

"Earth Energy and Vocal Radio" Nathan Stubblefield

"Lost Science" by Gerry Vassilatos

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MEANDERINGS

The scientific historian methodically searches out catalogues of forgotten phenomena by thorough examination of old periodicals, texts, and patent files. The retrieval of old and forgotten observations, discoveries, scientific anecdotal records, and rare natural phenomena provide the intellectual dimension desperately needed by modern researchers who work in a vacuum of dogma.

Those who are familiar with the lure of scientific archives understand very well that more potential technology lies dormant than is currently addressed, discussed, or implemented. Much of modern scientific research is the weak echo of work already completed within the last century. 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. The existence of these devices is concrete, documented in several unsuspected and unstudied patents.

"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". Thereafter, a certain Mr. Kemp in Edinburgh (1828) worked with earth batteries, so that we know these designs were already being seriously studied. They demonstrate the validity of very anciently held beliefs concerning the generative vitality of earth itself.

Several of these devices were employed to power telegraphic systems (Bain), clocks (Drawbaugh), doorbells (Snow), and telephones (Meucci, Strong, Brown, Tompkins, Lockwood). Earth batteries are an unusual lost scientific entry having immense significance. Developed extensively during Victorian times, the earth batteries evidenced a unique and forgotten phenomena by which it was possible to actually "draw out" electricity from the ground. The most notable earth battery patent, however, 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. Well before geologists and draftsmen were hired to mark telegraph line installations across a chosen territory, the linesmen selected the actual course and way. While major line directions were generally known, it was left to the linesmen to select the specific post-by-post pathway through the forests. Not necessarily the best geological trail, linesmen followed the path which seemed, to their aesthetic sense, to be the "right one".

The meandering telegraphic wire went through rich dark evergreen forests and around glades. Lush valleys, flowing with corn, languidly waved ... as the linesmen drew their weaving trail. Across meadows where wild flowers covered the earth in fragrant bouquets, there went the line in its curious, twisting path.

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. There were no specific instructions for the orientations of these long systems. Linesmen chose paths, which they felt best "secured" the elevated line. Early telegraph linesman "felt" their way through the woods, laying the paths for lines according to their peculiar intuitions. Theirs was a sense-determined path rather than a strictly mathematical one, carved through woods and vales in artistic meandering ways.

Older linesmen recalled the days when line installations took their characteristic winding routes through woods, across meadows, and sinuously along ridges, lakes, and streams in an expressive freedom, which was otherwise difficult to explain. Old linesmen innately sensed the most favorable paths along which lines "should" be placed. One finds that a careless amble through the woods is not unlike the path, which telegraphs linesmen chose.

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 paths of engineers is effective and direct, but the old meandering rural roads dotted with their naturally placed homes are ... beautiful. Later concerns for conserving wire, insulators, and posts outweighed this aesthetic sense of direction. Telegraph lines then simply followed the rails, as trains cut right across the landscape with no concern for aesthetics or the tendencies of nature at all.

The ability is not completely lost however. There are a few groups of individuals who yet maintain this peculiar "sense of the land". One is the landscaper, who artfully designs gardens and grounds with an eye on maximizing beauty. This qualitative skill is based on a sense, which is both visionary and visceral. Architects alike enjoy this special aesthetic skill when designing buildings, which must be site-conformable. They must balance both alignment, form, material, and structure against the mysterious "urge" of the

land upon which they are to build. Improperly placed, the building offends the delicate "forgotten sense"... which all art critics loudly exercise.

This sense-oriented technique for determining the best route through the countryside was most definitely based on a forgotten sensitivity, which dowsers yet preserve. The ground "urge" was anciently noted and honored by ancient sensitives who understood this to be the mysterious intelligence of the earth itself. Selected ancient persons recognized that certain ground spots emanated a vitalizing power, which energized the mind, emotions, and body to penetrating heights. Places where this energy was potent were deemed "sacred spots".

It was soon discovered that a very strange and meandering path system naturally connected sacred spots together. Seeing that these sacred spots held the key to their survival, these sensitives followed the energizing paths across the ground in search of new understanding. These lines were not "light-line" straight. They meandered, like veins across an outstretched arm. They were dendritic, like trees branches and nerveworks.

