ABSTRACT

The geological mapping of the central to eastern Roraima state, on the scale of 1:500.000, led to the proposition of a new lithostratigraphic column and shed much light on the distribution of the rock units in the region.

On the basis of field observation, supported by petrographic, geochemical and geochronological studies, two domains, showing different structural and geological features, have been identified: the Urariqüera Domain characterized by NW-SE to E-W trending structures; and the Central Guyana Belt Domain, in the NE-SW direction.

In the Urariqüera Domain, orthogneisses, migmatites and granitoids of the Urariqüera Metamorphic Suite, regarded as Paleoproterozoic in age, are poorly exposed and lack confident geochronological data. A significant improvement has been made in the understanding the Cauarane Group, a metamorphic Paleoproterozoic volcano-sedimentary sequence which has been related to a greenstone belt. The supracrustal rocks correspond to talc chlorite schist, metachert, paragneisses and amphibolite, deformed under amphibolite (to granulite) facies, during the Transamazonian Cycle, and affected by a retrometamorphism under greenschist conditions of uncertain age. Small bodies of S-type granites, produced by the partial melting of the metasedimentary rocks, have been individualized. The Cauarane group crops out near the Amajari river and gives place in the north to the granitoid rocks of the Pedra Pintada and Saracura intrusive suites and the volcanics of the Surumu Group. The volcanics occur as E-W to NW-SE trending belts, separated by broad parallel bodies of granitoids. The Pedra Pintada Intrusive Suite includes granitoids showing calcalkaline affinities, with geochemical character similar to the volcanic rocks of the Surumu Group. Both units are probably related to the last stages of the Transamazonian Cycle as pointed out by the available isotopic data. New petrological evidence does not support the previously supposed comagmatism between Saracura A-type granitoids and Surumu volcanics; both included in the Uatumã Supergroup. This fact casts some doubt on the application of the term Uatumã to the rocks in the surveyed area. The A-type granites from the Saracura Intrusive Suite were probably emplaced at the end of the Paleoproterozoic, as a result of more stable conditions reached after the end of the Transamazonian Cycle. Extremely fractionated granitic rocks have been identified and grouped in the Morro do Bezerro unit. The granitic and volcanic rocks from the Pedra Pintada, Saracura, Morro do Bezerro and Surumu units lack the deformation and metamorphism recorded by the Cauarane supracrustals. Nevertheless, they exhibit foliation, lineation and folds developed under greenschist conditions, along belts that concentrated the deformation, particularly recorded by the volcanics. These structural features have been tentatively grouped in the proposed Macuxi Deformation Episode, interpreted as a transpressive episode. The Mesoproterozoic sedimentary rocks of the Tepequém formation lie unconformably over the Surumu volcanics, which appear to have been deformed previously. The K'Mudku Episode led to the

development of gentle folds in the Mesoproterozoic sedimentary rocks, without the formation of penetrative features. Mafic-ultramafic rocks, probably Mesoproterozoic in age, comprise the Uraricaá Suite.

The Central Guyana Belt lies in the NW-SE direction across the southern two thirds of the surveyed area. Orthogneisses included in the proposed Rio Urubu Metamorphic Suite prevail over the belt. The suite, with presumed Paleoproterozoic age, comprises mainly granitic to tonalitic biotite gneisses and hornblende biotite gneisses, deformed under amphibolite facies conditions. The orthogneisses show NE-SW foliation, dipping northwest, and may include xenoliths of the previously folded Cauarane rocks. The supracrustals also crop out over large areas in the northernmost portion of the belt, where they were deformed in the NE-SW direction during the installation of the Central Guyana Belt. S-type granitic bodies have been mapped in the Jacamim river region. The Cauarane supracrustals and the orthogneisses were considered in previous works to comprise the Kanuku Complex. The complex as defined in Guyana also includes charnockitic rocks which were, on the basis of new petrographic and geochronological evidence, grouped in the Mesoproterozoic Serra da Prata Intrusive Suite. The rocks included in the Kanuku Complex have been individualized in different units containing exclusively para or orthoderivated lithological types, and therefore the term Kanuku has been abandoned. Broad elongated rapakivi granite bodies of Mesoproterozoic age crops out in the NE-SW direction along the Central Guyana Belt, against the western border of the surveyed area. Anorthosites and gabbros, probably also from the Mesoproterozoic, occur in the vicinity of charnockitic and rapakivi granite bodies. Gneisses with a tectonic fabric typical of amphibolite facies were tentatively included in the mesoproterozoic suits. The close spatial and chronological assciation of charmockitic rocks with rapakivi granites and anorthosites (AMCG association) typical of other terranes depicts a new scene and poses one more challenge on the Mesoproterozoic history of the shield. Otherwise the occurrence of amphibolite facies assemblages in gneisses of presumed mesoproterozoic age has not yed been described in this portion of the Guyana shield, and is tentatively related to the Macuxi Episode.

The K'Mudku Episode led to the development of mylonitic belts, under greenschist conditions, across the Paleoproterozoic and the Mesoproterozoic rock units disposed along the Central Guyana Belt.

During the Mesozoic the reactivation of the belt structure culminated with the installation of the Tacutu hemigraben, concomitant with both, the deposition of a thick sedimentary pile (represented by the Serra do Tucano e Pirara formations) and the development of lava flows and emplacement of dikes (grouped in the Apoteri Complex). Stocks and dikes of alkaline affinity were also emplaced during the Mesozoic extensional episode that affected the shield and resulted in the separation of South America and Africa.

After the stabilization of the hemigrabem, the Boa Vista Formation was deposited during the Paleocene- Eocene, and then reworked to produce lateritic crusts and dunes

Available geological data have been integrated to the results of mineralogical and chemical analyses of soil, pan concentrate and stream sediments to produce a metallogenetic map. An evaluation of the resource potential has been held and the known ore deposits and mineral occurrences have been listed. The Boa Vista region has proved to be endowed with construction rock materials. Important areas have been identified for exploitation: diamonds in the Tepequém hill, where alluvial deposits downstream the Tepequém formation are currently being mined; gold at the Uraricaá river, where miners are working in a region dominated by deformed volcanic rocks from the Surumu Group; and phosphate, associated with La, Ce, Ti, Nb, W, and Mo, in the south-eastern corner of the surveyed area, where alkaline rocks of the Apiaú Complex outcrop.