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Egyptian Mummies at the Museum of Anthropology and Ethnography of the University of Turin: Preliminary Analyses of Dermatoglyphics

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Introduction

The Museum of Anthropology and Ethnography at the University of Turin was founded in 1926 by Giovanni Marro (1875-1952), medical doctor and anthropologist (Fig.1).

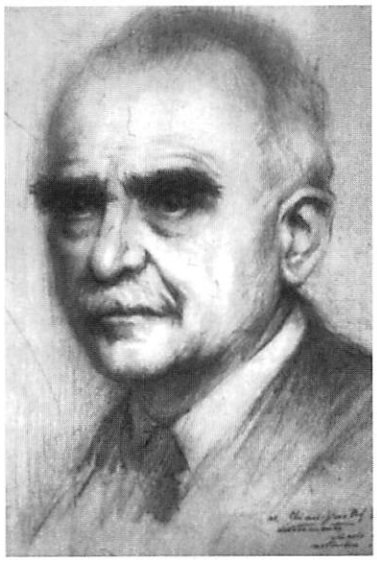

Fig. 1. *Prof. Giovanni Marro.*

The Museum includes anthropological-ethnographic specimens of diverse origin and provenience grouped into various collections: primatological, anthropological, paleo-ethnological, ethnographic and photographic. The core of the Museum is represented by the ancient Egyptian anthropological collection built up by Marro himself during the Italian Archaeological Mission in Egypt, from 1911 to 1937. More than 650 complete skeletons and 1300 isolated skulls, 80 heads of mummies, 5 complete predynastic mummies and 15 dynastic ones are stored in the Museum.
New technologies are constantly being applied to ancient remains in order to develop research methods that will generate more information while simultaneously helping to preserve the specimens under study. Multidisciplinary work was performed by radiologists, anthropologists and forensic police in order to enrich our knowledge of the biological history of ancient mummies (Pedrini *et al.*, 2005; Salis *et al.*, 2005). In particular, identification of dermatoglyphics in ancient biological remains without compromising their preservation represents a very important step forward in this type of research.
Dermatoglyphics are among the anthropological traits used to analyse the genetic characteristics of ancient populations. Because they are genetically determined, constant in time and immune from environmental action, dermatoglyphs are one of the many "tools" used to study human populations (Cummins *et al.*, 1961; Floris, 1974).
In this paper we report a preliminary study conducted on egyptian predynastic mummified human remains in order to identify the presence of papillary ridge patterns (digital dermatoglyphics, palmar and plantar view).

Materials and Methods

We examine 83 predynastic specimens from the necropolis of Gebelein and dating from 5000 to 3000 a.C. The remains with soft tissues well preserved.
The material is in excellent state of preservation with soft tissues well preserved and good recording of dermatoglyphic details are performed. In fact, the external horny layer of the cutaneous crests is so resistant that the patterns are clearly visible even in these very ancient specimens.
Firstly, we made direct macroscopic observations on the specimens to verify the presence of regular patterns on the palmar surfaces of the hands and the plantar surfaces of the feet.
Next, we photographed the most interesting cutaneous regions with a NIKON_COOLPIX 990 digital camera to analyze the dermatoglyphs in more detail.
The images were then enlarged by several diameters. All the recordings were performed with a metric reference to maintain homogeneity among the factors of enlargement. It was then possible to carry out both qualitative and quantitative analyses of the resulting data.

Results

The preliminary study has shown high-quality papillary ridge patterns in 39 of them.
The foot was the anatomical region most useful for the observation of dermatoglyphics (Fig.2 and 3). On the

Fig. 2. *The right foot ("Egyptian Anthropological Collection "G. Marro"").*

Fig. 3. *The left foot ("Egyptian Anthropological Collection "G. Marro"").*

contrary the hand, and in particular the skin of the fingers, has made difficult the verification of the papillary ridges.
The exceptional preservation of the specimens allowed us to observe common patterns of trunk groups and, in one case, was also identified a figure.
The finding of greatest interest is on the left foot which has been reliably detected the presence of *triradio* (Fig. 4).

Fig. 4. *The presence of triradio on the left foot.*

The importance of the identification of this figure is the fact that its presence allow us to describe one of the four fundamental archetypes, often the site of *minutiae*. Furthermore, the identification of *triradio* indicates the excellent state of preservation of the collection.

Discussion

The recording of papillary ridges on the dehydrated skin of mummies is a fascinating scientific challenge which requires the most advanced technologies in order to protect a unique cultural and biological treasure (Giuliano, 2004). Therefore, further research is necessary to increase the sample size and to investigate new techniques to record the ridge patterns in greater detail without further jeopardizing the state of preservation of the specimens.

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