TABLE I

Characteristics of iron(II) complexes

Complex	λ_{max} (nm)	ϵ (l/mol/cm)	Sandell's sensitivity ($\mu g/cm^2$)	Validity of Beer's Law ($\mu g/ml$)	Optimal Concn. ($\mu g/ml$)
Fe(II)-BAM (NH_3)	495–515	5,050	0·011	0·0–20·0	2·0–7 0
Fe(II)-BAM (Methyl amine)	510	13,000	0 0045	0 0– 9·0	0·9–3·25

TABLE II

Analyses of alloy samples

Sample	% Fe Present	% Fe Found
Sample A		
Co 20·5%, Cu 20·3%, Ni 24 4%, Zn 1·6%, Cr 5·4%, Mn 8·0%	5·30	5·19
Sample B		
Co 15·3%, Cu 10·3%, Ni 24·6%, Zn 15·3%, Cr 5·8%, Mn 13·0%, Al 5·4%	10·30	10·10

Beer's law, sensitivity, optimal concentration range are summarized in Table I. The standard deviation[7] of the proposed method is 0·018 for 3 μg of iron per ml in a series of 10 determinations.

Effect of diverse ions

Of all the diverse ions studied, the following ions did not interfere (500 ppm) while working with 3 ppm of iron ($\pm$ 3% error): sodium potassium, bromide, chloride, iodide, nitrate, oxalate, pyrophosphate, sulphate, tartrate and fluoride. Owing to the presence of excess ammonia or methylamine for the development of colour, most of the common ions precipitate, when present in high concentrations. Cobalt (10 ppm), nickel (5 ppm), and copper (5 ppm) do not interfere.

Analytical applications

The technique was applied to the determination of iron in two alloy samples. Table II summarizes the results. Iron was separated from interfering metal ions by extraction with methyl isobutyl ketone (MIBK) and benzene as proposed by Jackson and Philips[8]. It was quantitatively re-extracted with 10% ascorbic acid solution.

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A PROTEROZOIC STROMATOLITE FROM EAST AFRICA

P. C. DIXIT AND GISELA I. PRASAD

Department of Geology, University of Dar es Salaam P.O. Box 35052, Dar es Salaam, Tanzania

THE stratigraphic sequence of the Bukoban System (Late Proterozoic) in Tanzania and the Malagarasian in Burundi have been subjects of debate[1–3]. Correlation of litho-units is rendered difficult because different units of the Bukoban are disconnected, and there is no established stratigraphic marker. It is difficult to distinguish the limestone members of the Ilagala Dolomitic Limestone and the older Kigonero Flags. The limestone members contain stromatolites. A systematic study of stratigraphically well recognized groups of stromatolites may contribute to solve the correlation problems.

Halligan[1] reports stromatolites from Bukoban rocks in north-western Tanzania. He refers them to similar forms described by Cahen[4] from the Groupe de la Lindi of Zaire which Cahen called *Cryptozoon* or *Collenia*. Bertrand-Sarfati[5] reports stromatolites from the Upper Precambrian of the Congo Basin and she correlates them with forms from Mauretania, the Haggar Massif and the Bushimai of Kasai. Gunatilaka[1] mentions stromatolites in association with

Cu-Comineralization in Zambia. No systematic study of Proterozoic stromatolites has been made in East Africa.

The stromatolites described are found in rocks of the Bukoban System at Masumu Hill (3°19′30″S; 31°03′E) on Quarter Degree Sheet 44 (Fig. 1).

The columns of these stromatolites show marked divergence (Fig. 2). The branching columns normally do not develop equally. The shape of the columns is tuberous and irregularly subcylindrical. In the transverse sections, the columns are rounded to oval. The columns are greyish yellow green to light greyish green in colour and are partly composed of calcareous material. The sediment in the interspaces of the columns is calcareous; it is light grey to medium grey in colour. The column margins are normally smooth to slightly bumpy. The laminae in the columns are gently convex. The laminae, however, do not bend over or envelop the lateral surface to form a wall but rather terminate suddenly at margins. The margins are not ragged. The laminae (made up of alternate light and dark material) range in thickness from 0·05–0·1 mm. Characteristics of these stromatolites clearly indicate that they should be assigned to the group *Baicalia* Krylov 1963 (*cf.* Cloud and Semikhatov[7]). The stratigraphic range of the group *Baicalia* extends from Middle to middle Upper Riphean (1350–850 Ma) of USSR[8].

