



MAXWELL
MUSEUM
OF ANTHROPOLOGY

Making it Happen:
What we do at the
Maxwell Museum of
Anthropology

Part I

What do we do?

The Maxwell Museum of Anthropology (MMA) explores human stories past and present and shapes the future through innovative teaching, research and public engagement.

The Maxwell Museum of Anthropology
Photo: Mary Beth Hermans



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What do we do?

In this series of exhibitions, we take a look at what the people at the Maxwell Museum do - how they imagine, research, create, build, discover and do what they do.



The Maxwell Museum of Anthropology Staff



What do we do?

The Maxwell consists of those who work in collections...



The Maxwell Museum of Anthropology Staff



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What do we do?

...those who create interpretations of collections...



The Maxwell Museum of Anthropology Staff



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What do we do?

...administrators...



The Maxwell Museum of Anthropology Staff



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What do we do?

...and those that work for the office of contract archaeology.



The Maxwell Museum of Anthropology Staff



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What do we do?

Through this series of exhibitions, we invite you to meet us all.



The Maxwell Museum of Anthropology Staff



What do we do?

In this particular installation, you will meet Dr. Carmen Mosley, our curator of human osteology.

Dr. Carmen Mosley

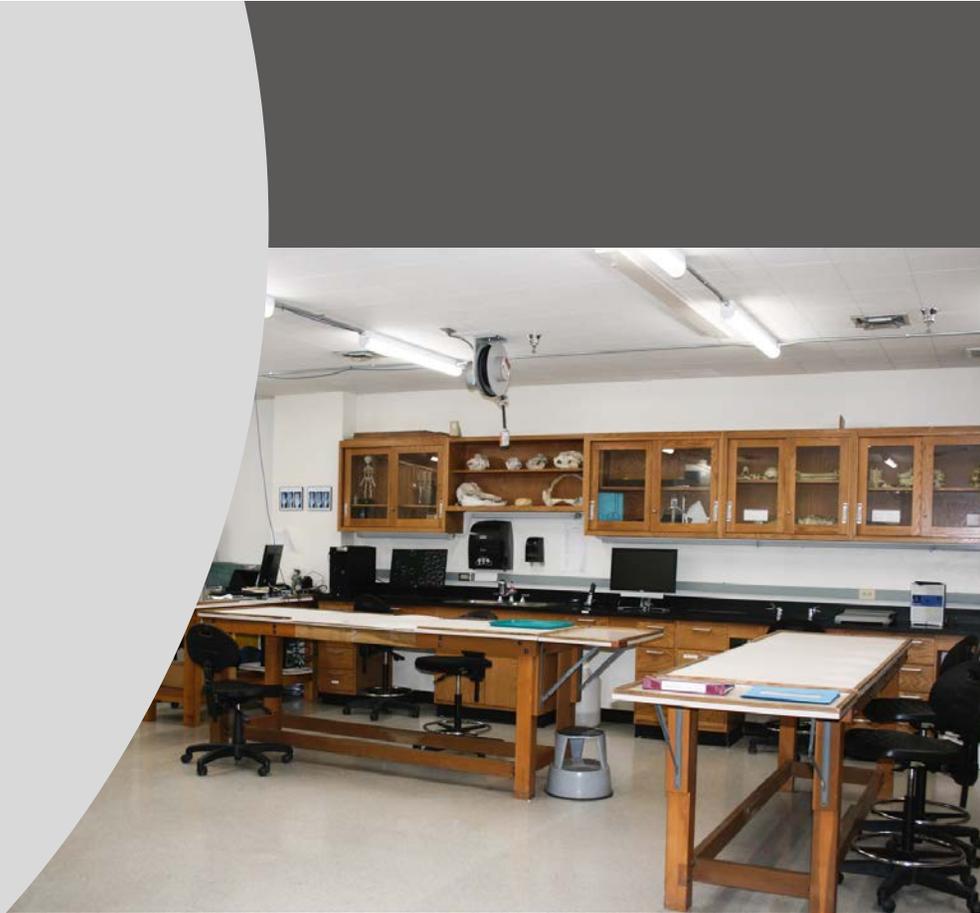


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Osteologists

Human osteologists study human bones: their structure, morphology, and function.

Laboratory of Human Osteology at the MMA



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Osteologists

Within a museum context, human osteologists, often trained as biological anthropologists, study human osteological variation.

Former curator of osteology, Heather Edgar, measuring a skull in the lab. Photo: Roberto E. Rosales



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Osteologists

Here at the Maxwell Museum in the osteology collection, we study human skeletal remains to learn about how people may have lived their lives:

Cast skulls from the Documented Skeletal Collection of the MMA. Photo: still from “The University of New Mexico—Human Osteology Lab” video



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Osteologists

what types of food they may have eaten, what kinds of activities they may have done, and what diseases they may have had.



