

Tracing Oil Reserves to Their Tiny Origins
By WILLIAM J. BROAD
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In 1913, as the automobile zoomed into American life, The Outing Magazine gave its readers a

vignette describing the death of old Colonel Stegosaurus Ugulatus, the article explained that

Some of the ancestral waters that made the planet's oil still exist, like the Gulf of Mexico, while others have long vanished, like the ocean that produced the massive oil fields of the Middle East. The bodies come and go because the earth's crust, through seemingly rigid, actually moves a great deal over geologic time, tearing apart continents and ocean basins and rejoining them

Dr. Stow describes how these nutrient surges can engender a *biological orgy* of frenzied

reproduction that ultimately leads to the collapse of the system.

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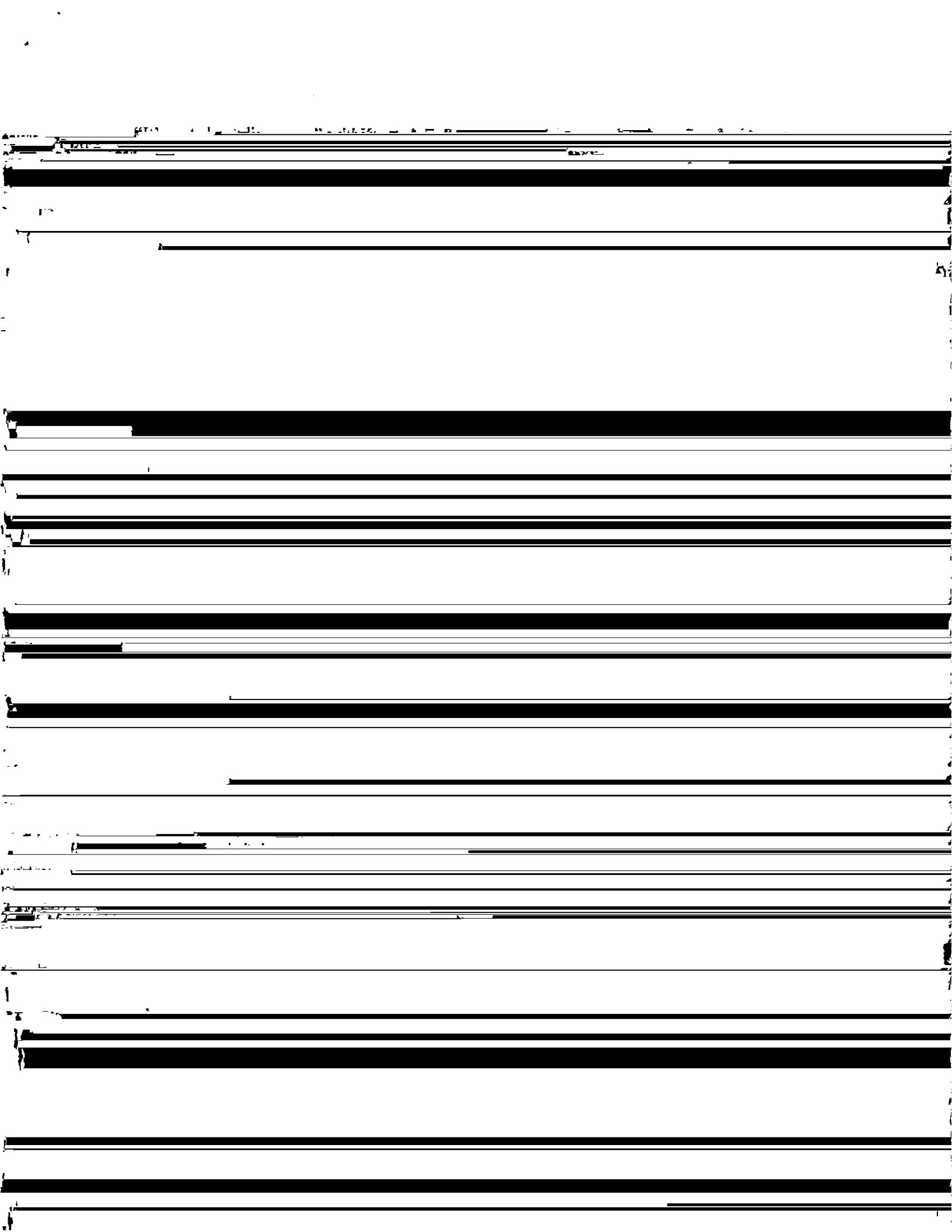
He said the flow was so heavy that the growing accumulations keep pressing the lower sediment layers deeper into the earth, forcing them into hot zones where the organic material got transformed into oil. The process involves a long series of chemical reactions that slowly turn life molecules into inanimate crude.

“The gulf has miles and miles of sediments,” he said. “So that gets the source rocks down into the kitchen where they cook.”

The standard temperature for oil formation is between 120 and 210 degrees Fahrenheit. The earth gets increasingly warm with increasing depth, the temperature eventually rising so high that rocks melt (and occasionally remerge at the surface in volcanic eruptions).

The gulf’s environmental context also promoted oil formation. The ancient body was largely cut

“It’s always been restricted,” said Dr. Galloway of the University of Texas. “One reason it works as a major world-class resource is that it’s been mostly isolated from the world’s oceans.”



From Microbes to Crude

Most of the world's oil is refined from the
decomposition of bacteria.

ANCIENT SEAS

For much of the Cretaceous period
a shallow sea covered the

NORTH OCEAN

region