

HYDROGEOLOGICAL CROSS SECTION

OF UPPER PLATEAU OF THE NILGIRIS

SPRINGS

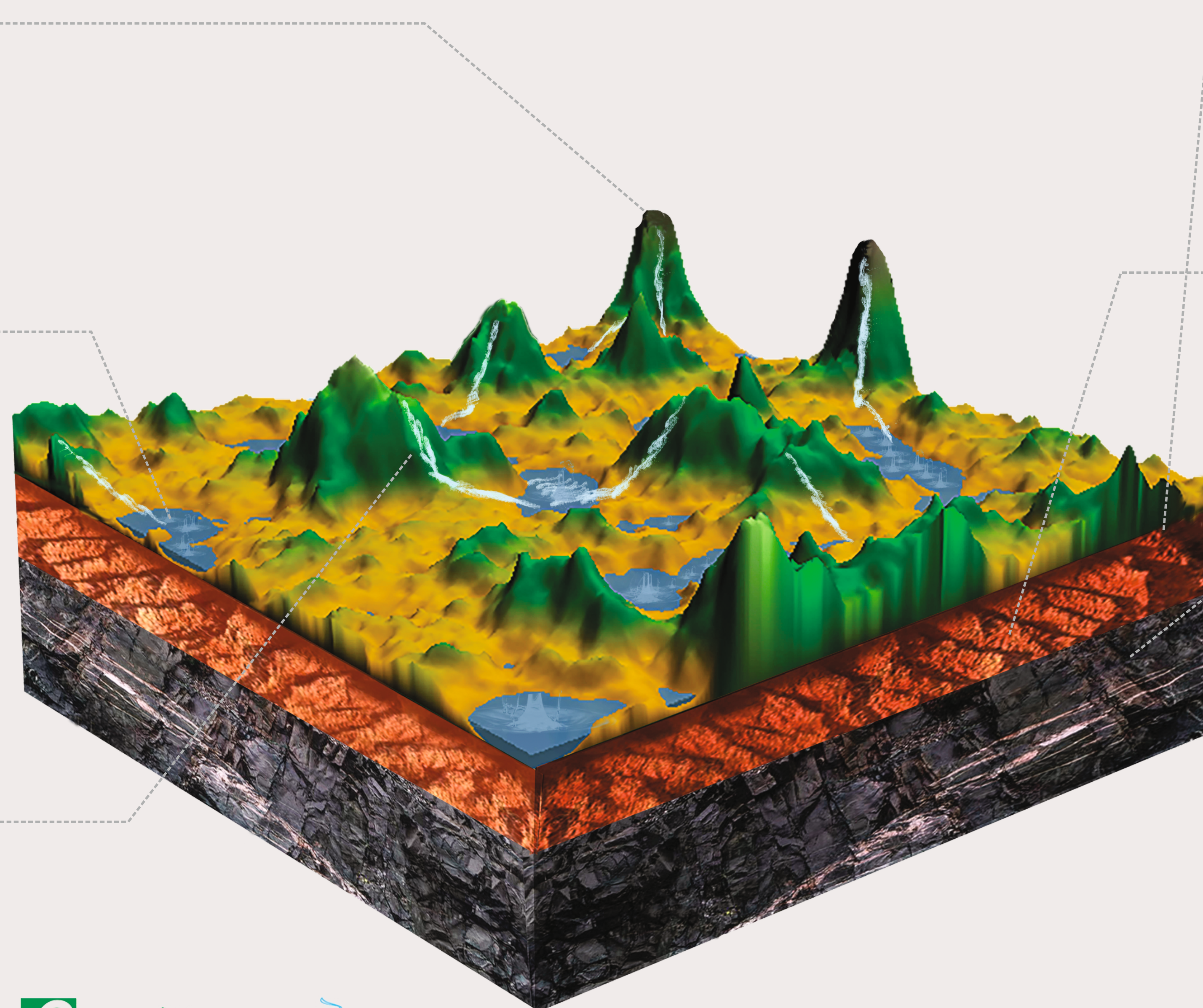
Springs are indicated by locations or points on the ground, where water from beneath the ground emerges onto the surface. A spring may be considered as an 'overflowing aquifer'. Springs represent 'natural groundwater discharge' that feeds streams and rivers, often making such streams and rivers perennial.

WETLANDS

A wetland is a land area that is saturated with water, either permanently or seasonally, such that it takes on the characteristics of a distinct ecosystem. The primary factor that distinguishes wetlands from other land forms or water bodies is the characteristic vegetation of aquatic plants adapted to the unique hydric soil. Wetlands play a number of roles in the environment, principally water purification, flood control, carbon sink and shoreline stability. Wetlands are also considered the most biologically diverse of all ecosystems, serving as home to a wide range of plant and animal life. The main wetland types include swamps, marshes, bogs, and fens.

STREAMS

A stream is a body of water with surface water flowing within the bed and banks of a channel. Depending on the groundwater level in an aquifer, the stream may be fed by groundwater or may be recharging the aquifer. Depending on its location or certain characteristics, a stream may be referred to by a variety of local or regional names.



SOIL

Soil is the top most layer of earth's surface in which plants grow - a black or dark brown material typically consisting of a mixture of organic remains, clay, and rock particles. Lateritic soil is commonly found in the Nilgiris. Nearly all laterite are of rusty-red colouration, because of high iron oxide content.

