1962). In his 1932 book, *Thurso's Landing*, for example:

The learn'd astronomer
Analyzing the light of the most remote star-swirls
Has found them—or a trick of light deludes his prism—
All at incredible speeds fleeing outward from ours.

Much later, in *The Beginning and the End* (1963), appeared these challenging lines:

The mathematics and physics men
Have their mythology; they work alongside the truth,
Never touching it; their equations are false
But the things *work*. Or, when gross error appears,
They invent new ones; they drop the theory of waves
In universal ether and imagine curved space.
Nevertheless their equations bombed Hiroshima.
The terrible things *worked*.

The poet also "Has his mythology . . ."

Elsewhere in that posthumous volume, the same theme is approached in this way:

. . . Science and mathematics
Run parallel to reality, they symbolize it, they squint at it,
They never touch it: consider what an explosion
Would rock the bones of men into little white fragments
and unsky the world
If any mind should for a moment touch truth.

Jeffers, conversant with much of physics and astrophysics, could not consider them "human" in the sense intended by Weisskopf. For that very reason they attracted him.

Goethe was a masterful lord of language, who tried to recast science in the mold of his own mind—and basically failed. Jeffers, in a vastly changed era, tried to recast his thinking and myth-making to match molds provided by science.

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Limit on interstellar signals

Interstellar communication links at microwave frequencies will be limited to finite coherence bandwidths as a result of multiple scattering by density irregularities in the intervening thermal plasma. For example, pulsar observations indicate that multiple scattering becomes important at 1.5 GHz for paths exceeding a few hundred light years. The typical coherence bandwidth is 2×10^{-4} Hz for this distance, and proportionally larger for greater distances. Consequently, efforts to establish contact with distant civilizations at radio frequencies between the H and OH transitions near 1.5 GHz (May, page 18) must consider the characteristics of this natural and random modulation in the development of an intelligent reception, or transmission, strategy.

For perspective, the modulation of coherent signals by multiple scattering has been observed both for the ionosphere at 0.9 GHz using ATS-6 telemetry, and for the solar corona at 2.4 GHz using Pioneer 6 telemetry. The modulation of these two telemetry signals is strong at about 1 GHz for plasma column densities of merely 3×10^{13} cm^{-2} and 3×10^{16} cm^{-2}, respectively, compared to the interstellar medium, where strong modulation is expected only for column densities exceeding 3×10^{19} cm^{-2}. The difference may be attributed both to the level of turbulence on scale sizes that produce scattering, and to the thickness of the medium expressed in terms of the scale size.

Intensity modulation of the incoherent radiation of pulsars indicates that, while the typical coherence bandwidth grows linearly with interstellar plasma column density, paths exist along which the scattering exceeds the typical values by an order of magnitude for a given column density. These paths will be regions of avoidance for sub-Hz interstellar communication links at 1.5 GHz.

Finally, the severe scattering that occurs along our line of sight to the galactic center[4] may be sufficient to produce coherence bandwidth limits of many Hz due to the Doppler broadening from large-angle scattering. If so, sub-Hz communication with civilizations in the inner core of our galaxy would be limited to much higher frequencies.

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A referee's plea

Refereeing procedures of scientific journals are not entirely satisfactory. We desperately need a careful study that demonstrates what editors and referees are supposed to do with the papers submitted by authors. My own crude analysis is the result of refereeing for eight journals—on the average one paper every eleven days during the last two years.

A paper submitted to a scientific journal is accepted for publication when its