

Foundation for History of Physiotherapy

Physiotherapy in perspective, 50 years past - present.

Treatment of poliomyelitis with Arsonvalization. A new Miracle Cure?



Triptych Part 3

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Introduction

In part three of the triptych of the 'device collection of the Foundation' *History Physiotherapy*, we would like to let a patient speak who can still talk about the treatment of her complaints with the Arsonvalisation

device.

The SGF has several of these equipment in its collection, however, without anyone being able to tell you anything about the working method and the use of this 'miracle cure'.

By coincidence, during a resource market at the KNGF conference

we came across someone who was diagnosed with Arsonvalization in her youth treated for Postpolio syndrome.

We would like to share this story with you.

Emergence of treatment with Arsonvalisation

From 1850, there was an emergence in medicine of electro-medical devices such as Galvanization and Faradization. The invention of the

Ruhmkorff induction coil made in 1851

fine regulation of current was possible and thus became applicable to the human body.1-3

At the end of the 19th century there was a large dissemination of 'electrical equipment' to doctors, remedial gymnasts and 'electrotherapists', especially in hospitals.

The expectations of the therapeutic use of this low-frequency alternating current were very high. A few decades later, the

high-frequency alternating current therapy developed.2,3

Due to this new technique with high-frequency current allowed heat to be generated in the human body. In Paris and London there was great enthusiasm for the new equipment developed by the French professor in Sarbonne Prof. Jacques d'Arsonval. In 1892 he applied high-frequency radiation for the first time.5



Jacques-Arsene d'Arsonval 1851-1940

D'Arsonval made an important contribution to the emerging field of electrotherapy in the 19th century, the study of the effects of electricity on biological organisms⁵ †

After the Viennese physician K. Nagelschmidt coined the term diathermy in 1909 spread this high-frequency current treatment method, then called



Foto1 With X-rays, I thought I could see through a wall.

'Arsonvalisation', manifests itself in all hospitals.^{2,3} The indication area was wide and it was frequently applied ao. in patients with neuralgias, chronic rheumatism, muscle atrophy, lupus, circulatory disorders and respiratory diseases.^{2,3}

In the context of the times, the expectations of this therapy, with equipment called 'radiation' gifts, high. Great discoveries still took place in dusty rooms and that is how the X-ray machine was invented in that period by W. Röntgen (1845-1923) which was the first 'radiation device' that could be applied to the human body.⁴ Röntgen won the 1st Nobel Prize for Physics, although the operation was completely different from the high-frequency steam⁴. It was thought at the time that these could even be penetrated through the walls with 'magic' X-rays look and there was a great haze of magic around this radiation equipment.⁴ See photos 1 and 2.

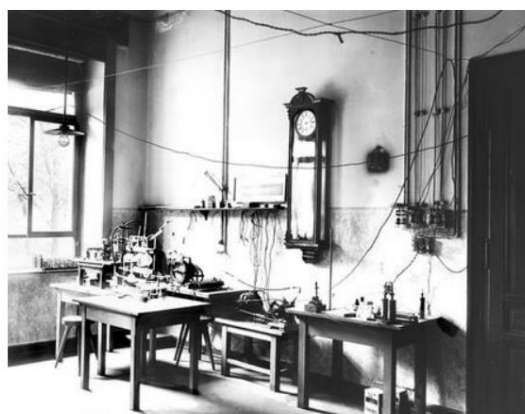


Photo 2. X-ray laboratory at the University of Würzburg late 19th century. For that time a modern scientific laboratory according to the NTvG (expo honorary).

Likewise, the Arsonvalization device must be seen in the spirit of that time. The

beautiful purple radiance that it Arsonvalization device gave must impression

have made even though was in the current vision its functioning has not been sufficiently investigated. See photo 3-5.

It is interesting to read in the NTvG from 1937 that there are even applications

described about treatment of subcutaneous tumors with X-rays in combination with Arsonvalisation.6



Photo 3. Arsonvalization device



Photo 4 and 5. Electromagnetic radiation with arsonvalization in the middle of the 20th century.



photo 5

Arsonvalization devices The development of the Arsonvalization device (up to max. 250 kHz) can be regarded as the predecessor of the high-frequency equipment such as the UKG that is still in use in physiotherapy, albeit with a limited

indication area. The light effects are no longer present, although high-frequency equipment such as the UKG in the 1970s still a flashing red light and a buzzing sound. Reinforcing the placebo effect?



1885

1930

1970

Development of diathermy based on high-frequency current from 1885-1970.

In the Arsonvalization device, an alternating charge was applied to a copper clamp in a handle. All kinds of glass tubes filled with noble gas could be inserted into this clamp.⁷ By holding these tubes against the skin, an alternating voltage was created between the gas and the skin, causing a current to flow.⁷ The gas was ionized and sparks started. skip between gas and skin. This was accompanied by a beautiful blue glow in the tubes, a rattling sound and a stinging, sometimes even burning sensation. Brushes or copper rods could also be connected, increasing the sensation even more.

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The most fantastic healing properties were attributed to the 'radiation', so that such devices were used for all kinds of ailments. Patients will undoubtedly have been very impressed with their treatment, in which the entourage also played a role: *"In the Arsonvalisation, the patient is seated in a large wire cage, the solenoid. "Well, in this room a strong high-frequency current has been generated, such that when we approached each other with the tips of our fingers, a powerful spark jumped over, a vacuum tube or rather a tube filled with noble gases, glowed strongly".* 8

Experience story with the use of Arsonvalization in the post polio syndrome by Aadje de Groot,^{6,7}

On November 24, 2017, the 'Day of the physiotherapist' took place in Barneveld. I was invited there to talk about the development of the brochure 'Physiotherapy for Postpolio Syndrome'. I was there well in advance and that gave me the opportunity to see the extensive

to visit the intelligence and resource market.