Sorciers and Templars alike called these sites sacred, the interconnective natural paths "woivres". These paths seemed to meander and waver across the countryside, as streams and currents of water meander across the earth. Soon, ancient societies developed technologies, which employed the mysterious earth energies for agricultural and medical purposes. Stones were erected where these energies emerged. It was hoped that some means for concentrating and maintaining the vital flow would be secured in this manner. The collective name for such technology is "geomancy", the long-forgotten craft for raising the vital earth energy.

Works of the ancient geomancers remain. As the megaliths, a system of ground receivers and earth energy concentrators, we recognize an ancient and forgotten empirical wisdom. Near certain of these rock pillars we find that agricultural vitality remains maximum. Geomancers, exercised their heightened communion with the earth energy to find water, a gift prized by their societies.

Geomantic qualitative science exceeds geologic quantitative science. The gift persists among countless individuals. Holding metal rods or green twigs in their hands, these persons sense the presence of water by a peculiar reflex, which is felt deeply in the abdomen. The reflex found validation in the research of Dr. George S. White and Dr. Albert Abrams, both of whom rediscovered the autonomic response of human physiology to the distant presence of certain substances.

Signaling to these sensitives its messages in peculiar runes and dream tokens, the geomantic energy pulsed and streamed over the countryside when properly cultivated. Geomancers maintained vigil at the sacred spots until satisfied with deep personal epiphanies. The sacred spots were known as sites where visions and dreams were exceptionally vivid. Their ability to heal the infirm is recorded in legend, forming the foundation and determining the

altar stone placements of European Cathedrals. In fact, there are those who cite the Cathedral System as a most recent attempt at preserving the anciently heralded sacred spots of wood and glen.

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

The earth energy "sense" is found in all cultures, however separated in time and location. Empirically discovered by each society, we find repetitive examples of the geomantic art the world over. Geomancers each mapped the earth in their own vicinity, noting the presence or absence of ground energy. Vitality was the only energy of ancient survival. Geomancers were the priests. They were the sages, the gnostics. Geomancers were the architectural planners. They located every natural resource needed by their communities. Throughout the world we find their legacy, now largely forgotten.

Replaced by the quantitative skills of geologists and engineers, we now scour across the land along quadrants and grids of our own design. No longer do planners observe the "urge" of the land. Few can afford the fees which truly gifted architects demand when demonstrating the geomantic skill. None will disagree however, that the geomantic skill does shape both mood and vision when properly executed in architecture. The released power exceeds the modern ability of measurement, evaluation, or quantification. The geomantic energy ... the earth energy ... defies quantitative analysis. It is an entity whose presence links both sensual experience, dream, vision, thought, imagination, and place. Numerous societies called this mysterious power by their own names. Chinese geomancers called this energy "Qi". Anglo-Saxon geomancers called it "Vril". Each is an ethnic name for the one earth energy. The organismic energy of earth, which manifests as a mysterious black radiance is seen throughout natural settings. It is observed beneath evergreen trees at noonday.

It shimmers above certain ground spots where it rises as a magnificent glowing crown at night. It combines sensation and consciousness, being simultaneously seen and felt. It unifies metaphysical and physical entities, being recognized only through personal contact and experience. In addition, the earth energy freely saturates and modifies the operation of certain very specific technologies, where its presence creates quantitative anomalies. Any system whose primary elements require ground connection are sure to become hosts for the geomantic energy. When the telegraph system first appeared, it became flooded with this energy.

The old linesmen trekked across woods in a careful manner, turning aside from natural barricades. When maps of these first telegraphic lines are consulted, it is seen that these lines meandered with natural features common to the earth energy paths. As the telegraphic lines twisted and turned through

the countryside and wilds in twisting vines of iron on tar-covered wooden poles, they directly intercepted ground energy.

Early telegraph lines intercepted earth energy with great regularity, often connected distant sacred spots together. We find all too numerous anecdotes and collections of reports in telegraphic trade journals, which indicate that an anomalous ground energy was entering the system components at certain critical seasons. These reports affirm that an earth "electricity" was energizing telegraph systems without the need for battery power at all.

