

# The Hand-Held Thunderstorm

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## 1. Abstract

Technology evolves. Often it moves in a direction that goes nowhere driven by people with no vision. That does not make the technique useless, just misunderstood. In the right hands, uses are discovered, improvements created and benefits emerge. This is a story with a happy ending.

I had faith in the technology and discovered medical cures that evaded large companies.

## 2. History of Lithotripsy

The first commercially successful lithotripter was the Dornier HM3.



The patient was strapped to a chair and lowered into a stainless-steel bath filled with water. The shockwave generator is below the bath aiming upwards at a kidney. The technology was essentially the same as CellSonic uses today, electro-hydraulic, with high voltage shorting across electrodes to emit a pressure pulse. The users and manufacturers thought only of fracturing stones, not of the extended physics of the technology nor of any further applications. This blinkered view is confirmed in the paper Progress in Lithotripter Technology by Christian Chaussy and others. Chaussy was one of the first to use a lithotripter in 1980.

Changes were led by requests for anaesthetic free treatments, lower prices for the machine and lower running costs. Although the HM3 broke stones better than anything before or after and is still referred to as the Gold Standard, the patient had to be unconscious, the electrodes only gave 300 shocks for £300 and the machine cost £1.25 million in the 1980s when I worked on the one in St Thomas'

Hospital in London, the first lithotripter in Britain.

The market shifted to not using electrodes and used a coil propelled diaphragm instead which was not a consumable. The softer action allowed the patient to be sedated instead of totally anaesthetised making recovery quicker and safer. The less effective stone breaking was countered by observing whether the stone was sufficiently fragmented and if it was not the treatment continued until the pieces were deemed small enough to pass.

In the early 1990s, four directors of Dornier in Germany resigned and moved to Switzerland to set up their own company called HMT High Medical Technologies AG. They used the same electro-hydraulic technique and named their lithotripter LithoTron.

In the mid-90s, urologists questioned the effect of misaiming and hitting bone instead of stone leading to the discovery that LithoTron could repair bone. A more ergonomic version was created called OssaTron using the same shockwave generator. Instead of a water bath there was an arm holding the electrode that was angled to the place on the body needing treatment. The shock head was coupled to the patient with gel instead of a water bath. Treatment of broken bones led to the discovery of wound healing and, from that, killing infection, vascularisation, the role of stem cells and growth factors. The technology passed from urologists to orthopaedics and their understanding of the physics remained trapped into assessing the efficiency of stone breaking. HMT struggled to explain the concept of rise time, that they caused a bang quicker by shorting the voltage across a gap in the electrode but this meant nothing to a hospital that saw only a stream of bills for new electrodes. Drained by expenditure on medical trials, HMT went out of business about 2002.

In the meantime, they had made a smaller version of OssaTron called ReflecTron for the physiotherapy market. I was their distributor in Britain and with HMT gone saw an opportunity to make a lower cost version of ReflecTron and called it CellSonic. Back

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then, the market was not to be medical but beauty to treat cellulite on ladies' legs. Distributors had different ideas and visited doctors bringing back reports of better wound healing, nerve repair and eventually cancer cures.

### 3. The Outsider

To be out of step with the establishment is never easy. With lithotripsy having been in the hands of some of the world's leading engineers, Dornier, Siemens, Philips and so on, why were they not also in the same markets? Big companies need regular profits reported quarterly. Having caught up on stag horn kidney stones, the lithotripsy market settled down to replacing old machines with smaller machines that had only to break smaller stones; patients did not delay seeking treatment. There was no incentive for the big companies to look for new markets where doctors were not asking for help. Cancer was dominated by pharmaceutical giants forever looking for a magic pill. Supported by the publicity of charities, no one questioned the wisdom.

### 4. How? How Does It Work?

That CellSonic is getting results without drugs is beyond doubt. How this happens is intriguing especially as the technology is not new. Obviously, some things have been overlooked. Investigations by scientists such as Abraham Embi and Steve Haltiwanger are opening up channels ignored decades ago.

Start with the basic lithotripsy function of the pressure pulse. Making it more sudden gives the pulse more destructive power. The term that describes the speed of the pulse is rise time, the time taken to rise to the highest decibels caused by the electricity shorting the gap. Electricity is the fastest thing known so the rise time is the shortest.

Other things are also happening. When the electricity jumps the gap, it flashes a bright light. The function of that light was ignored because it seemed to have no effect on stone breaking. Dr Embi's research throws light on light.

The electrical short is accompanied by an electro-magnetic field. It is also of very short duration and very powerful. Body cells are affected and the disparity of the electrical potential of cancer cells and healthy cells reveals a corrective phenomenon.

I knew the history of lithotripsy and reasoned that CellSonic, being a smaller version of the earlier machines, should act in the same safe manner. As far as cancer was concerned, there had never been reports of causing or spreading cancer. It could be assumed that patients with cancer, especially in the kidneys, would have been denied treatment but only those who were known to have cancer. Many more would have been unaware of early stage cancer and thereby exposed to shockwaves. Over forty years and millions of patients, there were no reports of aggravating cancer; the rule of bad news preceding good news. The technology in the form of a

lithotripter was at work in hospitals throughout the world.

### 5. A Hand-Held Thunderstorm

The easiest way to describe the CellSonic machine is to compare it to a thunderstorm; a hand-held thunderstorm. A natural phenomenon known since the formation of the planet affecting somehow or other everything on the planet. A very high voltage shorts to earth. In CellSonic, the electricity jumps only one millimetre and projects the effect a short distance. The effect is comparable.

Studies of lightning and thunder on human health are anecdotal. It is known to kill if there is a direct hit and we are all taught not to shelter under a tree during a thunder storm. In cases of a near miss, there are stories of people going on to lead extraordinary lives as clever mathematicians and the like. Was the brain affected?

In Europe, thunder storms are spasmodic but in Africa they are more regular. I was fascinated by the afternoon thunderstorms in Uganda that were seldom accompanied by rain. The sky discharged its voltage on fauna and flora below without exception. What was the effect? There must be an effect. To not know the effect does not deny that something results. This is where hypothesis starts so that investigation may begin.

There is evidence that humans evolved in Africa. How does evolution start? It is a mutation. During the regular replication of cells, that regularity is disturbed and a new type of cell forms. Existing knowledge of the electrical properties of cells point to the plausibility of an electrical storm triggering mutations. Any functional benefits that result will aid that individual.

Like all knowledge, facts lead to questions. More variables are in play than were originally assumed. They are voltage, duration, light, pressure and so on. Discovery is finding what should have been obvious from the beginning.