The stromatolite *Baicalia* occurs in the limestones of the Kigonero Flags which belong to the Bukoban System.

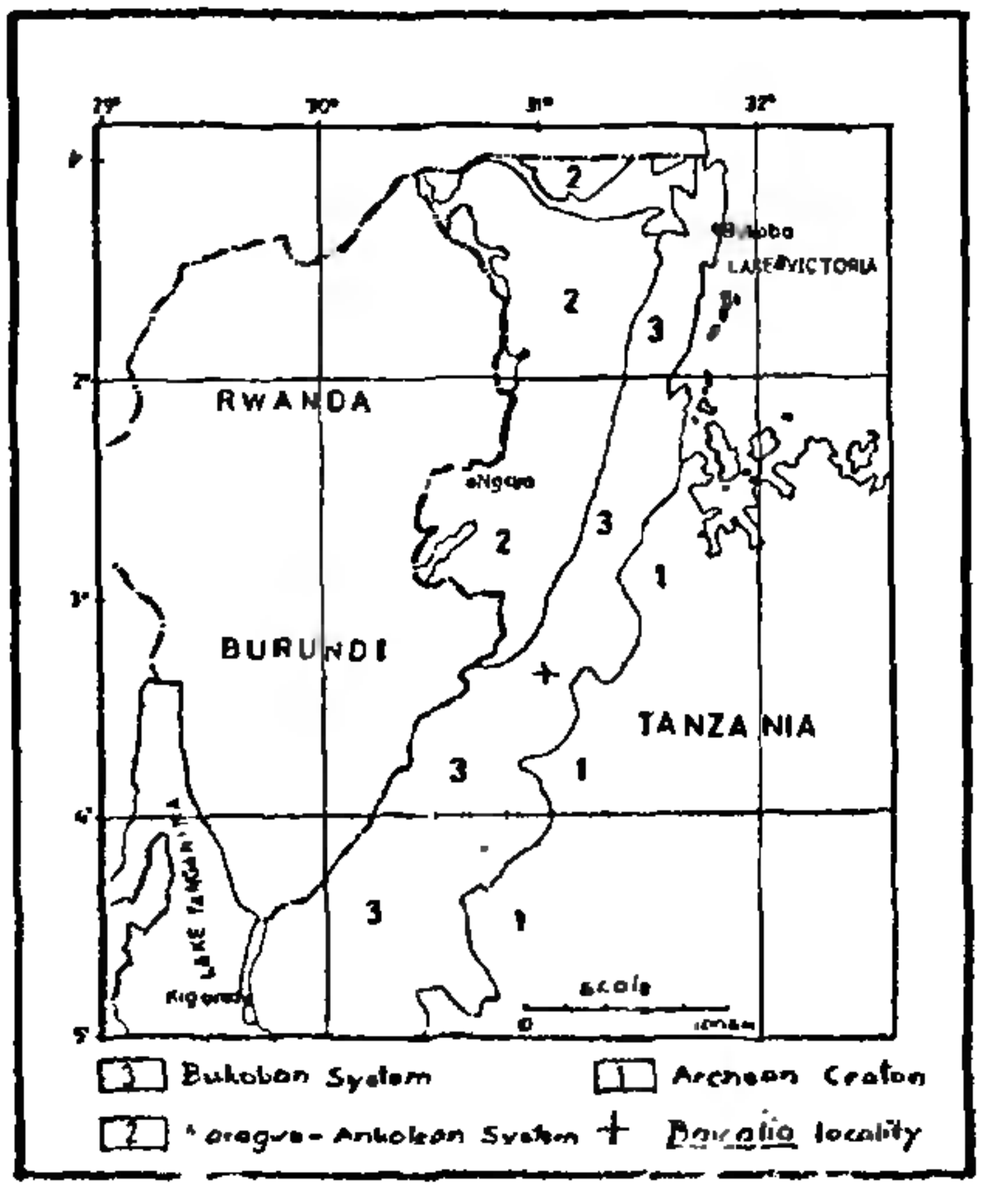

FIG. 1. Location map with outline geology of north-western Tanzania.

