

EARTH ENERGY & VOCAL RADIO: *Nathan Stubblefield*

by Gerry Vassilatos



The notion of drawing up electrical power from the ground sounds incredibly fanciful to conventional scientists, but numerous patents support the claim. A number of retrieved patents list compact batteries which can operate small appliances by drawing up ground electricity. Others describe methods whereby enough usable electrical power may be drawn out of the ground itself for industrial use.

Earth batteries have been detailed in a previous article. Their history can be traced back to experiments performed by Luigi Galvani on copper plates in deep stone water wells. Currents derived through these gave Galvani and his assistants "shivering thrills and joyous shocks".

The most notable earth battery patent is one which operated arc lamps by drawing "a constant electromotive force of commercial value" directly from the ground. In addition to this remarkable claim, a vocal radio broadcast system. . . through the ground.

It all began one hundred and fifty years ago with the advent of telegraphy. The meandering wire went through rich dark ever-green forests. Lush com flowing valleys sparkled and languidly waved as the linesmen drew their trail. Across meadows where wild flowers covered the earth in fragrant bouquets, there went the line in its curious path.

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Over rolling hills which soared into the hazy sunlight, the telegraph linesmen sang as they went. And the lines followed a mysteriously winding trail which few discern. Sorcerers and Templars alike called these trails "woivres". Anglo-Saxon geomancers called it VRIL, the black radiant organismic energy of earth.

Who is Nathan B. Stubblefield, and why do most citizens in the state of Kentucky justifiably revere his name? A native of Murray, Kentucky, Nathan B. Stubblefield had a love for the lonely wooded areas on the outskirts of town. Certain spots in these woods were mysterious and possessed of a strange magic all their own. Few would seek the magic of these places, and learn its true and deep power. There the song is sweet and deep, and still.

Vitalizing and sense-provocative, Stubblefield knew that specific locations could be unique natural energy sources. Rock outcrops, evergreens, and flowing springs each registered as strong sensual attractants. Could it be that they were sensual attractants because they conducted and projected special energetic ground currents? Can it be that we are enthralled and drawn into certain spots because of their projective energy? Furthermore, what is the exact nature of this energy? Does it contain or exceed the qualities of electricity?

A self-educated experimenter and avid reader of every kind of scientific literature, Nathan Stubblefield supplemented his living with farming. He remained a practical inventor of some of the most unusual electrical devices ever developed in America. What he discovered and demonstrated before hundreds of qualified observers in his day seems to challenge many basic axioms of electrical dynamics.

He developed an extraordinary receiver of ground electricity (which produced great quantities of electric power) and numerous "vibrating telephones" which were used by local residents in 1887. The telephonic devices were patented in 1888 and represent the first commercial wireless telephones, using the ground as the transmission medium. The years when telephonic lines were suddenly made available to the world betrayed the fact that the new medium was one which only the very rich could afford. Common people could simply not be serviced with local telephones until prices were made cheaper.

While telegraphy employed thrifty iron wire, telephony demanded the expensive and better conducting copper lines. Telephones designed by A. G. Bell did not give powerful enough signals through iron wire at any distance because of the additional resistance represented. Other problems included the fact that the Bell telephone could not transmit or receive a strong and clear vocal signal without excessive battery power. The Bell System was not a truly "democratic" medium of communications.

A mysterious and unrecorded sequence of discoveries preceded Stubblefield's early developments, but he was able to dispense with wire connections entirely. His was not a "one-wire" system. Nathan Stubblefield performed the "impossible": he developed, tested, demonstrated, and established a small, democratic telephone service which did not require wire lines at all! His system utilized the ground itself as the conductive medium.

Mr. Stubblefield discovered that telephonic signals of exceptional clarity could be both transmitted and received through the ground medium. There was simply no precedent for this development. The first effect of this wonder was that common people could now have the much needed communications which both great distance and poverty prevented. Farms could be interlinked by the Stubblefield exchange by simply plugging both terminals into the ground. Wire would not take up the expense which the telephone exchange would later charge to the

customers in addition to service. Signals were loud and clear. All those who experienced this kind of telephonic conversation declared that Stubblefield had discovered a true wonder.

We have photographs of his telephone sets. These reveal small, ruggedly built wooden cases which are surmounted by conventional transmitter-receiver sets. Heavy insulated cables rim to the outer ground from this apparatus. Stubblefield developed an "annunciator" (horn loudspeaker) which amplified the voice of callers. These sets of his appeared in numerous demonstrations on the east coast, from New York to Delaware. The signals were so loud and clear that they defied commercial levels of excellence provided by the now growing monopolies of American Telephone and Western Telegraph.

Thomas Edison broke the Bell telephone monopoly when he developed the carbon button microphone for Western Union. Sounds were louder when using the Edison carbon microphone. These carbon microphones needed excessive battery power, and batteries were not cheap. Some telephone companies began utilizing dynamo systems to power their lines. The fuel needs of dynamos drive customer costs much too far, prohibiting the ordinary people from having the system for their own moments of need.

Stubblefield developed remarkably unexpected systems by which available resources became the commodity. In the early Stubblefield system, twin terminals into the ground formed the initial bridge among telephones. System users were effectively joined together through the ground itself: wires were eliminated! The signals were exceptional, and did not fade or intensify with rain, a fact later to be considered in theoretical discussions. Those who experienced speech through the Stubblefield system each reported similar impressions.

Ordinary soil conduction telephonics require a certain degree of ground water for their operation. Stubblefield's system did not operate on this principle for reasons which will become more obvious as we continue recounting his tale.

Stubblefield developed a means by which calls could be individualized among customers. Later, his central telephone exchange included power-amplifying relays, set in the ground at specific distances. Calls were handled by an elaborate system of two-wire, ground connected automatic switches and relays. Signal purity was remarkable for the time, using a single carbon button for both transmission and reception.

Furthermore, Stubblefield's telephones could be left on for days without weakening the power system at all. Now hundreds of ordinary people in widely separated places could afford the installation of telephone service.

The theoretical reasons why ground conduction telephony can occur had later been established by researchers in England, notably Sir William Preece. Preece successfully attempted only

telegraphic signals across great distances of land and sea. Stubblefield was telephoning through greater distances with the legendary clarity and strength which became equal to his other mysterious developments.

