CONTENTS

Introduction

MY INTRODUCTION to the Nile was at Khartoum in October 1962, when I had just started to work as a soil surveyor for Hunting Technical Services Limited on the Roseires Dam Soil Survey Project in Sudan. The Roseires Dam, which was completed in 1966, is located on the Blue Nile close to the frontier between Sudan and Ethiopia (map 4). The purpose of the dam was to provide more water for agriculture during the dry season, thereby supplementing the water already provided by the Sennar Dam, which was completed in July 1925. Our team consisted of four soil surveyors (Laurie Henderson, Roy Law, Eric Lawrence, and me) under the benign direction of Colin Mitchell, who had spent many years mapping soils in Sudan and was a fluent Arabic speaker. Our role was to select the best land for future irrigated agriculture and to eliminate land that was too rocky, too sandy, or too saline.

Our arrival in Khartoum was just a few weeks after the end of the rainy season and the rivers were still at very high levels. Two great tributaries of the Nile meet at Khartoum, namely the Blue Nile and the White Nile. The land between the lower Blue and White Nile rivers is known as the Gezira, from the Arabic word for island. Out in the Gezira, the farmers had planted sorghum on the clay soils and millet on the sandy soils, together with onions, tomatoes, and a variety of other vegetables and fruit. Later in the dry season, they would pick the high-quality long-staple cotton for which the Gezira was famous. In the 1950s, the Gezira was responsible for two-thirds of the export revenue of the Sudan, produced on only 1 per cent of its total land area.

Before I began my work, my fellow soil scientists and I had been advised, very firmly, by some of the soil scientists at the Gezira Research Station in Wad Medani, situated on the Blue Nile 200 km south of

Khartoum, that the Gezira was a uniform clay plain. Accordingly, all I needed to do to map the soils was to use a square grid superimposed on air photo mosaics to ensure a consistent mapping density. The soils people at Wad Medani had spent their professional lives mapping soils on the vast clay plains that extended east from the Blue Nile to the foot of the Ethiopian western escarpment. They had never worked in the northern and western Gezira. Very wisely, Colin Mitchell chose to ignore their advice.

In the first week, I described and sampled a series of soil pits dug at random across the north-western Gezira. My first surprise was that every pit proved to be different, with soils ranging from heavy clay to coarse sand and fine gravel. A second surprise was the abundance of low sandy ridges upon which local villages were situated. A third surprise came when I investigated the sands in these ridges and found that they were relatively coarse, poorly sorted, and often quite angular, which is the opposite of what to expect in a desert sand dune. The sand did not consist of uniform grains of quartz, as in a desert dune, but contained a wide variety of minerals, many of them indicating that they came from a volcanic source. Finally, the excellent topographical maps of the Gezira, with contours every 50 cm, showed a series of shallow linear depressions or ancient channels (fig. 0.5) radiating north-west from about the latitude of Sennar on the Blue Nile to reach the eastern margins of the lower White Nile, where they disappeared beneath a large area of wind-blown sand dunes located between Jebel Aulia and Hashaba. Accordingly, after working for only a few weeks mapping soils in the northern Gezira, my curiosity was aroused by these unsolved mysteries, and I became determined to find out more about this intriguing part of the world and to seek some answers to the mysteries we had unearthed. The answers are revealed in the chapters that follow.

My life as a soil surveyor was usually uneventful but there were occasions of high drama. One such event took place in my first week in the Sudan. We were based in a dilapidated rest house in a small village in the north-western Gezira (map 4). It was a hot evening. I was clad in a pair of baggy shorts and standing bare footed in front of a steel mirror with a Tilley lamp behind me, delicately removing a mosquito from my