Human evolution skull display at the MMA

Photo: Devorah Romanek



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The MMA Osteology Collection

The Maxwell Museum has an extensive osteological collection-- a collection of human skeletons and bones.

The Documented Skeletal Collection at the MMA



The MMA Osteology Collection

The collection comprises archaeological (as far back as 9,000 years go), historic (19th century Albuquerque), forensic (medico legal significance), and contemporary remains.

Bone casts from the Documented Skeletal Collection at the MMA. Photo: still from “The University of New Mexico—Human Osteology Lab” video



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What do we do: In Carmen's Words

As curator of the Osteology collection of the Maxwell, my main priority is to care for this large collection.

Dr. Mosley in the lab.



What do we do: In Carmen's Words

Caring for the collection includes housing the material, managing records, and providing access to students and researchers.

Aurelia Dixon lays out Doc 222 (2002.1.2)



NAGPRA

Additionally I coordinate our NAGPRA efforts – NAGPRA is the Native American Grave Protection and Repatriation Act. NAGPRA legislation was passed in 1993.

NAGPRA logo from the NPS



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NAGPRA

The legislation requires all federally funded institutions that are repositories for Native American human remains and burial objects to be accountable for those collections, and to their descendant communities, and to work with those communities towards potential return and reburial.

*Objects removed from exhibition at the MMA, in compliance with NAGPRA.
Photo: Devorah Romanek*



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The Body Donor Program

Our body donor program is one of a handful of contemporary documented skeletal collections in the nation.

*Laboratory of Human Osteology at the MMA
Photo: Mary Beth Hermans*



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The Body Donor Program

That collection is invaluable because it is a singular teaching resource for evolutionary anthropology students to appreciate the range of human biological variation...

Aurelia Dixon lays out Doc 222 (2002.1.2)



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The Body Donor Program

...and because it is an unparalleled research resource to test new and novel methods for forensic applications.

Aurelia Dixon lays out Doc 222 (2002.1.2)



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Research in the Collection

Research topics come to me often by surprise while working with the collection.

Aurelia Dixon, Carmen Mosley, and Alex Denning work in the osteology lab with Doc 222 (2002.1.2)



Research in the Collection

Patterns or topics of interest reveal themselves to me through the actual work with the collection, in the context of the broader field of scholarship of my discipline.

Examples of total hip replacements from Documented Skeletal Collection at the MMA, in the lab.



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A Research Surprise

After spending almost a decade working with the MMA's Documented Skeletal Collection, one of the things I noticed was the presence of medical prostheses, specifically hip replacements.

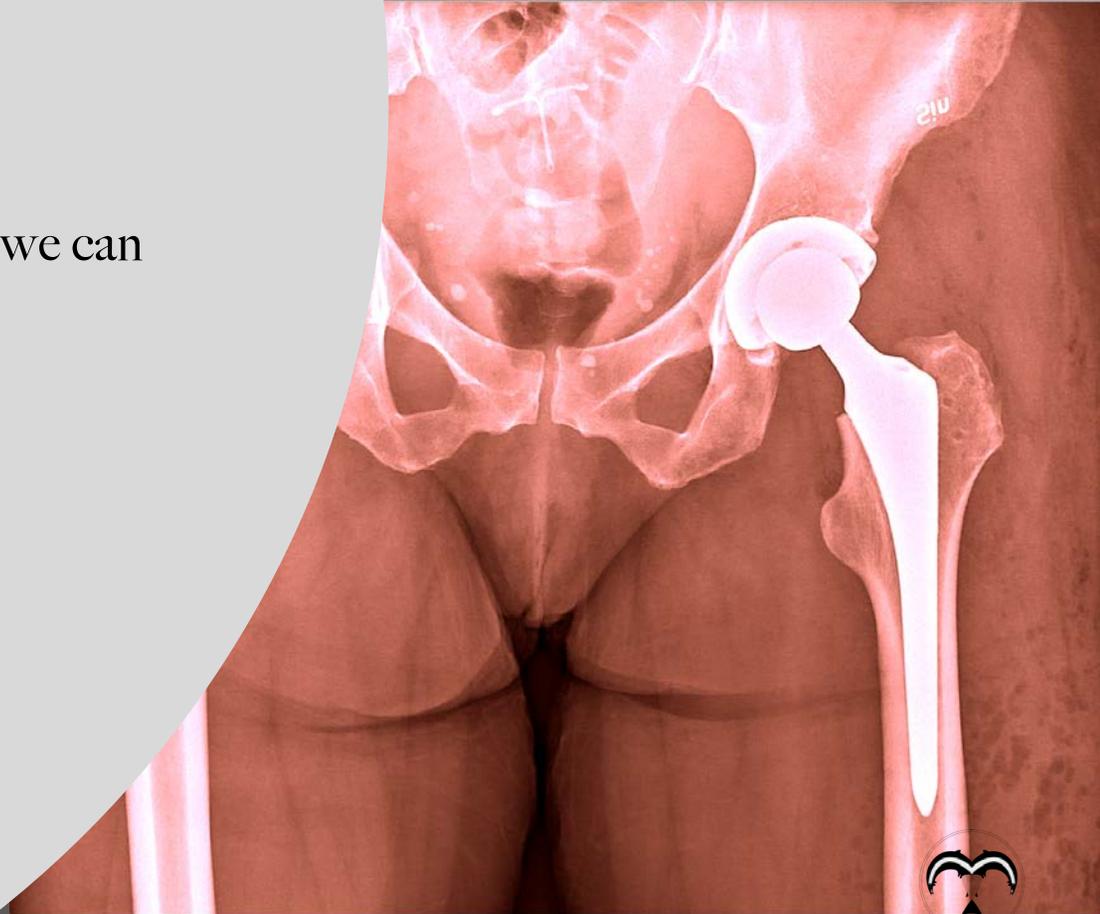
X-ray of Hip with total arthroplasty, Mikael Häggström, MD; CC