My attention was soon drawn to a special stand, that of the History of Physiotherapy Foundation. Enthusiastic employees could tell me that their foundation was established in 1989, the year that the Royal Dutch Society for Physiotherapy celebrated its 100th anniversary. Between all the books and equipment on display was a wooden box with all kinds of different glass tubes. If you could tell what the unknown device was for, you could win a book about the origin of remedial gymnastics. I heard that many had already tried to come up with what this was not, but I recognized it immediately.

In 1952 I was struck by polio, against which there was no vaccine at the time. After six months of hospitalization for 6 months in the Zuiderziekenhuis in Rotterdam, I returned home and a long period of therapy began.



Aadje de Groot, Zuiderzee Hospital Rotterdam, 1952.

It was important to get back on your feet literally and figuratively and that is what the treatment was aimed at. The specialty Rehabilitation Medicine did not yet exist, so the treatment was directed by an orthopedic surgeon. For many, including me, the treatment consisted of hydrotherapy, normal swimming, exercise therapy, healing gymnastics, massage and later physiotherapy. Initially these were remedial gymnasts and from 1960 physiotherapists.

At some point, in addition to all the regular treatments, another treatment was added to me to combat the polio symptoms. In the fifties and early sixties, for example, I went weekly with my father to Dr. Elzinga, who had an anthroposophical doctor's practice in Haarlem, where I was 'tortured' with what I thought was a common device. His wife assisted him (kind of forerunner of the practice nurse) and Dr. Elzinga performed minor medical procedures, such as giving injections and also treatment with the 'electrostatic device'.

There were all kinds of glass tubes in a box and we always had to wait and see which one was chosen that day.

They differed in shape and one caused more pain (stinging, burning sensation) than the other due to the electric current (see below for an explanation of the device). I always hoped that the tube with the smooth head would be removed from the box, because it was the least painful and didn't give me a red speckled leg afterwards. The colors that went through the tubes were very nice pink and blue, but that couldn't really soften the whole. There was a kind of tingling coming from the tubes that varied and depended heavily on the shape and 'head' used. The treatment

took what I can remember about 15-20 minutes. I was very often treated with this device in addition to all regular therapies, once a week for six years, until I was about twelve years old.

Thereafter, the treatment was discontinued. Whether it helped remains to be seen, of course. I felt no relief after the treatment and it sometimes took a very long time for the spots on my legs to go away. It would stimulate blood circulation and that would be good for the muscles. However, polio is a wiring problem, the control of the muscles is damaged. I wonder if people realized that at the time and I really can't say if the treatment helped. At that time, everything was tried.



Aadje de Groot 1958.

Seeing this Arsonvalization device again (I never knew the name) was not only special for me, but also for the employees in the stand.

And... I won the book!

I can't imagine being the only one in our patient group who has ever been treated with this device. Do you recognize the device? And do you want to write something about it yourself? We are recommended.

What does history teach us?

From history we can learn that applications of new inventions

were rapidly applied on a large scale around 1900 (specially equipped radiation rooms in spas and hospitals), which met with resistance from critics from medicine.

⁶ so there was

sepsis against Arsonvalisation, according to the Nederlands Tijdschrift voor "Geneeskunde" from 1937: *"For it is fairly certain that psychological and interest-serving motives provide the necessary support in a quasi-scientific way.*

mystification, a mystification which is perhaps not entirely without value in medicine, but which must, for reasons understandable to us all, lead to opposition and skepticism on the part of serious physicians."

⁶

In addition, there was a lively discussion about how this form of "radiation therapy" was supposed to be called. The great enthusiasm of the clinicians, who thought they had a 'miracle cure', the varying names of this 'miracle cure' and the lack of clarity about a substantiated

natural scientific rationale for the action of Arsonvalization, aroused suspicion among scientists in medicine. In the end, the name Arsonvalization was chosen with the "Puntwarme hypothesis".

⁶

We can learn from the historical discussion in the NTVG how important it is that we have to take the time with new products on the physiotherapeutic market to find a good rationale.

and this is best done in collaboration with other disciplines (medicine, physics, physiology, biology, etc.). The chance that devices will end up in the oblivion corner is then possibly high

smaller and there may be applications left that do help if we look critically for who it works and for whom it is not effective and in which phase of the condition.

In this context, it is important that we also continue to write experience stories to get an idea of how clinicians deal with new applications, not to curb their enthusiasm, but to ultimately add an effective remedy (for the long term) to the physiotherapeutic arsenal. . Until now, we have only seen in physiotherapy of the last 50 years that almost nothing remains of such applications. We think that this is a bad development for the field of physical therapy, which is now largely taught with exercise therapy.

Are we health gymnasts again?

The History of Physiotherapy Foundation is Mrs. Aadje de Groot is a board member of the (post)polio diagnosis working group of Muscle Diseases in the Netherlands, very grateful for writing down an experience story of an Arsonvalization device that has completely fallen into oblivion.

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- Prof. dr. dr. M. van Lieburg, em. Professor of medical history. Meeting point for Medical History in the Netherlands (TMGN) / Center for Medical-historical Documentation and Medical Heritage (SCME), Urk.

For years now, the SGF has been receiving equipment from various disciplines (private individuals, institutes/institutions, University of Applied Sciences, etc.), whereby our curators assess whether the donation is given a permanent place in the collection.

We would like to invite you to come and view the heritage and perhaps you can enrich us with stories/ experiences associated with these devices.

For information about the **History of Physiotherapy Foundation** , we refer you to the [website of the SGF.](#)



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