The true difference between the Stubblefield system and these early "conduction telegraphy" systems becomes obvious as soon as we delve further into his biography. How were ground plugged relays acting as amplifiers in the Stubblefield system? This feature forms the core of an intensive investigation which several have reproduced in various forms today.

His discovery of an earth charging phenomenon permitted the development of an equally astounding invention, the Stubblefield earth battery. This device, an earthed electrode, drew up enough natural electric charge from the earth to operate motors, pumps, arc lamps, and his ground telephone system. The implementation of his earth energy technology would have changed the nature of American Society where it permitted free market expression in its day.

MEANDERING WAYS

As telephony gradually replaced the telegraph service, lines were also accommodated to telephony. Before becoming entirely reclusive, Mr. Stubblefield befriended a few employees of the telephone service. These friends obtained cast-off telephone equipment and parts for his experiments.

He became very familiar with the behavior of telephone exchange equipment in the natural environment. The telephonic systems of existing service companies were grounded systems. Each end of both telegraphic and telephonic lines were sunk into the ground, while the single expensive copper line formed the communications link. Ground sites terminated specific lengths of these service lines in special, thick metal plates. Plates were well-buried in selected ground. These plates were composed either of zinc or copper, and required specific ground placement for their continued operation.

Linesmen were taught to find "good ground" for these sites. Some later insensitivity among the growing numbers of hired crew members required the development of "ground location meters"; none of which were to give the special and anomalous characteristics observed in early line work.

Certain telephonic patents reveal extremely articulated" termination plates for these service lines: folded, stacked, coiled, and interleaved. Acting as accumulators of earth energies, these often became extremely charged. It was found that signals would both self-clarify and self-amplify to unexpected degrees when these special terminations were employed.

Telegraph linesmen "felt" their way through woods, laying the paths for lines according to a peculiar intuition. Theirs was an intuitive path rather than a strictly mathematical one, carved through woods and vales in the artistic meandering way of the ancient "geomancers". Older linesmen recalled the days when line installations took their winding routes through woods, across meadows, and sinuously along ridges, lakes, and streams. Linesmen innately sensed the most favorable paths along which lines should pass.

Geomancy is the ancient qualitative science by which "holy spots" are discerned, and sacred edifices are properly founded. Intuitive discernment, rather than mathematical objectivity, governs the geomancer's aesthetic. Geomantic aesthetics governed the building of ancient villages and towns, and it is no wonder that most architects of any real artistic worth exercise these same aesthetics. Art-governed architects are natural geomancers.

Geomantic qualitative science precedes geologic quantitative science. A surveyor might simply draw a straight line across a section of land, and engineers would then employ powerful means to cut that straight path despite all natural barriers. Much of modern housing development is based on this "draw and cut" method. The sharp path of engineers is effective and direct, but the old meandering rural roads dotted with their naturally placed homes are beautiful.

The old linesmen trekked across woods in a careful manner, turning aside from natural barricades. Maps of these first telegraphic lines may be consulted. It will be seen that these lines meandered with natural features. Telegraphic lines twisted and turned through the countryside and wilds; a twisting vine of iron on tar-covered wooden poles.

ELECTRICAL OCEAN

Properly ground-conformed telegraph lines were known to produce unexpected signal strengths, as well as unexpected signals. Night station operators were often "haunted" by spurious messages. These contained fragmentary words and sentences, and could not be traced to other station operators.

It is curious that the older placed lines demonstrated a remarkable and constant feature throughout their years, requiring few, or no batteries for their operation. This absolutely astounding fact is well documented in the telegraph and telephone literature of the day.

In these trade journals we find reports of lines in which current was everflowing! Company owners found this fascinating natural fact quite lucrative as well as surprising. The question was where is the current coming from? The echo of the linesman resounded in the forest, the answer singing beneath his feet. Another equally remarkable fact involved the engineer's methodically driven lines across land and through mountains. These lines did not manifest

electrical self-excitations. Clearly, the difference of methods had produced completely opposed energetic results; the one active and the other inert.

As companies expanded across greater regions of ground, engineers replaced the old time lineman's sense of "proper placement" with surveyor's charts. It is not unusual for corporate expansions to bring about such a dramatic loss of quality — in exchange for a growth of quantity.

Mr. Stubblefield pondered the question of "taking current from the ground". He stated in very plain language that the earth was filled with "an electrical ocean". This electrical ocean was surging with huge "electrical waves" which could be felt in certain places. No doubt, he was one who felt the ground energy.

Telegraph lines were once two-wire lines: each completing the circuit among station receivers, batteries, and keys. It was quickly discovered that single lines, terminated in the ground with heavy metal plates, could achieve similar results. The immense savings in wire, poles, insulators, and maintenance was an attractive feature of this method for company owners.

Telegraph linesmen required skill in finding proper ground terminals. Improperly placed ground plates could ruin a system by not conducting signals properly through time. Spurious conductivity in a line could ruin critical transmissions and receptions. Telegraphic lore is filled with discussions about both "good ground" and "bad ground".

The linesmen were workers in a yet primarily agrarian society, having experience with soil and earth in general. Many of them were farm boys who watched the old timers "divining" for water. Linesmen frequently discussed such natural means for discerning the "good ground" for terminating a telegraph line.

Thomas Edison adopted a method which could "valve" line signal by preventing unnecessary signal leakages into the ground. His method included the use of terminal rheostats in order to control the amount of current flowing to the ground during signal time. Several of these terminal rheostat patents have been found. One familiar model uses a thick cylinder of carbon with a slide spring contact.

The most amazing thing to the telegraph linesmen was the variation of rheostatic settings which each ground required before strong signaling could occur. Some terminal rheostats needed to be closed completely. Others could be opened full until signals were of sufficient strength to operate the system. Each ground had its own "character". Each ground was possessed of activities which defied description except but by poetry, song, and twisting green vine.

Telegraph line was not copper, neither was it insulated throughout its length. Telegraph line was bare iron wire, and was supported on porcelain insulators fixed to tarred wooden poles. Signal strength along such resistive wire would have theoretically been extremely poor, but was exceedingly strong at times. So great was the developed signal strength that operators could "remove battery cups" and work with almost no current at all. Where did this extra energy come from? From what mysterious depths did this strange power emerge? Examination of telegraph systems reveals them to be radionic tuners on a vast scale. I suggest that VRIL articulate energy, the dendritic living energy found in the ground, was at work in all these systems.