WEATHERED ROCK

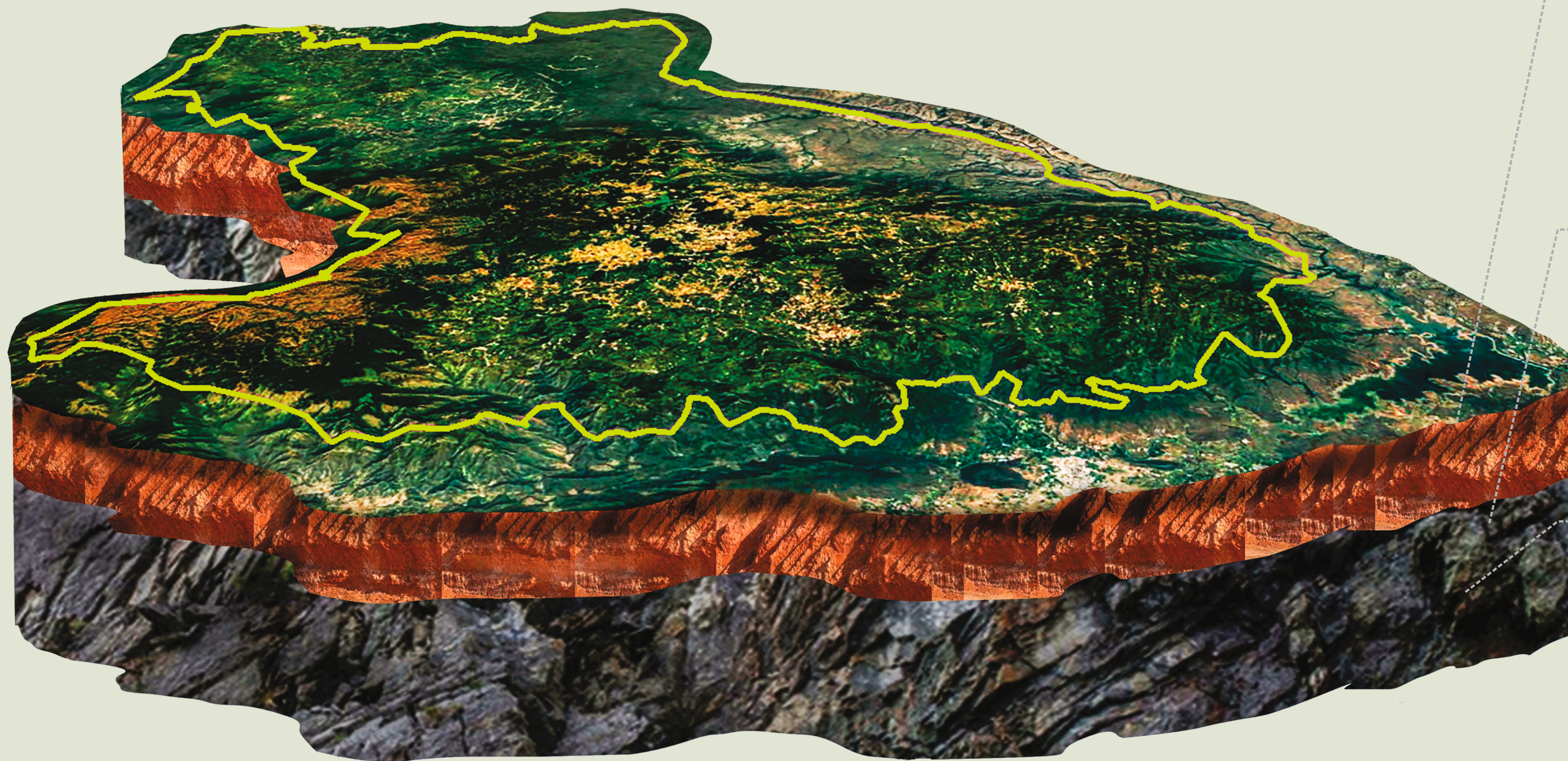
The process of breaking down and alteration of rocks and formation of new materials from them is known as weathering of rocks. Weathering is the in-situ physical disintegration and chemical decomposition of rock materials at or near the Earth's surface. The physical and chemical breakdown of rock material takes place in response to the environmental conditions found at or near the surface of the earth.

HARD ROCK

The Hard rock in other words is a Compact rock which has less capacity to hold and transmit groundwater compared to the weathered rock. Granite and Gneiss in the Nilgiris are examples of hard rock. These bed rocks are made of smaller openings or fractures and fissures through which ground water moves into deeper aquifers. The hard rock undergoes chemical weathering and changes form into a weathered or soft rock. Gneisses, granites and charnockites lithologically dominate the upper reaches of the Nilgiris. Field observations of the area reveal that the gneisses are more susceptible to weathering compared to massive granites or charnockites which stand out relatively fresh. This differential weathering and therefore erosion between the gneisses and charnockites are likely to have caused the charnockites to rise abruptly as high hills and mountains like the Nilgiris.

HYDROGEOLOGICAL SET UP

OF THE NILGIRIS



LATERITIC SOIL

Laterite is a soil and rock type rich in iron and aluminium, and is commonly considered to have formed in hot and wet tropical areas. Nearly all laterite are of rusty-red colouration, because of high iron oxide content. They develop by intensive and long-lasting weathering of the underlying parent rock.

CHARNOCKITE

All charnockites were once thought to be igneous, but it is now recognized that many are metamorphic., because, despite the high temperatures and pressures, the original rock never actually melted. In India they form the Nilgiri Hills, the Shevaroy, the Biligirangan Hills and part of the Western Ghats, extending southward to Kanyakumari.

GNEISS

Gneiss is a common distributed type of rock formed by high-grade regional metamorphic processes from pre-existing formations that were originally either igneous or sedimentary rocks. It is often foliated (composed of layers of sheet-like planar structures). The foliations are characterized by alternating darker and lighter coloured bands, called "gneissic banding" because the rock glitters.



HYDROGEOLOGICAL CROSS SECTION OF TRIBAL AREAS OF KOTAGIRI, COONNOOR AND ARACODE REGION IN THE NILGIRIS

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