

## biografía

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# Pioneers in the dawn of ozone therapy

## The African Contribution to Ozone Therapy

### Dr. George Stoker (1854-1920)

by

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#### Abstract

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It was only around the 80s of the XIX century that some physicians from Europe and United States began to investigate and use ozone as a medical product. One of them was the Irish Dr. George Stoker (1854-1920), military with the rank of major. While in South Africa he observed that the Zulus transported the wounded at sea level to the high mountains for a week or two to receive purer air and they did heal. Dr. Stoker deduced that the atmosphere at high altitude contained an unusual proportion of pure air. He began in London to treat his patients with a mixture of oxygen and fresh air and founded the "House of Oxygen". Subsequent to his work with oxygen he began to investigate oxygen/ozone mixtures. He published the results of his research in the United Kingdom medical journal, The Lancet. His last contribution was written in 1918, only two years before passing away.

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#### Resumen

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*Fue solamente hacia la década de los 80 del S.XIX cuando algunos médicos europeos y estadounidenses comenzaron a investigar y a utilizar el ozono como producto médico. Uno de ellos fue el irlandés Dr. George Stoker (1854-1920), militar con el grado de Mayor. Mientras estaba en África del Sur observó que los Zulúes transportaban los heridos desde el nivel del mar a las altas montañas durante una o dos semanas para que recibieran aire más puro y ellos se curaban. El Dr. George Stoker dedujo que la atmósfera a alta altitud contenía una proporción inusual de aire puro. Comenzó en Londres a tratar a sus pacientes con una mezcla de oxígeno y aire puro y fundó la "Casa del Oxígeno". Siguiendo con su trabajo con el oxígeno comenzó a investigar mezclas de mezclas de oxígeno con ozono. Publicó sus resultados en la revista británica médica The Lancet. Su última contribución la escribió en 1918, solo dos años antes de morir.*

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## Introduction

Although the ozone was discovered in 1785 by the Dutch physicist Martinus Van Marum (1750-1837) and had been synthesized in May 1840 by the German chemist Cristian Friedrich Schönbein (1799-1868), it was only around the 80s of the XIX century that some physicians from Europe and United States began to investigate and use ozone as a medical product.



*Dr. George Stoker. Pictures taken from*

<http://www.bramstokerestate.com/George-Stoker-Bram-Dublin-Balkans-Rathmines-McGillycuddy-.html>

## **Military Doctor**

A pioneer in the investigation and medical use of ozone in the dawn of the history of ozone therapy was the Irish Dr. George Stoker (1854-1920), military with the rank of major. He rendered his professional services to the Ottoman Imperial Army. Medical Officer to the Bulgarian Relief Fund (1877). He participated in the Russo-Turkish war (1876-1878) as chef de L'Ambulance du Croissant Rouge. He was in the final period of the British-Zulu war that culminated in 1879, when Great Britain overthrew the Zulu kingdom in the present province of KwaZulu -Natal of South Africa. Later on he initiated and organized the Civil Hospital in S. Africa (1899-1900). Then he went back to his country Ireland and later on moved to London.<sup>1</sup>

## **African Contribution to the Development of Ozone Therapy**

While Dr. George Stoker was in South Africa he became interested in the way the Zulus treated their wounded. They rejected the medical aid provided by the invaders and also did not resort to their usual sanitation practices. The Zulus transported the wounded at sea level to the high mountains for a week or two to receive purer air. Although the wounded initially suffered more pain as the days went by they did heal.

## **From Oxygen to Ozone and to the Hyperbaric Chamber**

Based on this visual observation Dr. George Stoker deduced from this Zulu medical practice that the atmosphere at high altitude contained an unusual proportion of pure air. Once after returning to Europe he began in London to treat his patients with a mixture of oxygen and fresh air. He founded the "House of Oxygen". He obtained the oxygen in cylinders and mixed it with air and exposed the patient's wound in a highly charged atmosphere of that mixture. Dr. Stoker enclosed the affected member of the patient's body in a glass chamber filled with oxygen and fresh air. In wounds of eyes and ears the patients wore masks. In short, it was the prelude to what is now known as "hyperbaric chambers".

The pioneer Dr. Stoker explained that oxygen had a selective power and prevented the growth of harmful bacteria.<sup>2</sup>

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<sup>1</sup> <http://www.bramstokerestate.com/George-Stoker-Bram-Dublin-Balkans-Rathmines-McGillycuddy-.html>

<sup>2</sup> Alexis Krause et al., "The Surgeon's Knife," The Ludgate, Illustrated Magazine, Vol. 6., 1898.