EARTH RESERVOIR

Nathan Stubblefield's experiments involved the development of earth batteries: buried metallic arrangements which produced electrical power. We find a good number of the earth battery designs in the Patent Registry. The earliest designs appeared in 1841 when Alexander Bain discovered the phenomenon. While working a telegraphic line, he chanced to discover that his leads had become immersed in water. This short-circuit through earthed water did not stop the actions which resounded through his system.

Mr. Bain took the next step to a greater distance, burying copper plates and zinc plates with a mile of ground between them. These, when connected to a telegraphic line performed remarkably well without any other battery assistance. Bain obtained a patent for his earth battery in 1841, using it to drive telegraph systems and clocks.

Stephen Vail (1837) observed the same effect, not knowing what caused it. The establishment of the first functional telegraph line seemed to require ever few batteries with time. Vail began with some 12 battery cups, reducing them gradually until 2 were needed. There came a point where he found it possible to remove even these, while operating the system.

This mystery persisted for years. I have heard such an account by a close friend and electrical engineer who reported that local telegraph stations remained in operation despite the fact that their batteries had not been recharged for a great number of years (W. Lehr).

J. W. Wilkins in England (1845) corroborated findings made by Bain, developing a similar earth battery for use in telegraphic service. An early English Patent appears in 1864 by John Haworth, the first true composite earth battery. This battery is drum shaped, having numerous solid discs mounted on an insulative axis, end braced, and buried. Their power was rated in terms of disc diameter and telegraph line distance: 1 foot diameter discs for 75 miles of line, 2 foot discs for up to 440 miles of line.

Patent Archives have revealed a great number of these devices including several remarkable operative descriptions. Earth batteries by Garratt (1868), Edard (1877), Mellon (1889), and Hicks (1890) yield therapeutic powers. Earth batteries by Bryan (1875), Cerpoux (1876), Bear (1877), Dieckmann (1885), Drawbaugh (1879), Snow (1874), Spaulding (1885), and Stubblefield (1898) produce usable power. In addition to these marvelous patents, there are those which found their way into telephonic service later: designs by Strong (1880), Brown (1881), Tomkins (1881), and Lockwood (1881) provided power assistance and primary power for telephonic systems throughout the countryside.

The well reputed fame of "earth batteries" centers around their very anomalous electrical behavior. The central mystery about earth batteries is that they do not corrode to the degree in which their electrical production rate theoretically demands. Exhumed earth batteries reveal little surface corrosion.

Nathan Stubblefield knew that probes (placed into various soils) reveal an amazing degree of strong electrical activity. These currents show an amazing degree of variation across any chosen plot of ground. Wet soils often reverse the expected electrical strength: weakening, instead of strengthening their appearance. Proper placements of metallic probes can produce strong currents for use.

Touching a well-grounded iron rod is a good first experiment to try in these regards. Try and find a place where power leakage into the ground is minimal, such as a park or wooded area. Take a yard-long solid iron rod whose surface is free of shellac or insulator coatings. Carefully drive the rod into the ground with a hammer. Wetted hands on the iron should produce a mild electrical sensation. These voltages may be measured. They "pin" sensitive galvanometers. The current does not cease after several weeks of activity when properly placed.

Stubblefield's observations of natural electrical manifestations led him to consider the taking of "free" electrical energy from the earth. His initial revelation contended that such vast amounts of energy could be used to drive the engine works of industry. Stubblefield sensed that the ground currents were arriving as electrical waves.

In Stubblefield's view the electrical waves permeate the earth. Electrical waves were treated as ocean waves, constantly surging and cresting in specific locales. As ocean waves crash against fixed shores and rocks, so electrical waves also surge and crash against underground geological features. Stubblefield reasoned that this electro activity should be extreme in certain locales: the "rocky shores" of the electrical ocean. Just as there are rocky shores, calm beaches, and surging ocean depths, Stubblefield clearly envisioned the mysterious dark waves of the vast and unsuspected electrical ocean.

Knowing these truths, Stubblefield arranged ground rods in specific locales in order to intercept the electrical waves for power. He knew that these electrical waves would only appear in very specific places, so he did not expect to find them everywhere in abundance. Stubblefield constantly spoke of "working the ground" before power could be taken from it.

Stubblefield observed the natural tides and boundaries of the electrical ocean in and around his lovely rural hometown. Concerning this earth energy, Tesla and other investigators later developed equivalent models. Tesla charted and used the earth waves in their surging impulses. Moray also intercepted these natural impulses in the "radiant energy" generator.

Some researchers believed that the vast electrical ground reservoir finds its source in the enormous solar efflux. Certainly daytime grounds yield a remarkable amount of static. Ground terminal shortwave reception is excessively "choked" during the daylight hours on certain bands. Despite the supposed insulative qualities of the atmosphere the solar efflux finds its way through space, eventually permeating the ground. Some researchers have referred to the ground-permeating solar energy as the "slow solar discharge".

The "slow discharge" represents the enormous drift of aether through the entire body of ground. The earth evidences a constantly self regenerating charge. Tesla opposed the notion that this potent field was the result of decaying radioactive materials deep in the crust.

Numerous other researchers would refer to this "electrical ocean" as the vast reservoir of untapped natural energy. Somehow this reservoir is regenerated in a constant swelling. Where did the energy come from? Earth static was presumed by Tesla to be a solar activity which manifested in and across the ground. The ever growing static of earth was problematic for physicists who could not see the source for such energetic growth potentials. Tesla believed that ultrafine corpuscles from the sun permeated the entire earth, manifesting as static charge, and further conjectured that these rays came primarily from the sun, since it was ejecting matter "at excessively high voltages". If this were so, reasoned Tesla, then sunlight contained something of this electro active component, and it was certainly possible to derive electrical energy from sunlight.

Nikola Tesla announced these facts in 1894, finding only the silencing ridicule of academicians already hating his very name. When Tesla declared that "rays from space" were "bombarding the earth" he was absolutely rejected by the academic club who rejected these claims as "superstitious". Upbraiding his findings, they later claimed for themselves the very same discovery (Millikan, 1932).