A Research Surprise

Since the collection spans the last 60 years, we can see the change and progression in medical technology around replacement surgeries.

X-ray of Hip with total arthroplasty, Mikael Häggström, MD; CC



A Research Surprise

This got me curious about the origin of medical prostheses, and some of what I learned, surprised me.

X-ray of Hip with total arthroplasty, Mikael Haggström, MD; CC



Hip Replacements: A Brief History

Our hominid ancestors were likely plagued with osteoarthritis for millions of years --an artifact/consequence of walking upright and long-life expectancies (*See: Landis & Haeusler 2014; Trinkaus 1985*).

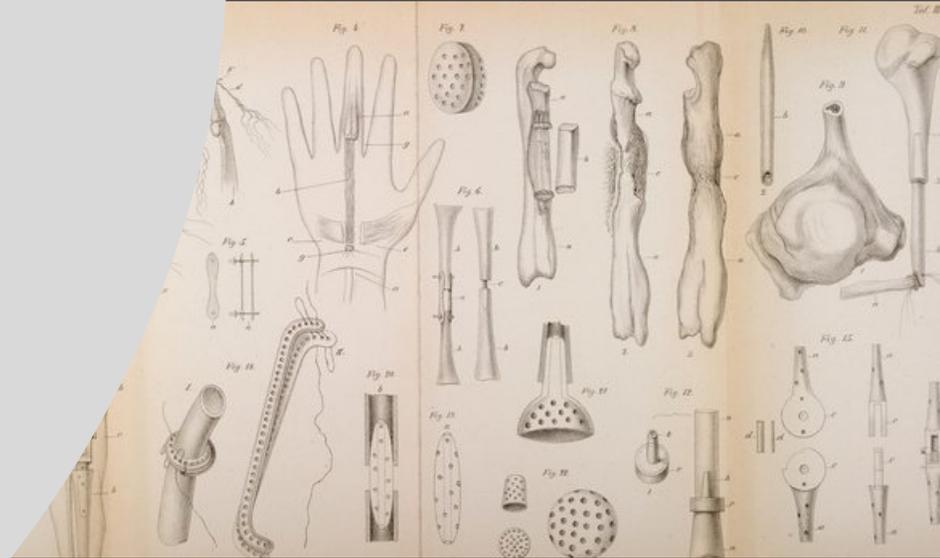
Australopithecus afarensis, "Lucy", innominate and femur



Hip Replacements: A Brief History

Nevertheless, the first recorded hip replacement—a ball-and-socket joint made of ivory—was not performed until 1891 by Themistocles Gluck in Germany.

Illustrations from Themistocles Gluck's 1890 book "Referat über die durch das moderne chirurgische Experiment gewonnen positive Resultate, betreffend die Naht und den Ersatz von Defecten."

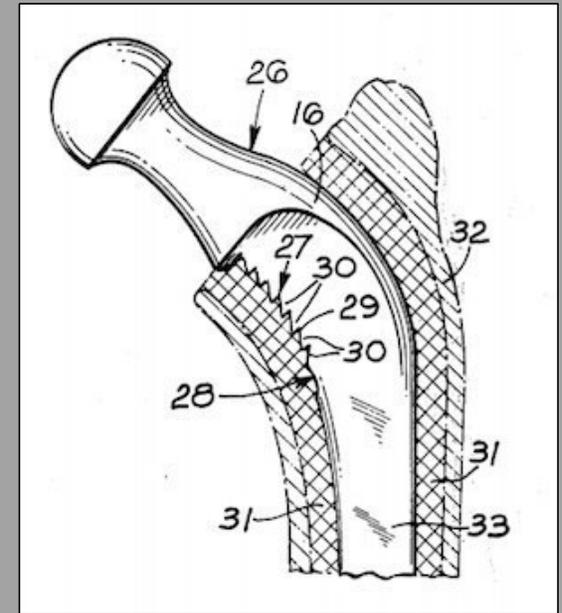


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Hip Replacements: A Brief History

In the last 129 years, hip replacement surgery has been performed in one form or another...