Other reports tell of strange, automatic telegraph signals, which suddenly manifested during night hours. Still others report the peculiar ability of telegraph operators to "know who would call ... why they were calling ... and what the nature of the message would be". This phenomenon would be repeated in later years, when wireless operators began experiencing the very same things. The heightened consciousness experienced near these large grounded systems had everything to do with the reappearance of phenomena anciently observed along the meandering paths between sacred spots. The rediscovery of these anciently known truths was again making its appearance during the industrial revolution.

VISIONARY

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. 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. It all began with his sensitivity to the "urge" of the land. Certain spots in the surrounding woods were mysterious, possessed of a strange magick all their own. Vitalizing and sense-provocative, Stubblefield instinctively knew that these locations might 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 ground currents? Was he enthralled and drawn into certain spots because of their projective energy? But ... what energy? Did it contain or exceed the qualities of electricity?

He developed numerous "vibrating telephones" which were used by local residents in 1887. They were powered by an extraordinary receiver of ground electricity, which produced great quantities of a strange "electricity". 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 their additional high resistance. Among its numerous other telephonic problems, the Bell telephone could simply not transmit or receive a strong and clear vocal signal without very excessive battery power. The Bell System was thus 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!

Mr. Stubblefield discovered that telephonic signals of exceptional clarity could be both transmitted and received through the ground medium alone. There was simply no precedent for this development. His system utilized the ground itself as the conductive medium, an inexplicable natural "articulation" connecting all ground placed telephones.

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's telephone was "exceptionally clear". He 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-receivers. Heavy insulated cables run to the outer ground from this apparatus. Stubblefield developed an "annunciator" (horn loudspeaker), which amplified the voice of distant callers. These telephone sets appeared in his 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. While sounds were indeed louder with 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 high, prohibiting the ordinary people from having their own service installed. But

Stubblefield's devices defied all the known electrical laws. In the early Stubblefield system, twin terminals into the ground formed the initial bridge among telephones.

As system users were effectively joined together through the ground itself, the high cost of wire was eliminated! The signals were exceptional, and did not fade or intensify with rain. This fact was never considered in theoretical discussions of his work. Those who experienced speech through the Stubblefield system each reported similar impressions. While ordinary "soil conduction" telephonics require a certain degree of ground water for their operation, we know that his system did not operate on this principle.

The theoretical reasons explaining ground conduction telephony 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.

TERMINALS

The first telegraph lines of Morse were two-wire lines. The circular flow of electrical signals among station receivers, batteries, and keys was conserved with great efficiency. Double wire systems were very expensive however. It was quickly discovered that single lines, terminated in the ground with heavy metal plates, could exchange equally strong signals. The immense savings in wire, poles, insulators, and maintenance was an attractive feature of the single-wire method. Company owners were elated.

The problem in single-line telegraph systems was finding the right ground spot. It was quickly recognized that "good" and "bad" grounds could affect the behavior and operation of the line. Improperly placed ground plates could ruin a system by not conducting signals properly. In time improperly placed lines would actually fail. 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, workers in a yet primarily agrarian society, had experience with soil and earth in general. Many of them were farm boys who had watched certain old-timers "divining" for water. Linesmen frequently discussed such natural means for discerning the "good ground" for terminating a telegraph line. Telegraph linesmen found to their delight that the dowser's skill always located "good ground". This is why so many of them guided the telegraph lines through those meandering paths across the countryside.

The true difference between the Stubblefield system and these early "conduction telegraphy" systems became obvious as soon as we delve into the record. 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, which were placed in specific spots across the countryside. Telephone 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. But, how were ground plugged relays acting as amplifiers in the Stubblefield system? 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. Older linesmen told Stubblefield much about their own empirical observations on the systems ... phenomena which had no textbook explanations.

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 electric "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. These were folded, stacked, coiled, and interleaved. Acting as accumulators of earth energies, these often became dangerously charged. It was found that signals would both self-clarify and self-amplify to unexpected degrees when these special terminations were employed.

Properly grounded 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 not coincidental that the older lines demonstrated their remarkable, consistent operation throughout the years ... requiring few or no batteries. 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 ever flowing! 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. Surveyed straight 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. What they derived from this obsession with thrift simply added to a continuing fund of ignorance, which has swallowed up the more naturalistic empirical sciences. In their movement toward economy and thrift, numerous companies wished to save on battery costs. The trouble with single-line telegraph systems was that the battery power was always "on". Usually lost to the ground in continual volumes, battery current simply drained off into the ground. This meant high battery costs. Owners insisted that a means for alleviating these high costs had to be found.

