

A LETTER FROM

BOLOGNA, ITALY

The History of Rizzoli Orthopaedic Institute

– Written by *Stefano Zaffagnini, Giulio M Marcheggiani Muccioli, A Grassi, M Marcacci, Italy*



Image by: Luca Volpi (Goldmund100) 2011

The Rizzoli Orthopaedic Institute hospital was founded in the 19th century by a local surgeon, Francesco Rizzoli, who purchased the monastic monumental complex of San Michele in Bosco, situated on the hills south of Bologna, Italy. Rizzoli donated the monastic complex to the city of Bologna to allow the creation of a hospital specialising in orthopaedic surgery.

The history of the monumental complex began several centuries ago, as the current complex was built on previous monastic settlements dating back to the 4th century AD. After almost 10 centuries, the monastery entered a new phase when, in 1364, Pope Urban V allowed the settlement of the Olivetan monks. These monks began construction of a new monastery, which has

been partially maintained to the present day. During the following centuries, the complex underwent several renewals, in accordance with the tastes of the periods. As a result, the actual shape of the Rizzoli complex has been determined by the hands of many different architects from different historical periods with different tastes, each undertaking architectural additions. Despite its varied stylistic history, the Rizzoli complex is historically placed in the 16th century, when the most representative structures were built – the church, bell tower and cloisters.

The enviable value of the architectural and artistic heritage of the monastery is well exemplified by three structures that span 4 centuries. These include the octagonal cloister by Ludovico, Paolo Carracci and Guido Reni (built between 1602 and 1603), the monks' ex-refectory adorned by Giorgio Vasari in 1539 and the superb library, frescoed in 1600 by Domenico Maria Canuti.

The Rizzoli Orthopaedic Institute presents a unique example of a union between the hospital's history and the development of orthopaedics in Italy. After its foundation in

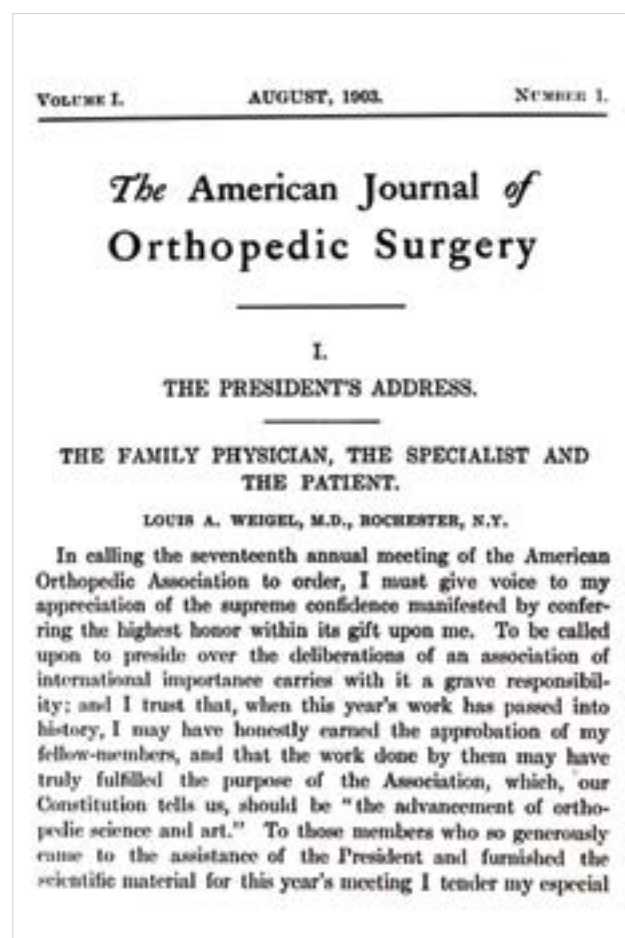
1896 under King Umberto I, the leadership of the Rizzoli Orthopaedic Institute was entrusted to Alessandro Codivilla, with the aim of treating rickets and congenital deformities. As the first director of Rizzoli, Codivilla (1861-1912), is thus considered the founder of modern orthopaedics in Italy. Patients from all over Italy and even South America travelled to Bologna to receive medical treatment for a large number of orthopaedic pathologies and deformities, at the beginning of the 20th century.