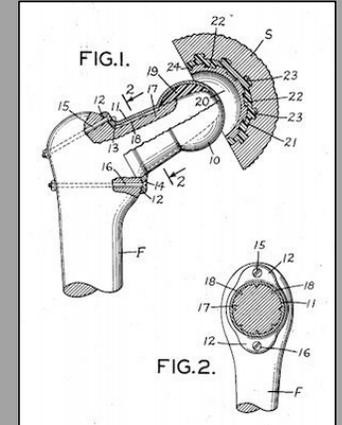
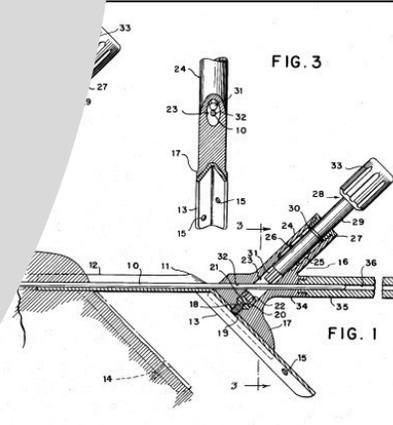
*From U.S. Patent No. 4,021,865, titled
"Femoral Prosthesis."*



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Hip Replacements: A Brief History

...with major advances seen in the 1950s and 1960s, with the development of joint replacement devices, materials, and surgical techniques.



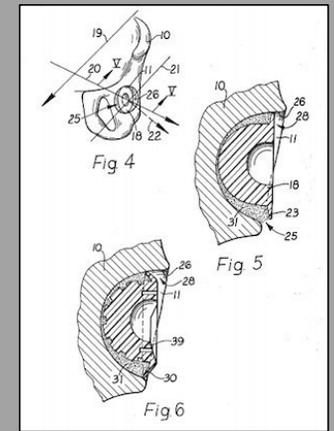
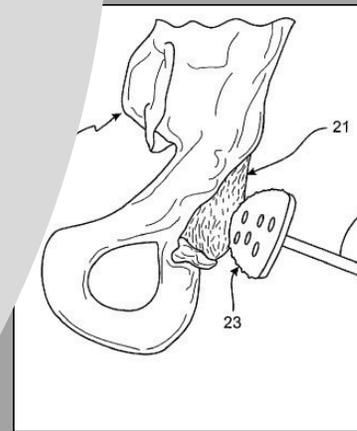
U.S. Patent No. 2,716,406, titled "Hip-Nail Driver for Angular Hip Nails;" and from U.S. Patent No. 2,668,531, titled "Prosthesis for Hip Joint."



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Hip Replacements: A Brief History

Along with knee replacements, hip replacement surgeries are among the most common elective surgeries performed in the United States.



From U.S. Patent No. 8,498,744, titled "Surgical Robotic Systems With Manual and Haptic and/or Active Control Modes;" and from U.S. Patent No. 4,327,449, entitled "Acetabular Prosthesis."



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Examples in the MMA Collection

In the Documented Skeletal Collection, just about 5% of individuals had some form of hip replacement surgery.

Examples of total hip replacements from Documented Skeletal Collection at the MMA. From left to right: Doc 93 (80.7.15); Doc 250 (2005.3.4); Doc 248 (2005.3.3); Doc 251 (2006.2.1).



Examples in the MMA Collection

The majority of these hip replacements are total hip replacements—where both the acetabulum and femoral head are replaced.



Examples of total hip replacements from Documented Skeletal Collection at the MMA. From left to right: Doc 93 (80.7.15); Doc 250 (2005.3.4); Doc 248 (2005.3.3); Doc 251 (2006.2.1).



Examples in the MMA Collection

While we don't know the exact dates in which each individual had their hip replacement surgery, we can estimate that the earliest replacement surgery likely occurred in the early-to-mid 20th century.

*Documented Skeletal Collection at the MMA.
From left to right: Doc 317 (2019.1.7)*



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Conclusion

This small case study highlights the range of variations and helps to indicate time-frames within which new materials and technologies have been introduced in this area.

Comparison of healthy hip joint with total hip replacement. From left to right: Doc 222 (2002.1.2); Doc 304 (2017.2.5)



Conclusion

This is just one example of the research potential of this unique and growing collection.



Comparison of healthy hip joint with total hip replacement. From left to right: Doc 222 (2002.1.2); Doc 304 (2017.2.5)