Tesla stated that the electrical energy released by the sun is a far greater, more permeating supply than sunlight itself. He certainly believed it should be considered as a first rate natural electrical source of enormous potential for commercial applications. His assertion was based on

experimentally verified facts when, measuring steadily growing charge states in vacuum tubes, it occurred to him that earth charge was sourced in solar activity.

Tesla also demonstrated the extraction of free electrical power from solar energy. A well grounded mica capacitor is surmounted by a highly polished zinc plate. This plate may be poised in a highly evacuated glass container to best advantage, the zinc not exposed to corrosive influences. The tube is elevated and exposed to sunlight. The mica capacitor is connected in series with the vacuum tube. After only several minutes of exposure time, the stored electrical energy is formidable: producing a powerful white arc discharge.

Tesla patented this device. Since earth absorbs the permeating solar efflux, then these energies can be extracted for eons.

Others have viewed the generation of ground static as a natural "radiant process" from the ground itself. Static charge appears as the inert by-product of the mysterious VRIL, the self magnifying organismic ground energy. VRIL, according to medieval mystical philosophers, is the ground of being from which all material manifestations emerge. VRIL connectively fuses metaphysical realities (dream, vision, ideation, impulse) with physical realities. (mineralogy, botany, zoology). By the radionic method by which telegraph lines may be locally "tuned" we may well surmise that this ground based regenerative supply is the true source of static.

Samuel Morse originally planned the burial of telegraphic lines between cities. Having done so across several tens of miles at great expense and through great labor, Morse found his system utterly incapable of operation. Static had so flooded his receivers that no signaling was possible at all. This first bad experience with the static of ground presented such a discouragement, that he almost stopped the entire plan. The uneconomical task of elevating all his cables later became the normal procedure.

Early telegraphers observed a steady growth of static throughout night seasons. This growth continued despite the absence of winds or storm conditions anywhere along the line. Researchers have often referred to this kind of power as "free energy", meaning that the power source is extraterrestrial and natural in supply. Such an energy source would remain cost-free. The privatization of utility companies could conceivably be municipal and democratic; municipal groups could share the cost of installing the ground energy stations.

ENERGY RECEIVER

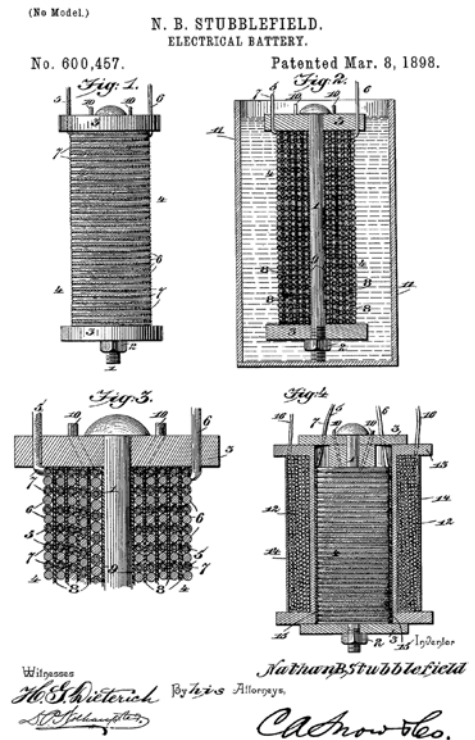
Mr. Stubblefield developed a peculiar bi-metallic induction coil which could (when buried) draw up sufficient electrical power to operate lamps and other appliances which he designed and tested. The patent specification describes a terminal which draws electricity out of the ground. This device required very specific placement — it would not work with equal effectiveness in all locations. A very precise placement of the device required an equally precise knowledge, and Stubblefield shared this knowledge with only a few of his associates.

I spoke with an academician who had the extreme privilege of speaking with Mr. Stubblefield's son, Bernard Stubblefield. Bernard, by this time himself quite aged, told that his father's method in locating the "right spot" was deliberate. His father referred to the device as indeed a receptive terminal and not a battery.

Despite the insistence of Patent Officers in calling the device a "battery", Stubblefield declared it to be an energy receiver, a receptive cell for intercepting electrical ground waves. Its conductive ability somehow absorbs and directs enormous volumes of electrical energy. With this energy Nathan Stubblefield operated a score of arc lamps at full brightness for twenty four hours a day.

It becomes apparent that Mr. Stubblefield had witnessed (or experienced) some natural occurrence of discharging electrical energy in a telephonic system, and had determined the mode of its manifestation with simple means. His ground energy receiver (Pat. 600,457) remains a true electrician's mystery. There was a definite trigger by which this energy was stimulated and maintained. The induction coil which bears his name is equipped with three coils which are wrapped around upon a heavy iron core. Bare iron wire and cotton covered copper wire are wrapped side by side, comprising a primary coil body. Each layer of this primary coil body is covered by a band of cotton insulation, bringing four wire leads to the coil terminus. Two leads of iron and two of copper are external to the coil. Commercial-electrical power is obtained through these connective terminals.

In addition to this bimetallic winding, there is a third winding: the "secondary". This third coil is insulated from the primary bimetallic coil, serving as a trigger device. Presumably, a stimulating



impulse shock was introduced into the tertiary coil, after which the upwelling electrical ground response brought forth powerful currents in both iron and copper coils.

Electrolytically (as a battery in acid or saltwater) the Stubblefield coil is disappointing, producing less than one volt according to those who have duplicated its construction. Stubblefield's bimetallic coil was a "plug": a receiver which intercepts the vast and free electrical reservoir of the ground itself. His patent and subsequent company brochures define the manner in which his earth battery was to be activated.

Technically, the Stubblefield device is a modified thermocouple (a bimetal in tight surface contact) but could not supply the degree of power which he reported. While this arrangement could develop a few milliwatts of power in appropriately hot ground spots, the thermoelectric explanation of the device cannot explain the phenomenal output reported in news reports of Stubblefield's demonstrations.

Furthermore, though the Stubblefield power receiver is wound like an induction coil, it produces a steady direct current output. This poses additional problems for the conventional engineers. Electrical induction only occurs with electrical alternations, oscillations, and impulses. Witnesses described ground-powered motors which ran unceasingly and unattended for months without need for replacing or replenishing the ground battery. Small machinery, clocks, and loud gongs were run by other ground-buried cells as reported by credible witnesses.