George Little found that this leakage could be reduced by employing carbon rheostats between the signal key, battery, and ground. One could control the actual leakage to the ground by carefully raising the rheostat. By preventing unnecessary signal leakages into the ground, battery power could be conserved.

But, when these rheostats were installed, strange phenomena began taking place with great strength and repetition. The first phenomenon related rheostatic settings to actual line-developed power. Power kept appearing despite the battery status. Rheostats made by Little were sensitive enough to "valve" line signals and use the ground developed current.

Several of these terminal rheostat patents have been retrieved. One familiar model uses a thick cylinder of carbon with a slide spring contact. Another uses fixed resistive steps, which are switched into or out of the circuit. Here were the very first control components of the telegraphic system, the first in a great series.

Thomas Edison dominated the method invented by George Little, including the use of terminal rheostats in order to control the amount of current flowing to and from the ground during signal time. Another amazing phenomenon was the great variation of rheostatic settings which each ground required before strong signaling could occur. There was no automatic means for determining these settings. No textbook formula could predict the settings. They seemed to obey unknown laws of behavior.

Some terminal rheostats needed to be closed completely. Others could be opened full until signals were of sufficient strength to operate the system. Seasonal rheostatic variations were always noted. It was thus seen that each ground site had its own "character". Each ground was possessed of activities, which defied conventional quantitative description. In addition, the fact that these settings changed completely with the season, having little to do with ground water tables, was troublesome to most theoretical engineers.

Inventors, however, adopted whatever empirical experiment would offer. If a component worked, then it was employed. Empirical technology produced the most amazing devices ever seen, working with little-understood forces. The anomalous appearance of powerful currents in the end-grounded lines was one such marvel.

Telegraph line was not made of pure copper. Telegraph line was bare iron wire. Lines were not well insulated throughout their lengths. The line itself was supported on porcelain insulators and fixed to tarred wooden poles. Rain and corrosion caused the conductivity of the line to vary considerably with distance. Signal strength along such resistive wire would have theoretically been extremely poor.

The remarkable observation defied theoretical estimate. Signals were excessively strong at certain times, appearing in seasonal waves of strength. So great was the developed signal strength that operators could "remove battery cups" and work with almost no current at all. This was especially true of chemical telegraphs, which employed only earth battery energy for most of their operating time.

Where did this extra energy come from? From what mysterious depths did this strange power emerge? Was it electricity as we know it? It has been suggested that earth energy, the pre-electrical energy of the ground, was at work in all these systems. Called "vital energy" by Victorian Science, this presence exceeded the character and nature of ordinary electricity.

When later researchers began measuring and experimenting with the ground-derived energy, they discovered several important distinctions between it and electricity. Where the force of electrical currents would radiate in a fan shaped radiance through grounds, earth energy evidenced a vegetative nature. Examination of the vegetative patterns taken by earth energy revealed discrete articulations ... a thready nature, which was unlike ordinary current.

Energetic threads of this energy could be measured between communication sites only along tightly confined trails. Also, while electrical force clearly dissipated through ground conduction, the thready earth energy actually evidenced growth characteristics in conductive lines. Electrical power grew to spark potentials in these lines when no exterior evidence allowed explanation of the energy levels.

Most recognized that electricity was simply a by-product or epiphenomenon of a more fundamental agency, which entered the grounded lines. Rheostats

somehow "tuned" the potentials of this earth energy. While Reichenbach discovered the fundamental permeating nature of "Od force", several others showed the essential unity of earth energy and the human aura. It was found possible to "match and tune" these energies through the use of rheostats and capacitors. Persons who were weak and infirm actually experienced vitalizing elevations when connected to the ground energy through these special rheostatic tuners.

Called "radionic" tuners by those who developed them, numerous investigations revealed the potentials of this ground energy for social use. Agricultural applications of radionic tuners produced greater crop yields. Moreover, large ground-connected radionic tuners produced extraordinary effects on the mind and emotions ... relieving tensions and opening thought to new potentials. Taken from this viewpoint, telegraph systems behaved as radionic tuners on a vast scale. We would therefore expect them to produce anomalous energetic effects in several parameters of human experience. 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 ... 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.

