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German Scientist Sends Electric Signals Without Wires

(As Reported West of the Mississippi River in 1888)

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June 1888. Jacob Frolich, owner and publisher of the *White County Record*, received word from his kin in Germany—news so strange it bordered on the unbelievable. On page two, he printed the headline:

GERMAN PROFESSOR SENDS ELECTRIC SPARKS THROUGH AIR—NO WIRES NEEDED. A NEW KIND OF LIGHTNING?

Meanwhile, on a balcony in Searcy, Arkansas, at sunset, an ageing Confederate veteran, Colonel Shadrack Sherburn, leaned back in a cane chair, spectacles perched low on his nose. The sun spilled golden light across the dusty street while cicadas droned lazily. Sherburn tapped the newspaper with a nicotine-stained finger and murmured with satisfaction: *"I told you so."*

He glanced back at the front-page article.

GERONIMO MOVED TO ALABAMA

Sherburn exhaled through his nose, unimpressed. *"Bah,"* he muttered, shaking his head. *"Geronimo moving to Alabama? Big news, is it?"* He gave a dismissive snort. *"That's for the coffeehouse gossips."* Again he tapped the thinner type on page two. *"This here—this is the real story. Sparks flying through open air. No wires. Now* that's *news worth the ink."*

Footsteps creaked on the stairs. It was his nephew, AARON, the county sheriff.

AARON
Evening, Unc. You're out before the lamps—did the heat drive you off the parlor?

SHERBURN
(doesn't look up, brushes it aside)
Some German—Heinrich Hertz—claims he's flung a spark through the air. No wires. Wireless, boy. *That's* the marvel.

AARON
(arches a brow, half-skeptical)
Wireless…?

SHERBURN
(leans forward at last, voice low with certainty)
Mark me—this is what matters.

AARON
(peering over his shoulder)
"Confirmed by Professor Hertz… sparks leaping space…" Wireless? Like telegraph, but without the lines strung between?

SHERBURN
Exactly. And I told them so, back in '64, [1]. Frolich's contacts in the old country finally slip it into this backwater rag, and now the farmers'll crow like it's a miracle.

He lowers the paper, gazing out at the evening sky. His voice sharpens with pride.

SHERBURN
Displacement current? Hmph. That ain't nothin' but leakage, boy. Electric fluid slippin' out the wire, driftin' into that restless vortex sea beyond. Maybe it gathers in a capacitor—maybe. Or maybe it does worse: twists the vortices out there, bends 'em to its will, till they line up and lock tight into a magnetic field. One strong enough to hold its own and keep that leakage from slippin' further. Like a man standin' guard over his own mistake.

But alternating current—ah, that's another matter. The leakage never quits. It sloshes, it swings, and at every turnabout it slips the leash—passing vortex to vortex, running outward into the distance. *That* is your wireless wave, plain as day, [2].

AARON
(half in awe, half skeptical)
And now this German's proved it.

SHERBURN
Proved what any thinking man could see, once that Scotchman Maxwell set the scene—no need to wait for sparks or headlines, [3].

He folds the newspaper with a snap, setting it beside his chair. His voice grows ironical.

SHERBURN
The English—Heaviside, Poynting—they dressed the wave equations onto the magnetic field alongside an electric pulse in a wire. Clever, they thought. But it only works because the pulse races at the same speed the fluid circles the vortex edge—same speed it leaps from whirl to whirl in space. Horse and wheel turning together. Necessity, not chance.

Aaron watches silently, absorbing the old man's fire. Sherburn leans back, eyes glittering, as if daring the world to catch up.

SHERBURN
Let them print it in June of '88, or '98, or a century hence. Wireless is no marvel to me. It's only the river flowing where it must.

The cicadas rise louder as Sherburn sits, satisfied, gazing at the horizon while the young sheriff looks on—half proud, half bewildered at the breadth of his uncle's certainty.

RECESSIONAL MUSIC – Beautiful Dreamer – Stephen Collins Foster (traditional American parlor style)

This vignette was written with the assistance of artificial intelligence, specifically ChatGPT. The request was to present the message in the words of Mark Twain's fictional character, Colonel Sherburn, who appears in, ***"The Adventures of Huckleberry Finn"***.

References

[1] Tombe, F.D., ***"The State of Electromagnetism During the American Civil War"***, (2025) https://www.researchgate.net/publication/394768422_The_State_of_Electromagnetism_During_the_American_Civil_War_A_Confederate_Colonel's_Charge_to_His_Men_on_the_Precipice_of_Battle

[2] The unifying idea is that electric current is fundamentally the flow of an aethereal fluid from positive particles (sources) into negative particles (sinks). This fluid may be called the aether, or the electric fluid. Space itself is densely filled with minute dipolar vortices of this medium, each comprising a sink (electron) and a source (positron). This vast aggregate forms the *electric sea.*

When current flows through a wire, a portion of the fluid escapes tangentially into the surrounding space and is absorbed by the electrons of the electric sea. This leakage sets the vortices into precession, aligning them about the conductor so that their rotation axes trace the familiar magnetic lines of force. In turn, the vortices exert a centrifugal pressure in their equatorial planes, pressing inward upon the conductor and thereby limiting further escape.

In alternating currents, however, leakage recurs at every reversal of flow, causing the fluid to swirl from vortex to vortex, from positron to electron, and propagate outward into space. The mean velocity of flow between sink and source governs both the circumferential speed

within the vortices and the rate of transfer from one vortex to another in this dynamic state. This effective velocity is the speed of light itself. That the velocity of light is fixed by electric current explains why the electromagnetic equations of wireless waves may be translated with little loss of generality into the context of cable telegraphy. Along the conducting wire, the same subtle current hastens from source terminal to sink terminal at near this identical speed. Any free positive particles are urged forward with the stream, while the negative particles, as sinks, appear to devour the approaching fluid, ever drawing it inward toward the terminal.

[3] Clerk-Maxwell, J., ***"On Physical Lines of Force"***, (1861)
Philosophical Magazine, Volume XXI, Fourth Series, London,
http://vacuum-physics.com/Maxwell/maxwell_oplf.pdf