Mr. Stubblefield reported that the burial of his "earth energy cell" required time to build up charge. Once the cell was saturated, however, the cell became a conduit of earth charge and flowed over in "commercial electrical volumes". He did not claim complete knowledge of the phenomenon. He simply stated that (once the coil became saturated with the earth charge) it suddenly manifested an electromotive force "far greater than any known wet cell reaching into weeks and months of continuous work night and day" and poured this charge out for use.

Stubblefield used the cell as a "plug", drawing out the electrical charge of the ground. The cell coils acted as a lumped conductor. Charge saturated this conductor and flowed up into it, powering any electrically connected appliance. After repeated exhumations, the copper element of these cells "is not acted on in a perceptible degree . . . even after repeated renewals".

Mr. Stubblefield described means by which such cells could be connected in series at short distances from one another. "With these, acting as electrodes . . . you draw from the electrical energy of the earth a constant E.M.F. of commercial value". The phrase "acting as electrodes" is the heart of the Stubblefield energy cell. It is not a battery. It absorbs and flows over with the stupendous energy of the earth's charge. Stubblefield may have discovered the auto magnifying

voltage effect of electrostatic induction in coils before Tesla, who later utilized the effect in his special electrostatic transformers.

Stubblefield's buried bifilar coils may have become saturated with earth electrostatic energy, travelling up the coil. In such a case, the mere battery power of the coil was replaced by the electrostatic flow, the coil acting as an electrode. This seemed obvious when considering the fact that its ordinary battery current (1 watt) was gradually replaced by a continually growing electrical current of far greater proportion.

TREE ROOTS

Experimenters have observed the "slow accumulation and creep" of current up through vertically buried coils and large solid rods. This current has growth characteristics which gains strength with lengthened burial time. Buried coils and rods do not give their full output until they have "developed" power over a few hours of time.

This behavior resembles nothing like a true electrical current. The best model to explain the phenomenon is vegetative growth — a biological expression. Only a full scale test of the reconstructed Stubblefield device in proper grounds will give conclusive and satisfying answers.

Witnesses convey that Mr. Stubblefield's batteries were usually buried at the roots of certain very old oak trees. From these sites it was possible for him to bring small arc lamps to their full candlepower. Tremendous amounts of energy are required for this expenditure of power. Not only was he remarkably able to draw such volumes of current from the ground reservoir for lamp lighting, but the power was available to him throughout the day. Arc lamps were hung in the trees themselves with their receiver coils buried in the roots. Such was the nature of this current that the lamps did not heat excessively, and seemed to burn forever.

Nathan was not replacing his lamps with the frequency demanded by such continuous operation. Obtained through his employment with the telephone company, he was able to recharge old wet cell batteries with energy from these buried receivers for other experiment. Certain conventional thinkers claimed that the Stubblefield simply used wet cell power for his telephones. Later demonstrations indicate the fundamental error of this conventional view. Stubblefield ran most of his apparatus nonstop for days — without turning off the power.

It is more than likely that charged wet cells were used to "jump start" the ground electrode during certain seasons, since the patent reveals that an outer third coil could be added to the copper-iron bimetal. We do not know the secrets of the earth charge as Nathan determined. Others since this time have observed fluctuations at certain times of the year in ground energy. It may be that a sudden induction is required before the excess ground charge surges to the surface — like priming a pump.

The arc lamps could have been low pressure gas arc-lamps of the kind demonstrated by Daniel MacFarland-Moore; but these required high voltages. Nathan did not utilize such excessive voltages. Another paradox deals with the notion that Stubblefield simply connected hundreds of his small-wattage batteries together, producing a large and commercial output. Nowhere is this evidenced. Nathan showed that one or two such batteries were sufficient to draw off "the charge of the earth". . . a very different kind of energy.

When properly placed, the weak power of the Stubblefield "battery" becomes an electrode for the powerful earth charge. But arc lighting and battery charging was not his only specialty; there were other marvels which he began developing in methodic succession. His bimetallic coil receiver intercepted electrical waves and produced enormous power outputs which could be modulated: superimposed with additional signals, sounds, and voices.

GROUND RADIO

Salva (1795) suggested several electrical schemes for long-distance, and even an aquatic telegraphy. He suggested that physiophonic telegraphy be the communications mode; where human recipients would receive the mild shocks of a distant signal station, and so convey messages.

Salva also believed that earthquakes had subterranean electric origins. Working on the hypothesis that subterranean electricity caused violent communications under vast earth strata, Salva suggested that ground and water be used to replace wires for electrical signaling.

Sommerring (1811) first attempted telegraphic transmissions through water-filled wooden tubs. The signals were effectively passed as if through wire conductors, the thought of wireless ground resulting.

James Lindsay (1830) first developed the notion of utilizing artificially generated electricity for special modes of lighting, motor-power, and communication. Mr. Lindsay suggested that submarine cables might be laid between land masses while using "earth batteries and bare wires" as the means for power transfer.

Steinheil (1838) demonstrated the remarkable passage of signals along one-wire to the ground. When trying to use earth as the "second line" he measured large currents. This complete success proved the great conductivity of ground; and so the "earth circuit" was born, liberating telegraph systems from the expense of using the two-wire system.

Morse (1842) sent telegraph signals across a river. Antonio Meucci (1852) had already demonstrated the transmission of vocal signals through seawater, but traversing the ground represents a different thing altogether. Mr. Stubblefield reasoned that, since electrical waves

traverse the whole earth, it might be possible to send signals to distant places. These ground-permeating natural electrical waves might serve as carriers for the human voice. The ground would act as both power generator and signal conductor. Like a gale carrying messages downwind, these electrical waves could bring wireless communications instantly to any part of the world.

To this end, Mr. Stubblefield experimented with the buried power receiver and a system of telephone sets. He found it possible to send vocal signals through the ground to a distant receiver, referring to this system as a "ground telephone". Telephoning through the ground became routine for this remarkable man. Signals sent through the Stubblefield method were notable for their reported "great clarity". What is strange about this system is its elegant simplicity: Stubblefield's transmitting system evidences an almost crude minimalism which offends some researchers, while surprising others.