ELECTRICAL OCEAN

We find a good number of the earth battery designs in the Patent Registry. The earliest designs appeared in 1841 when Alexander Bain applied the phenomenon to telegraphy. 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 the patent for his earth battery years after his initial discovery (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 twelve large battery cups, reducing them gradually until only two were needed. There came a point during certain operative seasons where he found it possible to remove all the batteries!

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: one foot diameter discs for seventy-five miles of line, two foot discs for up to four hundred and forty miles of line.

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. When the battery was examined it was actually dried out and physically corroded. Yet the signals continued (w. Lehr).

Patent Archives have revealed a great number of these devices including their 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 earth batteries, which found their way into telephonic service. Designs by Strong (1880), Brown (1881), Tomkins (1881), Lockwood (1881) provided primary power as well as power boosts for telephonic systems throughout the countryside. The well reputed fame of "earth batteries" centers around their very anomalous electrical behavior. How they produce such volumes of current remains an embarrassing anomaly.

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. Earth batteries also varied in outputs when placed in different grounds. Some gave only weak and unusable outputs. Others continued to produce prodigious volumes of power for years unattended. Some researchers connected earth batteries in series (Dieckmann) to build a greater output, but Stubblefield was not interested in this arrangement.

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.

Nathan Stubblefield's observations of natural electrical manifestations led him to consider the taking of "free" electrical energy from the earth. His excessive study of theoretical literature taught that no such advantage could be obtained by using earth batteries. Writers contended that vast amounts of energy could never be used to drive the engine-works of industry by earth battery power. He saw that, unless a new breakthrough in the art could be found, the theoreticians would be correct.

Older linesmen taught Stubblefield about sensitive ground spots: how "uncommonly great" electrical activity had to be patiently searched out. These

electrical hot spots, when compared with most adjoining ground, were like electrical oil wells. Finding the "right spot" would do more than simply insure good ground connection for telegraph lines. Certain ground power points could actually power the lines! Motivated toward deeper research by his own natural observations and intuitive sensation, Stubblefield devised several earth batteries. His own peculiar ability to sense earth energies taught that it was vast in quantity, yet untapped by humanity. The means for drawing out the energy could be found!

Stubblefield knew that ground probes, placed into various spots, reveal an amazing degree of electrical activity. These currents varied across any chosen plot of ground. Wet soils often reverse the expected electrical strength; weakening rather than strengthening their magnitude. Stubblefield knew that a proper placement of metallic ground probes could produce stronger currents for use. But he did not anticipate what he then accidentally discovered. His initial experiments involved the development and examination of simple earth batteries: buried metallic arrangements, which produced weak electrolytic power. Mr. Stubblefield observed a strange "earth-charging phenomenon", reporting that the burial of an "earth energy cell" required time to build up charge. During the first phase of this charge building process, the characteristic weak output was observed. This was usually a volt at half an ampere, the general electrolytic output of buried metals.

From his linesman mentors, Stubblefield knew that placement of any grounded metal was the key toward deriving power. If properly placed, the energetic output of his cell would be phenomenal. Finding such a power point, he buried the cell. The process took a week or more to build strength. Once the cell was "saturated", however, it became (in his words) "a conduit of earth charge". This mysterious transition from weak battery to energy conduit required time.

Typical of his curt statements, Mr. Stubblefield simply stated that the fully saturated coil suddenly "manifested an electromotive force far greater than any known wet-cell". This state being achieved, the cell flowed over in "commercial electrical volumes".

He did not claim complete knowledge of the phenomenon. He observed that the activity "reached into weeks and months of continuous work night and day".

Stubblefield envisioned the energy 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 was found "not acted on in any 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". That 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.

This device, an earthed electrode, drew up enough natural electric charge from the earth to operate motors, pumps, arc lamps, and all the components of his ground telephone system. The implementation of his earth energy technology would have changed the nature of American Society, were it permitted free market expression in its day.

Mr. Stubblefield later 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, brimming over in certain places. No doubt, he was one who felt the ground energy. Stubblefield sensed that the ground currents arrived in powerful electrical waves. In Stubblefield's visionary approach, the electrical waves permeated the ground. These electrical waves were like ocean waves: ceaselessly surging and cresting over.