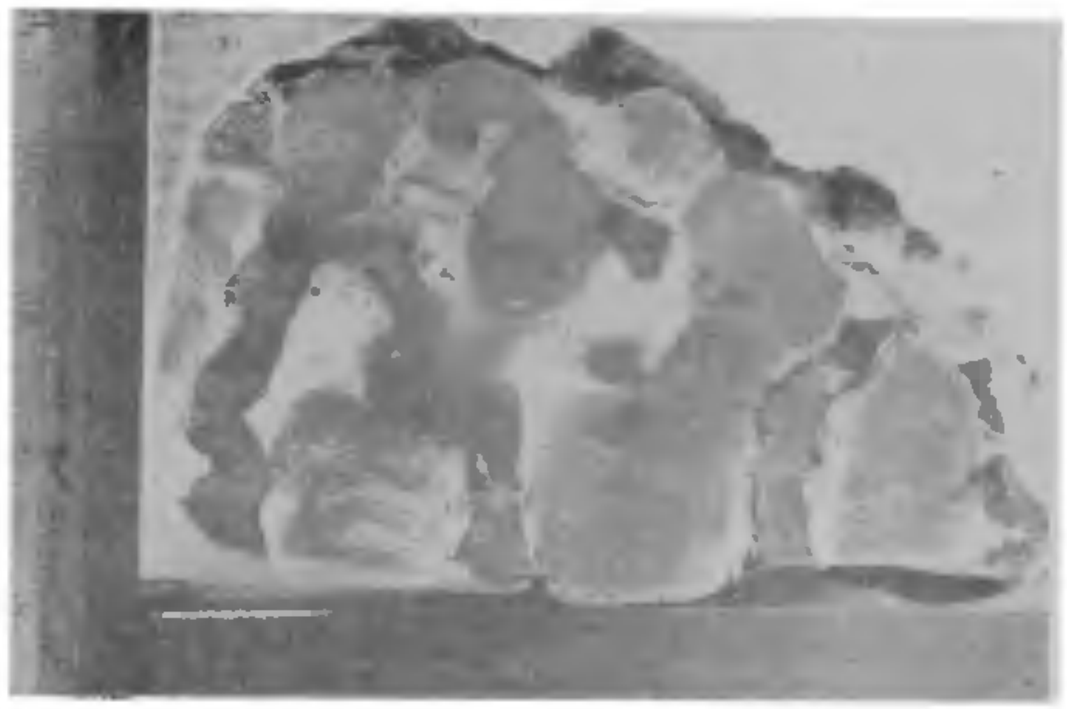

FIG. 2. Stromatolite *Baicalia* from the Proterozoic of East Africa.

The following division of the upper part of the Bukoban is proposed (after Cahen and Snelling)[3]:

Uha Group
- Manyovu Red Beds
- Ilagala Dolomitic Limestone
- Gagwe Amygdaloidal Lavas

Kigonero Flags

Bukoba Sandstone

K–Ar ages on the tholeitic basalts of the Gagwe Amygdaloidal Lavas at the base of the Uha group give ages of 805 Ma (Cahen and Snelling)[2].

Radiometric ages of the Musindozi group in Burundi which is correlated to the *Baicalia* bearing Bukoban rocks give a minimum age of 890 Ma from intruding gabbros[3]. This age falls within the stratigraphic range of the group *Baicalia* as reported from USSR[8], Australia[9], U.S.A.[7] and India[10].

This establishes the group *Baicalia* as a valid stratigraphic marker in East Africa.

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