Numerous private and public demonstrations of this first system were made in Murray, Kentucky (1886-1892), where the mysterious "black boxes" were seen. Two metal rods were stuck into the ground a few feet apart from each distantly placed set. Speech between the two sets was clear, loud, and startling despite distances of 3500 to 6000 feet. These transmissions were made through the ground itself and used the Stubblefield cell for power.

As mentioned, in several photographs we see special loud speaking telephones outfitted with long (1 foot) horns, designed to act as annunciators. Calls from these annunciators brought his son Bernard to the telephone transmitter. The system was never switched off. Power was limitless and did not diminish with time of day or length of use.

While Marconi and others were barely managing the transmission of telegraph signals for equivalent distances, Nathan Stubblefield was transmitting vocal dialogue. The clarity of these signals and their sheer volume was the most widely recognized feature of the Stubblefield system. He was developing the system to operate through far greater distances, using automatic relays to boost signals for very great distances.

He published an extraordinary brochure in 1898 to attract investors who had expressed interest in consolidating a small corporation. In this brochure, Stubblefield insisted that power for his device was not generated in the cell. He calmly stated that the cell received energy from the earth. In a less discussed portion of this brochure, Stubblefield stated that electrotherapeutic potentials were derived from the earth battery. Other researchers made similar claims for their earth batteries (Hicks, Mellon).

In 1902, Stubblefield set up one of his sets in a "Main street" upper office — in a hardware shop. From that point to his farm (some 6000 feet distant) he conducted continuous conversations with his son Bernard. Tapping with a pencil on his one-piece transceiver, Bernard

was quickly heard in aloud, very clear voice. This transceiver was a carbon button placed in a tin snuff box. Speech and response were transacted through the self-same device, which acted as both microphone and loudspeaker. Cells were placed downstairs from the office in the ground. They were never removed and never wore out, though operating twenty four hours around the clock.

Nathan Stubblefield offered to construct a large scale power station for the town of Murray. His quoted initial installation costs were estimated at five thousand dollars. The town politicians declined the offer. Now, the technique of drawing up electricity from the earth remains a mystery.

STATIONS



The Stubblefield ground radio system was demonstrated for approximately one thousand Murray residents (January 1902). Photographs of Stubblefield and his family, and a good crowd of witnesses from town show the cell lying on the ground among all his assembled inventions; a flower-pot sized coil of good volume. Other devices show motors and large capacitor stacks for aerial voice transmission experiments.

Nathan Stubblefield demonstration with wireless telephone, 1908.

After the successful completion of these preliminary tests, Stubblefield travelled to Washington, D.C. for a public demonstration which was to be one of his crowning public achievements (March 1902). Stubblefield sent wireless messages from a steamship to stations on the shores of Georgetown. This successful test employed trail-wires in the river water. While successful, witnesses acknowledged that Stubblefield's ground telephony sounded louder and came through with greater clarity. Photographs of this event are all available.

He declared that news, weather, and other announcements could be broadcast through the ground across a great territory for private reception. Simultaneous messages and news of all kinds would soon be transmitted through the ground from a central distribution station.

He also stated that (while such broadcasts required wide transmissions) he was developing a means by which privacy of ground telephonic messages could be maintained among callers. This method of individuation would take place through the ground, insuring that no one could eavesdrop on anyone's conversations.

The Washington D.C. demonstrations were followed by a trip further north. Mr. Stubblefield took his apparatus to New York City for additional tests, preparing for a public demonstration in Manhattan's Central Park. The demonstration was to take place in less than twenty four hours after his arrival.

Stubblefield found (to his shock) that the ground was not permeable to earth charge in all places, and not conducive to easy ground telephony. He requested more time to discover the power points before setting up the stations properly. Time to "work the stony earth" of the Park left a few investors foolishly wary of the system's worth. This demonstration was withdrawn.

His next public expositions were given in Philadelphia's Fairmont Park with greater success (May 1902). He now recognized, more than ever before, the role of geologic formations in determining and establishing stations.

Stubblefield published a prospectus for his WTCA (Wireless Telephone Company of America), stating that "I can telephone without wires a mile or more now, and when the more powerful apparatus I am working on is finished and combined with further developments, the distance will be unlimited". He sold only one telephonic system to another corporation: the Gordon Telephone Company of Charleston. This system was used to communicate with offshore islands. It would be interesting to retrieve this system and examine its contents.

He entered these commercial aspects with some trepidation. By June of the same year he withdrew from the project completely. A few persons managed to discover the reason for his quiet, sudden retreat. Because of his difficulty in instantly stationing his system in New York City, it was suggested that he adopt the method of burying lines to "fake" the operation — if just for the purpose of making a good show. Nathan declined.

After witnessing these demonstrations, another inventor (A. F. Collins) duplicated some of Nathan's inventions and filed a counter-patent for a ground telephonic system (patent 814,942 for "Wireless Telephony", 1906). One of the signing witnesses on the Collins patent was one Walton Harrison.

Harrison, a WTCA member later infringed on another Stubblefield experiment with his "Transmitter for Wireless Communication", a telegraphic-telephonic system (patent 1,119,952 1914). It became apparent that certain WTCA members were trying to oust Stubblefield himself!

The WTCA now took on a life of its own. Stubblefield was thoroughly disgusted at the display of human greed and ambition, and left them to their own devising. Collins and others were later accused of petty crimes having to do with mail fraud, and the WTCA failed in time. Internal

disputes over money, rather than technological progress and implementation, were their own death knell.

Marconi arrived with an inferior (though highly publicized) system. When Marconi began his work, the effective signal transmission distance was equal to that achieved by Stubblefield. Stubblefield was experimenting with ground radio since 1888, but did not patent his developments until much later. Credible witnesses saw his ground radio experiments in action during this time frame, establishing the historical priority of Stubblefield — a true and original American genius.

While Marconi could barely send telegraphic "dot and dash" signals with great difficulty (and static), Nathan had already transmitted the human voice with loud, velvet clarity. Others would adopt and implement the Collins system (Fessenden, DeForest, Bethenod, Braun).