As ocean waves crash against fixed shores and rocks, so electrical waves also surge and crash against underground geological features. Stubblefield reasoned that this electrical waving should be extreme in certain locales. The "rocky shores" of the electrical ocean were numerous but specific. Just as there are rocky shores, calm beaches, and surging ocean depths, Stubblefield clearly envisioned the mysterious dark waves of the vast and unsuspected subterranean electrical ocean.

Knowing these truths, Stubblefield arranged ground rods in very 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.

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 short-wave 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. Tesla charted and used the earth waves in their surging impulses for transmitting power across the earth. 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 ultra fine corpuscles from the sun permeated the entire earth, manifesting as static charge. Tesla 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 (Hess 1912, 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 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.

Samuel Morse originally planned the burial of telegraphic lines between cities. Having done so across some twenty 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. Receivers were paralyzed by the volume of ground-absorbed energy. 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 format for telegraphic systems.

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.

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 earth energy, the self-magnifying organismic ground energy. Solar effects mirror the ground states, which absorb them, producing the static charge epiphenomenon. Vril, according to medieval mystical philosophers, is the ground of being from which all material manifestations emerge.

ENERGY RECEIVER

Mr. Stubblefield developed a peculiar bi-metallic induction coil which, when buried, draw up sufficient electrical power to operate lamps and other appliances which he designed and tested. A great length of both cotton-insulated copper and bare iron wires were wound together in a "bifilar" arrangement on a large iron stove bolt. The windings were held side by side throughout the coil. His patent specification describes the device as a "terminal, which draws electricity out of the ground".

This successful operation of the device required very specific ground placement. It would not work with equal effectiveness in all locations. A very precise placement of the device required a precise knowledge, which only dowsers have. Stubblefield shared this particular fact with only one person.

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 and time consuming. His father referred to the device as 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 the enormous volumes of earth energy.

Whether the current derived from this cell is electricity, as we know it has been questioned. One indicator that it is not is found when considering his use of the energy in lighting lamps. With this energy Nathan Stubblefield operated a score of arc lamps at full brightness for twenty-four hours a day. 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. 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.

These buried coils may have become saturated with earth electrostatic energy, which traveled from subterranean depths. 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 on forever in a brilliant white light. 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 wetcell batteries with energy from these buried receivers for other experiments.

Certain conventional thinkers claimed that the Stubblefield simply used wetcell 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 wetcells 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 Stubblefield paradox deals with the erroneous notion that he 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 methodical 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 transatlantic 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 landmasses 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 his mysterious "black boxes" were seen. Two metal rods were stuck into the ground a few feet apart from each distant set.

Speech between the two sets was loud and clear despite distances of 3500 to 6000 feet.

These transmissions were made through the ground itself and used the Stubblefield cell for power. 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 around his work. In this brochure, Stubblefield insisted that power for his device was not generated in the cell. He calmly stated that the cell received its surplus energy from the earth. In a less discussed portion of this brochure, Stubblefield stated that "electrotherapeutic" devices had been developed from his earth battery. Other researchers made similar claims for their earth batteries (Hicks, Mellon).

STATIONS

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 a loud, very clear voice. This transceiver was a carbon button placed in a tin snuffbox. 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.

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 flowerpot sized coil of good volume. Other devices show motors and large capacitor stacks for aerial voice transmission experiments.

After the successful completion of these preliminary tests, Stubblefield traveled 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. In this successful test, Stubblefield trailed long wires in the river water. Signals were engaged from ship to shore in a remarkable demonstration. Witnesses later acknowledged that Stubblefield's ground telephony sounded louder and came through with greater clarity than the subaqueous tests. Photographs of this event are all available.

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

Nathan also stated that, while such broadcasts required district-wide transmissions, he was developing a means by which privacy of telephonic messages could be maintained among callers. This "method of individuation" would also take place through the ground, insuring that no one could eavesdrop on conversations. Stubblefield had conceived and demonstrated these systems some twenty years before, anticipating statements made by Nikola Tesla, when referring to his Wardenclyffe Station.

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. To his very great shock, Stubblefield found that the ground was not conducive to easy ground telephony, there being no "power points" available. 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 immediately 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 his stations. Natural power points would determine the location of each such station central. 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".

Despite each of these remarkably extensive demonstrations, Stubblefield 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.

