

World Survey of Climatology Volume 10

Climates of Africa

edited by J. F. GRIFFITHS

Texas A and M University

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CLIMATES OF AFRICA

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General Introduction

J. F. GRIFFITHS

I am ready to revoke my saying, if anythings have passed my mouth for want of learning, and to submit myself to correction and my book to reformation.

Fitzherbert, 1534. *Book of Husbandry*.

History

Africa is the second largest continent in the world, ranking only behind Asia. In ancient times the continent was referred to by the Greeks as Libya and it was not until the Romans began exploring the area between Cyrenaica and Mauritania that the area received the name of Africa, derived from the word Aourigha (pronounced Afarica) that applied to the Berber inhabitants of the region.

Archaeologists now believe it was in Africa that a differentiation between man's ancestors and other primates first occurred. *Proconsul*, an erect ground dwelling creature whose fossilized remains were found on an island in Lake Victoria, has been dated to 25 million years ago. The earliest toolmaker (an accepted criterion for the distinction of man from beasts) is *Zinjanthropus*, studied in northern Tanzania and dated to about 1.75 million years ago. It would appear, as OLIVER and FAGE (1965) express it, that "Africa remained at the centre of the inhabited world for all but the last small fraction of this long development of the human form... all the true pebble tools yet found have been discovered in or very near Africa. The sites extend from the Vaal River in the south to Morocco and southern Palestine in the north, and the centre of their distribution appears to be the woodland savanna of tropical Africa."

In historical times ancient civilizations waxed and waned around the coasts of the Mediterranean while the north coast of Africa has been settled from time immemorial. However, penetration into the continent had been minimal for hundreds of years. The deepest assaults on the continent had taken place almost exclusively down the Nile, the life blood of the Egyptian civilization. Records covering thousands of years show no instance of the mighty river ever failing completely and the "mystery" of its rise and flood in September and October, hot and dry months along the Mediterranean littoral, while flowing through vast rainless areas, was surely the earliest meteorological problem of the African continent. Naturally, the Egyptians sought to explain this phenomenon and there are indications that explorers penetrated as far as the southern Sudan on their journeys. Around 600 B.C. the Pharaoh Necho dispatched a fleet, manned by Phoenician sailors, from the Red Sea specifically to explore the coast of Africa. Their journey took three years and they returned to the Mediterranean coast, thus completing the first recorded circumnavigation of Africa.

There is evidence that about 2,000 years ago the Roman legions penetrated certain routes across the Sahara with some semblance of regularity, garrisons being relieved and replaced. It is likely that some even went as far as the Niger for there were tales of a

great river flowing from west to east. One of Africa's most intriguing legends, however, refers to the eastern area. It tells of a Greek merchant, named Diogenes, who landed in eastern Africa while on a journey home from India in the first century A.D. From the port of Rhapta, perhaps modern Pangani, he is said to have travelled 25 days inland arriving in the vicinity of two great lakes and a snowy range of mountains from whence the Nile derived its source. The story, recorded by Marinus of Tyre, was used by Claudius Ptolemy in his *Geography* when inserting "Mountains of the Moon" on his famous map. Even the first century guide for sailors *Periplus of the Erythrean Sea* indicates knowledge of Mount Kilimanjaro and inland great lakes.

It is now believed that there was appreciable intercommunication among the various groups spread across Africa for at least the past 2,000 years, routes existing in both the east-west and the north-south directions. Nevertheless, as far as Europeans were concerned the next steps in the exploration occurred when Portuguese sailors rounded the Cape of Good Hope and reached as far as Mombasa and Malindi during the 15th century. For experiences during the period between 100 and 1400 A.D. history is dependent upon some of the intrepid Arab explorers, such as Ibn-Batuta who visited the great mediaeval empires of the western Sudan. Hence, the origin of the phrase "forgetful of the world and by the world forgot" as a comment upon Africa.

The period from about 1770 to 1900 A.D. is the time of European exploration of Africa. The tales of Barth, Bruce, Burton, Caillie, Livingstone, Park and Stanley, among many, weave a fascinating story of challenging times and places across the continent. This was the period when scientific observations were begun, often in the face of tremendous personal hardship. Data collected by a handful of men offered more challenging problems to the mind and led eventually to the inauguration of the networks of observatories from which came the information such as is to be discussed in detail in this book.

Geography

Africa covers an area of over 30 million km², approximately 20% of all the earth's land surface. From east to west it stretches 7,200 km, very comparable with the north-south extent of 8,000 km. It is the most symmetrically placed of all the continents with respect to the equator; the most northerly point, Cape Blanc, being at 37°N and the extreme southerly point, Cape Agulhas, at 35°S. The coast line is remarkably smooth and extends for 36,000 km, less than that of Europe, which has only one third the area of Africa.

In the early days cartographers had a hard time obtaining details of the continent and Jonathan Swift's remark, made in the 18th century, was particularly apt, "Geographers in Afric maps, make savage pictures fill the gaps, and o'er inhabitable downs place elephants in place of towns". During the past decade many changes have taken place in political boundaries and names, there are now 40 independent countries on the continent compared with four in 1955. These countries range in size from the mighty Sudan, with over 2.5 million km², to the tiny Gambia of 10,000 km². The population of Africa is estimated at about 261 million, for an overall density of only nine persons per km² compared with Europe's 85 per km². Nigeria is the most populous country with over 55 million inhabitants, while the Territory of the Afars and the Issas (originally French