Gravitational Entropy in Gravity's Rainbow•

T. S. Tillotson

> "In our description of nature the aim is not to disclose the essence of the phenomena, but only to track down, so far as possible, relations among the manifold aspects of our experience [with the phenomena]."
>
> --Neils Bohr, 1934

Numerous writers have set out to explicate the concept of entropy as it figures in the fiction of Thomas Pynchon, referring to thermodynamics and information theory. But these are by no means the only fields where entropy is presented in modern science with definitive mathematical rigor. The critics appear never to have heard of gravitational entropy. Expounded in 1971 by S. W. Hawking, the Second Law of Black Hole Dynamics extends the power, simplicity, and solidly grounded truth of universal entropy to the realm of modern gravitational theory, an area of great scientific importance and widespread philosophical significance. [A technical overview of this subject including specific references to gravitational entropy can be found in Misner, Thorne, and Wheeler, Gravitation (San Francisco: W. H. Freeman, 1973).]

In addition to providing a better basis than information theory or thermodynamics for describing and understanding Pynchon's use of entropy in GR, gravitational theory can shed light on many other puzzling elements of the novel. For example, Lawrence Kappel suggests that Slothrop may have slipped across the event horizon of a black hole, thereby becoming invisible to those remaining outside and approaching the naked singularity where (by Mondaugen's Law) Slothrop's personal density, along with his very space and time, will vanish. ["Psychic Geography in Gravity's Rainbow." Contemporary Literature XXI, No. 2 (1980), 225-51.]

I believe that the matter of gravitation in GR warrants a more thorough treatment than is possible within the limits of space in the present issue of

---

Pynchon Notes, and I intend to submit a more substantial article for a future issue. Every black hole is surrounded by a literally invisible rainbow shell at the Schwarzschild radius (where r = 2M). It must be more than mere coincidence (heh, heh) that the title of Gravity's Rainbow reads as a symbol for this light-shrouded null horizon of our universal destiny, and holds the promise of illumination to be gained through some steps taken (perhaps even unknowingly) across unseen thresholds of no return.

Lake Mills, Wisconsin