Technology is lost at the market place, where inventors meet with astute businessmen of shrewd and cautious intent. There, the confrontation determines future world expressions. Certain businesses simply do not want to revolutionize any thriving technology for financial reasons. The individuals who fill such historical episodes are often incapable of seizing the new opportunity because they are simply not venture capitalists. New technologies produce far greater profits and energetically stimulate the economy to positive productive states.

In many such confrontations, the investors are merely heirs and custodians of fortunes they did not make. Zealous of maintaining the family fortune, they find the easiest and most infantile means at their ability level. By eradicating competitive technology they imagine themselves in possession of security. Some have retreated so into their own reclusive worlds that they imagine themselves in full control of national economy.

Others more aggressively attempt duplicating any competitive technology. Patent stealing is not a new phenomenon. After witnessing the public Stubblefield demonstrations, another inventor (A.P. Collins) duplicated some of Nathan's early inventions. Filing a counter-patent (patent 814.942 for "Wireless Telephony", 1906) for a ground telephonic system, Collins thought to seize Stubblefield's market outright. One of the signing witnesses on the Collins patent was, one Walton Harrison. Harrison, himself a WTCA member, later infringed on another Stubblefield experiment with his "Transmitter for Wireless Communication". This inferior telegraphic-telephonic system (patent 1.119.952, 1914) did not achieve the ground power status by which Stubblefield is known.

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, Harrison, and their co-conspirators were later accused of petty crimes having to do with mail fraud. The WTCA failed in time. Internal disputes over money, rather than technological progress and implementation, was 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 through a static-filled medium, Nathan had already transmitted the human voice with loud, velvet clarity. Others would adopt and implement the Collins system (Fessenden, DeForest, Bethenod, Braun), but none could duplicate the Stubblefield System.

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. Tesla never discovered the true power points, which powered Stubblefield's devices.

Priority in all these arts belongs to Nathan Stubblefield alone. 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 "fly back" into large capacitors. This system evidenced the "hydraulic" model of electricity, popular during the latter Victorian Epoch.

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, not waves, for great distances when earth energy was modulated by the human voice. In some strange manner, he had found a more potent means for activating, resonating, and projecting ground power point energy. His was no ordinary radio transmitter.

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 live with. These patterns mark the disappointed genius, the broken-hearted dreamer. His hurtful nature began to hurt others. Friends forsook him, and he continued to allow them to leave. Finally, his wife left him with their children. Bernard was the only child who seemed to maintain contact with his father.

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 of time. Many of these occurrences were 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, waving would-be visitors away.

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. This tantalizing mystery has never been fully explored.

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. Studying this map, he could see where intruders were on the fields. Nathan could then gleefully sneak up on them and chase them away.

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 pinpoint 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 even suggested that Stubblefield was utilizing distant variable ground conductivity. Intruders would alter this by their weight and step. But how would such a signal be transferred back to the measuring station? Such reciprocation in ground currents would require that the energy used is somehow ... 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 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 a useless piece of junk.

Pithball (static) telegraphs of the early 1700's reveal this Stubblefield design to be a very special "find". Pithball telegraphs utilized a grounded metal hoop, an underlying dial, and a pendulum on which a pithball (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 pithball 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 earth energies.

Through unknown phenomena characteristic of earth energy, these devices approached true intelligent transfer by a single wire connection. One simply swung the pithball toward a letter or word, indicated on a dialette. At a great distance away, an equivalent set registered identical swings. Electricity does not produce such responses.

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 "pithball table" without counting it as worthy of study.

The device found in Nathan's cabin after he passed away is of singular mystery. One person actually thought that Nathan built it just because it "looked really strange" ... like some science art form made to baffle the unwary. It sat upon a trunk off 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. Too young to independently pursue his father's developments, Bernard did not remember seeing the device before. It was taken to a local museum, where it now resides unheralded.

This 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 pithball pendulum gave the direction and position of the intruder. Such a device relies on phenomena, which are unknown in conventional electric 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 through 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. R. 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 earth power 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 form of known lighting anywhere near the area. In their own words "the light seemed to come out 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...! 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. 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 a very 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. Some said he was incapable of loving others. But ... it was love, his love, which coaxed the living sunshine out of hard, rocky ground ... the resounding waves of an eternal subterranean sea of energy.