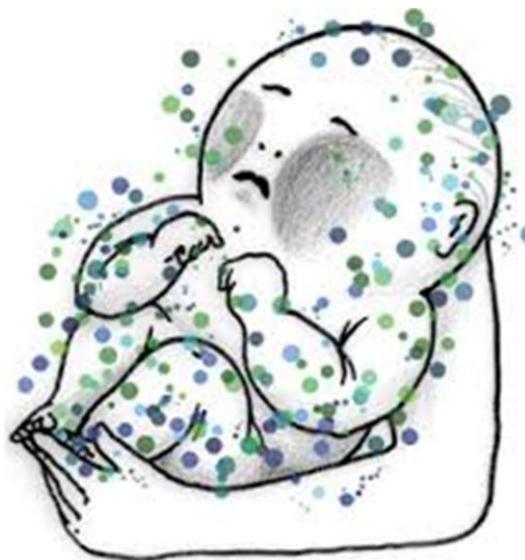
In Jonathan Swift's satirical novel, *Gulliver's Travels*, written in 1726, the main character, Gulliver, after a journey that ends in disaster, awakens in a strange land,

occupied by large numbers of tiny inhabitants, the land of the Lilliputians. Individually, the Lilliputians are only a tiny fraction the size of Gulliver.

Gulliver's fate lay in the hands of his captors. He is bound and held captive as their prisoner. He realizes he is totally reliant upon them for his food, shelter, and protection.

Recognizing his dilemma, Gulliver temporarily comes to terms with his Lilliputian captors. Gulliver, however, breaks the rules of Lilliputia and is sentenced to death but escapes. The remainder of Swift's book is about Gulliver's visits to other destinations.

ENTRY OF THE INFANT INTO A NEW WORLD

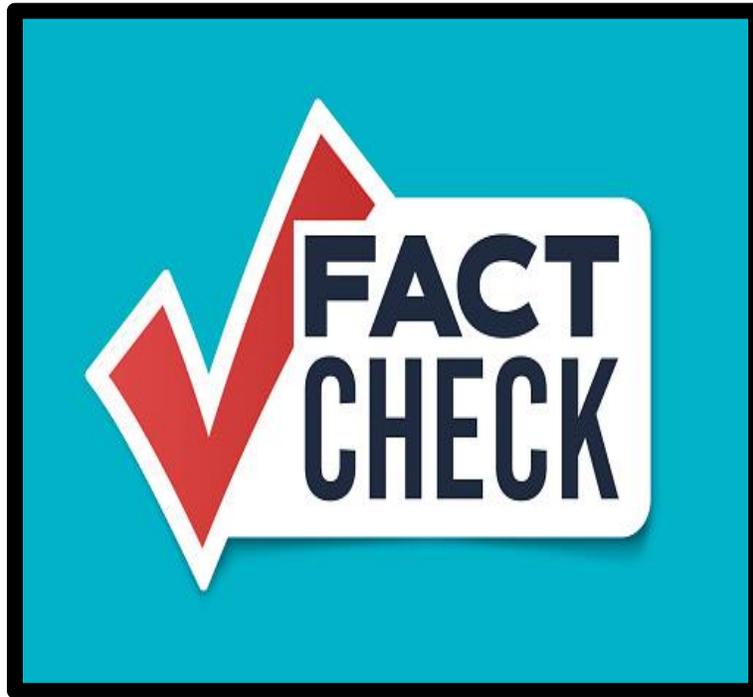


Like Gulliver, humans are strangers in a foreign land—suddenly dropped into a universe occupied by trillions of tiny invisible forms of life at the moment of birth. A universe made up of five different kingdoms: bacteria, viruses, fungi, protists, and archaea, hereafter referred to as “The Microbiota.”

Every surface of the physical world and its ambient air are filled with “The Microbiota”.



COMPARATIVE FACTS



- **The gene composition of “The Microbiota”, i.e. the architectural playbook defining how to make proteins critical for survival, is 10,000 times more plentiful than the human genome—230,000,000 microbe genes versus 25,000 human genes. (Tierney, B. T., *The Landscape of Genetic Content in the Gut and Oral Human Microbiome*, *Cell Host & Microbe*, 28(2), 283-295 Aug 15, 2019.)**
- **“The Microbiota” have 6000 carbohydrate (sugar) metabolizing genes. In contrast, the human content of carbohydrate metabolizing genes is minimal--**

approximately 17. (*Bhattacharya T, Ghosh TS, Mande SS (2015) Global Profiling of Carbohydrate Active Enzymes in Human Gut Microbiome. PLoS ONE 10(11): e0142038.*)

- In numbers within the body, “The Microbiota” exceed the collective population of all human cells by trillions—38 trillion microbial cells versus 30 trillion human cells. It’s humbling to know that numerically humans are more microbial than they are human and accept the microbiomes’ power and potential. (*Sender, R., Revised Estimated for the Number of Human and Bacteria Cells in the Body, PLoS Biol. 2016 Aug: 12(8): e1002533.*)

HUMANS BENEFIT FROM “THE MICROBIOTA”



Although scientists have been aware of microbes' existence and associations with disease for hundreds of years, it has only been in the last few decades that they have come to understand their enormous importance in human physiology.

“The Microbiota” digest nutrients. They supply critical metabolites, vitamins, cofactors and hormones to the human. They defend humans against pathogenic microorganisms. They help activate and deactivate drugs. They train and educate the human immune system. They control hunger and satiety and may even influence human mood and behavior.

--CONCLUSION--

We appear to be outnumbered and “outpowered” by our microbiota. For now, it would seem prudent to be kind to our non-pathogenic houseguests—nourish and protect them. Our survival may depend upon these Lilliputian-like life forms.



BE KIND TO YOUR MICROBES

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