<http://www.bramstokerestate.com/George-Stoker-Bram-Dublin-Balkans-Rathmines-McGillycuddy-.html>

The first results of the use of oxygen were written by Dr. Stoker in "The Treatment of Burns, Granulating Wounds, and Skin-Grafts by the Antiseptic Cage."<sup>3</sup>

### **Classical Medicine against the Researcher**

As often happens in these pioneering cases, Dr. George Stoker was not appreciated by the medical establishment and he was openly criticized by his medical colleagues. In addition his neighbors demanded the closure of the "House of Oxygen". Fortunately for him and for the development of ozone therapy he was saved from defeat thanks to the support offered by one of the British richest women of the time and philanthropist Baroness Angela Georgina Burdett-Coutts.<sup>4</sup>

### **Dr. George Stoker's Contributions to Ozone Therapy**

Dr. Stoker was then in a more comfortable position to keep researching, and he did not forget what the Zulus used to do to their wounded. Subsequent to his work with oxygen he began to investigate oxygen/ozone mixtures.

In 1902 he wrote about the benefits of oxygen. "The effect of oxygen and more particularly of its allotropic form, ozone, in restoring a healthy condition to diseased nasal mucous membrane led to a trial of the latter in chronic progressive deafness." He also described how ozone could be obtained. "The ozone was generated by means of an electric current acting on a Ruhmkorff's coil to which the ozonizing tube was attached." And he also wrote how it could be used: "The ozone so generated was pumped into the middle ear through an Eustachian catheter for about three minutes, from twice to four times a week according to opportunity." After assessing the case of four deaf people Dr. Stoker wrote the following: "In all the above [four] cases it will be seen that the hearing has considerably improved; in some the progress made has been remarkable (...) It is reasonable to suppose that if the ozone could have been used every day the results would have been better still." regarding chronic middle ear deafness.<sup>5</sup>

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<sup>3</sup> The Lancet, Vol. 148, No. 3821, p.1492. November 21, 1896. United Kingdom medical journal.

<sup>4</sup> The Outlook: In Life, Politics, Letters and the Arts, "Vol. IV, 5 August 1899 to 27 January 1900.

<http://www.bramstokerestate.com/George-Stoker-Bram-Dublin-Balkans-Rathmines-McGillycuddy-.html>

"Burdett-Coutts spent the majority of her wealth on scholarships, endowments, and a wide range of philanthropic causes." [https://en.wikipedia.org/wiki/Angela\\_Burdett-Coutts,\\_1st\\_Baroness\\_Burdett-Coutts](https://en.wikipedia.org/wiki/Angela_Burdett-Coutts,_1st_Baroness_Burdett-Coutts)

<sup>5</sup> George Stoker, "Ozone in Chronic Middle-Ear Deafness," The Lancet, Vol. 160, issue 4131, November 1, 1902, pages 1187-1188. Originally published as Volume 2, Issue 4131.

In 1916 and 1917, during the First World War, the Major Stoker published in Lancet his results in the Queen Alexandra Military Hospital using topical ozone therapy in the management of 79 patients with different war wounds and ulcers, many of them infected. In this pre-penicillin era, the results in these articles were described as: "satisfactory from every standpoint, be it humanitarian, scientific, or economic".<sup>6 7</sup>

He continued treating patients, researching and publishing their results in the United Kingdom medical journal, The Lancet. His last contribution was written in 1918, only two years before passing away.

## **Papers of Dr. George Stoker**

"The Chelsea Hospital for Women." Louis C. Parkes, George Stoker. The Lancet, Vol. 143, No. 3681, p709. March 17, 1894.

"The Treatment Of Burns, Granulating Wounds, and Skin-Grafts by the Antiseptic Cage." The Lancet, Vol. 148, No. 3821, p1492. Published: November 21, 1896

"Chronic Ulceration Treated by Oxygen". The Lancet, Vol. 149, No. 3832, p409. February 06, 1897

Reactions in Cases of Wounds and Ulcers Treated by Oxygen Gas". The Lancet, Vol. 152, No. 3928, p1545–1546. December 10, 1898

"Notes on a Case of Acute Pneumonia Treated by Continuous Inhalation of Oxygen Gas". The Lancet, Vol. 153, No. 3950, p1288–1289. May 13, 1899

"Ozone in Chronic Middle-Ear Deafness".  
The Lancet, Vol. 160, No. 4131, p1187–1188. November 01, 1902

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<sup>6</sup> George Stoker, "The Surgical Uses of Ozone". The Lancet, Vol. 188, No. 4860, p712. October 21, 1916

<sup>7</sup> George Stoker, "The Surgical Uses of Ozone". The Lancet, Vol 189, Nº 4891, p797. May 26, 1917

“A Case of Cavity of the Lung Successfully Treated with Ozone”.

The Lancet, Vol. 171, No. 4416, p1148–1149. April 18, 1908

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“An Army Medical Reserve: A Prophetic Proposal”. The Lancet, Vol. 189, No. 4896, p1013–1014, June 30, 1917

“Ozone in Cases of Gassing”, The Lancet, Vol. 191, No. 4937, p550. April 13, 1918