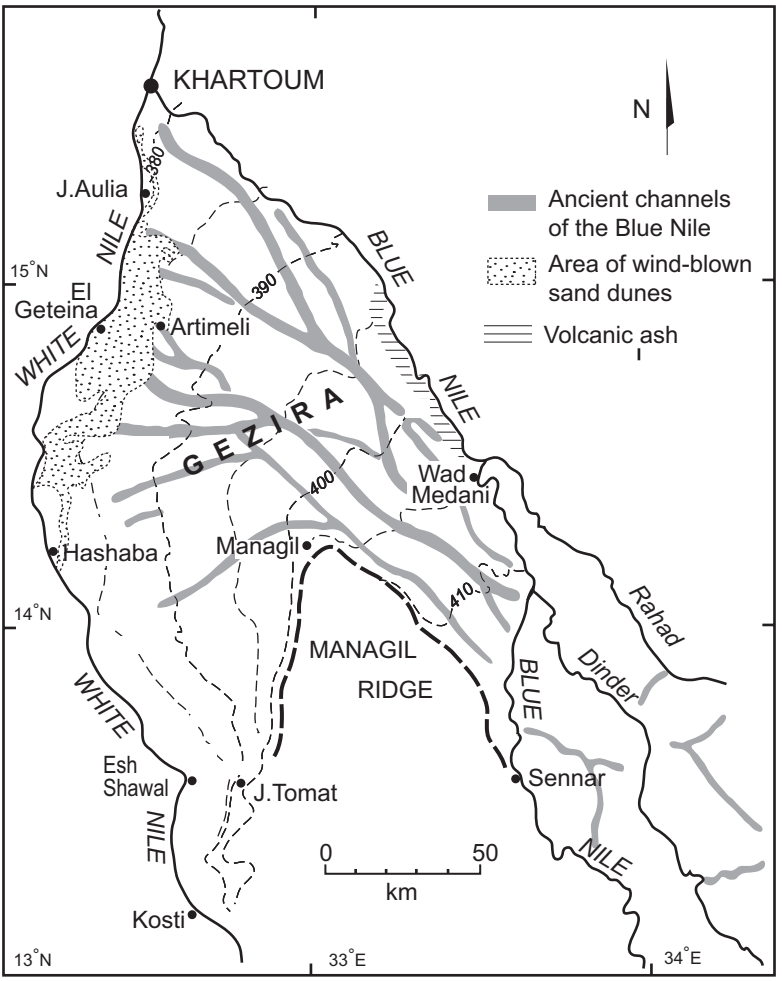

FIGURE 0.5. Ancient Blue Nile channels, northern Gezira, central Sudan, showing sand dunes east of the lower White Nile, central Sudan. A is the village of Artimeili.

left eye. I glanced down and saw what I took to be a curved stick on the ground. Having removed the mosquito, I glanced down. The 'stick' was in fact a snake and was now coiled around my left leg, moving slowly upwards. I jumped, kicked, and yelled. My Welsh soil surveyor companion Eric Lawrence came rushing over. 'Did 'e bite yer, then?' I had felt nothing and said no. Eric soon found that the snake had struck the sole

of my left foot. My companions dispatched the snake and set forth with it to find a Sudanese doctor with a supply of anti-venom.

Before deciding on a course of action, I inspected the sole of my foot with care. When venomous snakes strike, they disarticulate their jaws to allow them to unsheathe their fangs. On the sole of my foot a curved triangle of toothmarks was clearly visible, together with two red fang puncture marks about 1–2 mm in diameter. More to the point, there was about 1 cc of translucent pale-yellow fluid, which I wiped off very carefully. This was the venom, most of which was fortunately still on the surface. With a scalpel, I then cut a cross shape across each fang puncture mark and added potassium permanganate crystals to help oxidise any venom. I then wound an old judo belt around my left femoral artery, slackening the pressure every fifteen minutes, asked the cook to bring me a cup of tea, and settled down on a camp bed for a quiet read. Before coming to Sudan, I had spent two months in the Libyan Desert of the eastern Sahara with a British Army expedition from the Royal Military Academy, Sandhurst, and the soles of my feet were very hard from constant walking. Whether that helped is hard to say.

In due course, my companions returned with a doctor and anti-venom. He said that he was pretty sure that the snake was a viper, and so gave me 4 ccs of viper anti-venom. However, 'to be sure', he also gave me 6 ccs of cobra anti-venom. Until then, I was fine. After the injections, every gland swelled up and I had a restless night. At dawn, to my horror, I spotted a snake draped over the end of my camp bed. The snake turned out to be a flexible rubber hose I had put there in preparation for a field permeability test.

The villagers came out next morning to see my corpse carried out, so I co-opted them to make the rest house snake proof. Their picturesque names for the local venomous snakes left little to the imagination: 'Father of ten minutes' and 'Shroud bearer' were two that I recall.

The chapters that follow first describe the landscapes of the Nile Basin and the widely differing characters of the three main tributaries of the Nile (the White Nile, the Blue Nile, and the Atbara). Fluctuations in Nile flow and climatic changes within the basin have had a profound impact on prehistoric and historical human societies living along the

Nile: Late Stone Age hunter–fisher–gatherer economies had been replaced by the cultivation of domestic cereals such as barley, wheat, millet, and sorghum, and herding of domestic cattle, sheep, and goats, by about 6000 years ago. The long and successful use of Nile flood waters for irrigated agriculture shows how mastery of the Nile floods paved the way for the emergence of Egyptian civilisation.

INDEX OF SUBJECTS

INDEX OF PEOPLE

INDEX OF PLACES