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**THE PALEOANTHROPOLOGICAL INVENTORY OF ETHIOPIA AND  
THE DISCOVERY OF KONSO-GARDULA, THE EARLIEST ACHEULEAN**

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On the morning of Oct 8, 1991, team members of the Paleoanthropological Inventory of Ethiopia were marching toward a circa 1/2 kilometer diameter mesa-like structure which had caught our attention on the aerial photographs. The previous few days had been very rewarding. We were finding abundant Acheulean artifacts and vertebrate fossils in an area never expected to yield such rich paleoanthropological resources. Not only was this the first Acheulean site known in Ethiopia south of the Lake Langan, the mammalian fauna also suggested it had a very old age. We were startled at the co-occurrence of well made bifaces and fauna suggesting an age of well over a million years before present, perhaps as old as 1.5 million years. If true, this would be one of the earliest Acheulean sites in the world, if not the earliest. On top of this, Yohannes Haile Selassie from the National Museum of Ethiopia, a core member of the inventory team, had already found a hominid molar. Thus, this area, which we named Konso-Gardula, joined the well-known Ethiopian sites such as Hadar, Omo and Melka Kuntoure in yielding fossilized remains of our remote ancestors.

We were finally closing in on our destination, a site which we later catalogued as Konso-Gardula (KGA) locality 10. Sedimentary layers of brown, white and orange entered our eyes. Expectations rose, as this meant that our aerial photograph interpretations were correct. This was undoubtedly the same stratigraphic sequence as the sections further south where we had encountered deposits rich in mammalian remains and Acheulean artifacts. As we actually set foot on the KGA10 sediments, we could hardly believe our eyes. Fossils were literally raining down the mesa slopes, carpeting the ground. Artifacts were seen sticking in situ in the naturally eroded sections. We were furthermore greeted by a fine sabre-tooth cranium and an *Homo erectus* mandible. Mammalian fossils again suggested an age close to 1.5 million years before present, an age later confirmed by project geochronolo-

gist G. Wolde-Gabriel's radiometric dating of tuff samples. (Further details of the site have been published in *Nature* vol.360, no.6406). Konso-Gardula, a most promising early man site was thus discovered by the Paleoanthropological Inventory of Ethiopia, a remarkable field project conceived and directed by Berhane Asfaw, then the acting Director of the National Museum of Ethiopia. This short article briefly outlines the background, scope, methodology, and accomplishments of the Inventory Project, which has led to the above described discoveries as well as other significant ones.

The 1960s and 70s witnessed amazing paleoanthropological finds along the great rift valley of eastern Africa. In consequence, rigorous working hypotheses of our biological past extending close to 4 million years before present were formulated. Together with Tanzania and Kenya, Ethiopia had yielded a solid share of these finds. Paleoanthropological research in Ethiopia, however, remained largely an affair of foreigners, with only limited Ethiopian involvement. Thus, these years of productive research did not result in the development of adequate Ethiopian infrastructure, either at the institutional or personnel levels. The vast majority of the fossils were exported and studied abroad. Research and curatorial facilities remained non-existent at the National Museum of Ethiopia.

In the 1980s, Berhane Asfaw from the Ministry of Culture and Sports, while working toward a higher degree at the University of California, Berkeley, not only realized these problems, but also set out to correct them to the best of his abilities. He continued to engage in soliciting foreign support and co-operation in two major areas, 1) the training of Ethiopian colleagues in fields of prehistory, physical anthropology, geology, and in technical laboratory work, and 2) the equipping of the paleoanthropology laboratory at the National Museum of Ethiopia. The laboratory building had been built through efforts of



Dr. G. Wolde-Gabriel sampling a volcanic tuff at Kesem-Lebens.

the U.C. Berkeley prehistorians and paleoanthropologists J.D. Clark and F.C. Howell, but had remained empty and unused as of fall 1984. Asfaw's endeavors were sometimes met by understanding support, but also, by frequent stubborn resistance. Thus, discussions regarding possible scholarships were often heated, and cries for equipping the Addis laboratory were met with skepticism (why do you need a computer at the Addis museum?). He nevertheless made considerable progress, and by the late 1980s, a functioning paleoanthropology laboratory was operating under his direction at the National Museum.

He also realized that because of the history of paleoanthropological development in Ethiopia as outlined above, much of the country remained unexplored with regards to paleoanthropological resources. To him, this called for the need of a systematic project aimed at discovering and documenting yet unknown paleoanthropological sites. Such an inventory project was conceived to be a necessity for the efficient and proper management of paleoanthropological resources, including the administration of foreign expeditions. The Paleanthropological Inventory of Ethiopia was thus founded, and launched in the late fall of 1988. Aside from project leader Asfaw, Ethiopian prehistorians Y. Beyene and S. Semaw, geologists G. Wolde-Gabriel and T. Yemane and numerous staff from the National Museum participated in this Ministry of Culture project. Tim White from the University of California at Berkeley and I joined as external advisors in paleontology.

The scope of the project was set geographically to areas within and adjacent to the rift valley and the Afar depression, but excluding the already researched areas such as Hadar, Middle Awash and the Omo. Methodologically, target areas are selected, taking into account infor-

mation from a variety of sources including satellite imagery, aerial photographs and geological maps/reports. The field team then proceeds to conduct foot transects in these target areas. The density of transects to be taken is determined by constant feedback between the transect results and imagery/aerial photograph information. The inventory project aims not to research a site/area but to characterize its chronological age, geographical extension, and paleontological and artifact contents to the extent that the future research potential of the site can be assessed. Thus, volcanic samples are collected for geochronological analyses, but artifacts are assessed in the field and left behind on the site. Paleontological collecting is limited to few specimens crucial in biochronological assessment, and to those rare instances, such as at Konso-Gardula, where one is fortunate to come across hominid remains during site assessment activities. In this way, the surface scatter of fossils and artifacts are minimally disturbed, so that the planning of future intensive research projects is not hampered.

The Inventory Project has so far operated between 1988 and 1991 for approximately 130 field days. We have established some 30 paleontological localities ranging from the Middle Miocene to the Late Pleistocene. Some 25 prehistoric sites/localities have been catalogued, including a diversity of sites yielding Later Stone Age to Oldowan assemblages. Two major new study areas have been identified. One, named Kesem-Kebena, is located at the mouth of the Afar depression, and yields vertebrate fossils ranging from 1 to over 3 million years before present, and excellent Acheulean assemblages dated to circa 1 million years. Another, named Fejej, lies adjacent to the Kenyan border just east of Lake Turkana. Here, the inventory team discovered an excellent two million year old Oldowan site, as well as mammalian fossils ranging from circa 1.5 to 4 million years before present. French and American research teams have recently initiated more intensive field research at Fejej, already resulting in exciting new discoveries.

The Paleanthropological Inventory of Ethiopia has confirmed the exceptional quality and abundance of paleoanthropological resources in Ethiopia. Undoubtedly, sites equivalent to Kesem-Kebena, Fejej and Konso-Gardula, or yet more exciting ones, remain to be discovered. As our quest for the understanding of human origins and evolution continues, Ethiopia is certain to remain in the spotlight, both because of intensive research of known sites/areas and because of further new discoveries from systematic surveying.