Nikola Tesla performed double ground experiments with impulses as early as 1892, reporting these in lectures and patenting some embodiments in 1901. No one of these later systems ever achieved the same results of clarity, tone, and volume of Stubblefield ground telephony. Priority in this art belongs to Nathan Stubblefield. In addition, his was the only system in which natural energies were obtained, magnified, and entirely employed as the empowering source. All the other inventors used "artificial" sources (batteries, alternators, dynamos).

Following all these ground radio demonstrations; Stubblefield researched "magnetic waves" and developed several systems which did not use ground terminals for exchanging signals. Long distance wireless telephone communications were his aim. Many imagined this to be radio as we know it, but several features of the Stubblefield aerial system are distinctive and different. First, his transmitters and receivers were telephonic, not telegraphic. In his preliminary experiments, the earth battery was used to energize an apparatus to which was connected a long horizontal aerial line. Marconi later adopted this "bent L" symmetry in conjunction with a grounded copper conduction screen. We do not have photographs of these arrays, but have handwritten manuscript copies of certain diary notes in which a progressively greater telephonic distance is reported. Nathan made steady progress in this form of telephonic transmission, but used neither alternators or spark discharge.

A second series of experiments reveal the development of stacked capacitors. Photographs reveal two large capacitor stacks, presumably for inductive transmission purposes. Some researchers induced ground oscillations of electrical current, while absorbing each "flyback" into large capacitors. This system evidenced the "hydraulic" model of electricity, popular during the latter Victorian Epoch.

Tesla would later show the essential differences between current species developed in various electrical machines. Each of these, when separated, evidenced entirely unsuspected new

phenomena. It is most probable that Stubblefield was one of the first individuals to discover some of these strange effects, even before Tesla himself.

Direct current impulses have very different characteristics than alternating high frequency currents, used by Marconi. Vocal modulations of strong direct currents release polarized impulses. Impulses do not produce the inductive waves used in conventional radio transmission: they produce inductive rays which travel in straight lines. These inductive rays are penetrating and more like electrostatic energy than electromagnetic energy.

Photographs reveal a final form of Stubblefield's aerial telephone which utilizes a two foot in diameter single turn copper band. This outer copper band is spaced from a second inner copper band, and is mounted on wooden pedestals. A telephone is connected to this array. This compact apparatus transmitted inductive rays for great distances when earth energy was modulated by the human voice.

A truly honest and humble man, he justly considered the ambitious and aggressive (northern) investors as "scalawags and damned rascals". He became suspicious of others. Considering the time frame in which these events took place, we may understand his reaction. Rejecting their tempting swindle, he was compelled to leave for home in order to continue his beloved experiments in privacy. He became mysteriously compulsive about his privacy after this.

In the words of several persons with which I have had the good fortune to speak, "Nathan was honest to a fault". He, disappointed again in human behavior, packed away his equipment and went home. After this unfortunate time period, Mr. Stubblefield preferred to be alone. Some say he became increasingly intolerable to be with. These patterns mark the genius, the dreamer. Those who walk in the future, while being in the here and now. Finally, his wife left him.

HOMESTEAD

As visitors approached the Stubblefield farm, yet a good way off, Stubblefield would appear at the door to wave them away. This often occurred when they were simply too far away to be visually located. He refused to speak to anyone for long periods. This occurrence was reported during the night, when visibility from the cabin to the distant parts of his fields would be impossible. Nathan would always appear at the door, somehow knowingly, and wave them off.

Pranking schoolboys, intent on stealing vegetables or fruits, would ever so secretly crawl onto his farm quite out of possible sight. Nathan would always be right next to them laughing in no time, somehow mysteriously detecting their presence. In a later embodiment, bells would sound when anyone approached so much as a half-mile from his cabin. It has been suggested

that he had developed a device which could actually indicate the positions of any intruder across a space of ground.

Some declared that Nathan, jealous of his privacy, rigged the whole farm with delicate trip wires in order to locate and surprise pranksters. Sometimes the intruders would be met by Stubblefield, waiting at the very spot where they were stealthily heading. No intruder ever managed to feel or find these supposed wires. Others would say that Nathan buried sound-sensors all over the farm. These, when pressed, could model a trace across a map of the farm inside the cabin. Each sensor, tied to an indicator, could show up on the map, and studying this map, he could see where intruders were on the fields. Nathan could then gleefully sneak up on them and chase them away. This tantalizing mystery has never been fully explored.

Methods of distant ranging and location were devised by Antonio Meucci, employing tone signals. These required receivers, however, at the distant end. But Nathan knew where the intruders were coming from and where they were going as well. Nathan may have developed ground-wireless relays which responded to ground-buried sensors. These may have transmitted a tonal signal to the cabin, where a receiver would be triggered. This receiver may have been the bell-sounding mechanism. How did he locate people with pin point accuracy however? No complex array of detectors was ever found in his cabin when he died.

In light of all his experimentation with earth energy and wireless, we will assume that his last two mysterious inventions speak of utterly new and unknown (though related) ground energy phenomena. But, what natural phenomenon permitted him to achieve this feat?

Ocean waves often contour the shoreline, evidencing something of the shore outlines to distant places. Electrical waves might conceivably do this. But how would Nathan model this inside his cabin? No such map was ever really found. Also, if he were using some kind of ground impulse Doppler radar or sonar (electrical ground impulses outward) then what feature beneath the approaching intruders would signal an echo back to the receiver?

Some have suggested that Stubblefield was utilizing distant variable ground conductivity. Intruders would alter this by their weight and step. How would such a signal be transferred back to the measuring station? Such reciprocation in ground currents would require that they are irritable and sensitive. This would evidence an unsuspected permeating biological nature in geology; a song, a personality with which the old linesmen dowsers were intimate.

MOTORS

A motor, designed by Stubblefield to operate entirely by [20] fluctuations in ground static, has been stored in a local museum. The device features several mobile pith balls around a compass-like perimeter, resembling the equally mysterious electrostatic hoop telegraphs of the 1700's.

Students of Stubblefield's work have examined the pith ball pendulum device and ignorantly concluded it to be useless.

Pith ball (static) telegraphs of the early 1700's reveal this Stubblefield design to be a very special "find". Pith ball telegraphs utilized a grounded metal hoop, an underlying dial, and a pendulum on which a pith ball (cork) was hung. A single line (sometimes of silk) connected two such arrangements.

