Uranium Mineralisation Near Surda in the Singhbhum Copper Belt of Bihar (India)

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A portion of the Singhbhum Copper Belt was taken up for detailed studies with particular reference to the uraniferous formations occurring in this important mineralised belt of India. The area covered is approximately 2.5 km in length along the strike and nearly 1 km in breadth, and is situated near Surda village which is 9.5 km due south-west of Ghatsila (S. E. Rly.). This paper describes the geological features of the area, the characteristics of the different constituent rock-types, the distribution of radioactivity, detailed description of the main uranium ore body, its reserves, and its possible origin.

I. Geologic Features

The general stratigraphical sequence of rock-formations in the Singhbhum Copper Belt of Bihar, as established by Dr. J. A. Dunn (1942) and other pioneering co-workers, is as follows:

- Alluvium
- Laterite
- Tertiary Grits & Gravels
- Newer Dolerite
- Soda Granite
- Singhbhum Granite
- Diorite
- Dhanjori Lavas & Conglomerate
- Iron-ore Series & Basic intrusives

The area taken up for detailed studies by the present author consists largely of the last member of the above sequence which has been extensively mineralised by Copper, Magnetite, and Uraniferous Ores along a wide Shear Zone impregnated by Granite in several places. This area lies near Surda in the eastern part of Singhbhum District, and consists of a prominent Ridge about 90 metres in height above the general ground level and running north to south for a distance of more than 2.5 Kilometres. The central portion or core of this ridge is formed of a Biotite-Quartz-Schist varying to Biotite-Quartz-Granulite. This is flanked on either side (to the east and west) by a Biotite-Muscovite-Schist. The eastern rim of the ridge is marked by a well-defined bed of Quartzite which is Kyanite-bearing and varies laterally to a Quartz-Schist. Further to the east this formation grades into a Muscovite-Quartz-Schist and thence to Muscovite-Schist, — the latter
Fig. 1. Surface-plan of Surda Ridge showing the main rock-formations and their radioactivity