Vittorio Putti (1880-1940) succeeded Codivilla in leading the institute and elevated the name of the Rizzoli Orthopaedic Institute beyond national borders. During his professional life, Putti improved the prestige of the Rizzoli Institute by founding the Rizzoli Workshop in 1914, and the Codivilla Heliotherapy Institute in Cortina d'Ampezzo in 1923. Putti was a brilliant mind in the field of scientific research, creating dramatic innovations in the treatment of ankylosis, congenital hip dysplasia, post-traumatic deformities and limb-lengthening, to name a few. The journal *Chirurgia degli organi del movimento* (currently known as *Musculoskeletal Surgery*) was founded in 1917 as a result of Putti's work.



Figure 1 (above): View of the Rizzoli Orthopaedic Institute Library.

Figure 2 (right): Cover of the first number of the “American Journal of Orthopedic Surgery” printed in 1903.



In 1936, during the Bologna Congress, the Société Internationale de Chirurgie Orthopedique (SICO) became the Société Internationale de Chirurgie Orthopedique et Traumatologie (SICOT), with Putti as its first vice-chairman. In recognition of the importance of Putti in the field of orthopaedics and traumatology, the New England Journal of Medicine commemorated Putti upon his death in 1940, stating that he had developed the most well-known orthopaedic centre in the world. Putti donated to the hospital his precious book collection that, combined with the library of the institute, make the Rizzoli library an extraordinary place that each orthopaedic surgeon should visit once in his or her lifetime.

The library (Figure 1) has 1,095 journals currently on its shelves, most beginning at

their first issue (Figure 2). Online, the library has up to 7,000 journals. Included in the special collection of the Putti Donation are 2,457 ancient books of medicine, including 17 manuscripts and 258 16th century books. Examples of these rare books include Mandino's Anatomia (1493) (Figure 3), De Humani Corporis Fabrica (1543) (Figure 4) and L'Orthopaedie by M Andry (1741) – the inventor of the word 'orthopaedics'.

In 1948, the institute was recognised as a first-class specialised hospital for orthopaedics and traumatology. Throughout the 1960s and 1970s, Rizzoli followed the scientific and healthcare progress made in orthopaedics, characterised by the introduction of cemented hip joint arthroplasty (Charlney, 1960) and the stabilisation and diffusion of the principles of rigid bone fixation (Müller, Allgöwer and Willenegger, 1963).

The hospital has 327 beds, with 154 medical doctors employed that annually perform more than 12,000 surgeries and more than 115,000 medical visits



Figure 3 (above): Illustration of the Mandino's Anatomia book (1493).



Figure 4 (above right): Front page of the Andrea Vesalii's "De Humani Corporis Fabrica" (1543).

The hospital has 327 beds, with 154 medical doctors employed. Annually, more than 12,000 surgeries and more than 115,000 medical visits are performed. Hip and knee arthroplasty are the most common forms of surgery performed at Rizzoli Orthopaedic Institute, involving around 20% of patients. In addition, in recent decades, Rizzoli has made important progress both in scientific research and in the diagnosis and treatment of tumours of the musculoskeletal system. As such, it has become an important international centre in the field of sports medicine and regenerative medicine. There are also 300 researchers employed by the institute, producing around 300 articles per year in international journals. In 1981, Rizzoli was recognised by ministerial decree as a Scientific Research Hospital, and enhanced by the addition of the Codivilla-Putti Research Centre, which houses seven research laboratories and administration

offices. In addition, the hospital is a recognised ESSKA and ISAKOS technology centre.

The Rizzoli Institute is a place of great significance in the orthopaedic world, which young and expert surgeons should seek to visit and experience, as this is one of the temples of orthopaedics.

Further reading

1. Charnley J. Anchorage of the femoral head prosthesis to the shaft of the femur. *J Bone Joint Surg Br* 1960; 42:28-30.
2. Muller ME, Allgover M, Willenegger H. *Technik der operative frakturen behandlung*. Springer, Berlin-Heidelberg-New York, 1963.

Acknowledgement

Rizzoli Orthopaedic Institute staff:

Scientific Director: Professor Francesco Antonio Manzoli

General Director: Dr. Giovanni Baldi

Library Staff: Dr. Patrizia Tomba, Dr. Anna Viganò

Carisbo Foundation

Stefano Zaffagnini M.D.

Giulio Maria Marcheggiani Muccioli, M.D.

Alberto Grassi, M.D.

Maurilio Marcacci Ph.D.

2nd Orthopaedic and Traumatologic Clinic – Biomechanics Lab

Rizzoli Orthopaedic Institute

Bologna, Italy

Contact: stefano.zaffagnini@biomec.ior.it