Signals were made and received in a very curious manner with pith ball hoops, an equally historic mystery. Moving the pith ball to a particular letter on the dial resulted in identical displacements in the receiver: an anomaly. These arcane devices managed the articulate transaction of messages by unknown phenomena approaching intelligent transfer.

Witnesses of these signaling devices were credible persons in the scientific community. No one questioned how it was possible to articulate such a transfer with static electricity. In any event, any researcher not familiar with the designs would pass over Stubblefield's "pith ball table" without counting it as worthy of study.

Another device, found in Nathan's cabin after he passed away, is of singular mystery. One person actually thought that Nathan built it because it "looked really strange" — like some science art form. It sat upon a trunk of to the side of his cabin room. Bernard Stubblefield, his son, did not recognize the device. Nathan must have built it after Bernard was taken away with his mother. Bernard did not remember seeing the device before this moment. It was taken to a local museum, where it now resides.

The device is a square arrangement, having several insulator-mounted pith balls in each quadrant of the central square table. It is quite likely that this was the means by which Nathan detected movements and positions in his field. If this analysis proves true, then it represents a major leap in his earth power technology. I have surmised that this device is the Stubblefield long-range detector. Motions in a specific pith ball pendulum gave the direction and position of the intruder. Such a device relies on phenomena which are unknown in conventional science.

Natural observations in systems lead to unexpected, theory-busting discoveries. Such an effect demonstrates that an articulate quasi-intelligent energy permeates the natural environment of which electricity is a minor part. The natural phenomenon which is responsible for this ability is truly remarkable, nothing short of the miraculous. In its realm, we see that nature is suffused with an almost biological organization which includes the supposed inert world of geology. This would be equivalent to acknowledging that geological structure is suffused with a neurological sensitivity; a thing which academic science is neither prepared nor equipped to endorse. Nevertheless, different aspects of this ground sensitivity were discovered and differently implemented throughout the following years.

T. H. Moray (1935) also discovered long-range articulate tuning through the ground from a fixed single site. His "radiant energy listening device" permitted him to scan a tract of land and actually eavesdrop on distant conversations and sounds with earphones. This device did not implement a microphone: the Moray Listening Device used a grounded rod and special large germanium detector. How does a stationary tuner sweep across land and pinpoint sound sources?

Stanley Rogers (1932) discovered the same long-range scanning effect when, using a radionic tuner for mineral detection, he found it possible to sweep a field or meadow with a variable capacitor. Adjustments on these grounded tuners could sweep across land, revealing and mapping every mineral contour. Dr. Ruth Drown (1951) independently, developed a compact device which could sweep, scan, and delve through subterranean grounds for the specific purpose of ore detection. This device permitted photographic detection of ores swept through the ground, isolating specifically sought mineral deposits.

The Stubblefield pith ball pendulum represents a leap in ground power technology. It is an engine which operates without electrical transformations at all: a ground-powered "auric" engine.

SUNLIGHT

Two more mysteries have lingered from this latter period of invention in the Stubblefield biography. The nature of each reveals the extent to which he had developed and advanced his new technology. Nathan continued to pursue his experiments, but little was seen of him for long time periods. Alone and tired, Nathan stopped working his farm completely.

Later visitors felt sorry for Nathan, now aged and abandoned by his wife and children. Several of the town's many charitable ladies decided to take him some food. On one occasion, they arrived at his farm to find the ground "ablaze with light . . . like pure sunlight was coming right up out of the hillside". Later investigators entered his land area and found heavy wires leading from the roots of trees. To these wires were attached small arc lamps, hung in the trees. These were long extinguished. They imagined this to be the explanation of his hillside sunlight. Their hasty analysis proved problematic from stories which witnesses report.

The warm and diffuse sunlight which came from the ground itself around his house was not localized in specific lamps. The light came from the ground, not from the trees as before "a whole hillside that would blossom with light lit up like daytime". These observations indicate that Stubblefield had managed indeed the direct conversion of earth energy to light and warmth.

This would be acceptable, were Mr. Stubblefield simply working on a newer means of drawing electricity from the ground to light small arc-lamps; a feat which he had accomplished earlier. But these kind persons could never find any evidence of arc-lighting or any other forms of known lighting anywhere near the area. In their own words "the light seemed to come from the ground itself". In addition to the ground sunlight effect, many heard very loud and unfamiliar noises coming from the whole area surrounding his cabin. What could this be? Had he managed to directly transduce the natural impulses of the ground energy into audio?

His own last claim, made two weeks before he passed away was made to a kind neighbor: "The past is nothing. I have perfected now the greatest invention the world has ever known . . . I have taken light from the air and earth . . . as I did sound".

SUNSET

I was the quite fortunate recipient of an unexpected personal letter while writing my original treatise on Nathan Stubblefield. It was told by a gentleman who received the account through a man who witnessed the following story:

Neighbors had not seen Nathan for several days. As they were worried about his health, they attempted to call on him. The lock was secured from the inside. It was a lonely, cold, and rainy March day when old friends and neighbors broke the lock on Nathan's cabin and entered. He had passed away in his bed, the probable victim of malnutrition and fatigue.

They all noticed that the interior of the cabin was "toasty warm", as if heated by a strong fire. Moved to locate the source of this heat, town officials found "two highly polished metal mirrors which faced each other, radiating this great heat in rippling waves".

Now this, I must say, is a truly great discovery and last mystery. It fulfills what Nathan reported in his last testimony. Nathan's deepest confidence was in those kind and compassionate people who continued to seek him out with love and concern to his last days. Abandoned by all, he wished one of his dearest neighbors to write a biography. Perhaps he wished to explain his life, an apology for all his ways. He said "I have lived fifty years ahead of everybody else". While often sounding inspirational, these are words of deepest sorrow.

To live with a vision of the future is to experience the surprising, often disappointing rejection and resistance of all who surround the conspiracy of human nature. Some said he was incapable of loving others. It was his love which coaxed the living sunshine out of hard, rocky ground. And his love brought up the resounding waves of an eternal sea of energy. Love like the rose, often hides within its shelter of thorns; singing lonely, windy songs to the deep. In endless dreams of night, the stars listen.

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