

Structure of the gneissic sequence and the emplacement of granite in Rio de Janeiro, RJ, Brazil

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The structure of flat lying gneisses, which build the massifs of Rio de Janeiro, reflects the strong recumbent deformation they have undergone. Recumbent folds are of large dimensions and disposed north-south direction. Subsequent refolding under orthogonally, east-west disposed fold axes produced an apparent tilting of the structure toward either south or north. The prominent gneissic foliation or banding (S_n) dips between 15° and $35^\circ W$ being frequently truncated by ductile shear zones (S_{n+1}) dipping 30° to $45^\circ W$. Thrusting can be observed along some shear surfaces. Both surfaces are strongly mylonitized. Concordant, decimetric pegmatoid and aplitic dikes and veins lie along of the previously described planes. Most of these dikes have been deformed. Large bodies of augen gneiss sinkynematically intruded in the leptinite-kinzigite-biotite plagioclase gneiss-biotite gneiss sequence are the main responsible for the spectacular landscape. Undeformed, porphyritic, grey granite (Favela type) constitutes small stocks, dikes and sheets at the eastern part of the Tijuca massif. It forms a flowerlike structure around the tubular intrusion of the black Tijuca metagabbro. At the western part (Pedra Branca massif) the porphyritic granite consists of a huge tabular intrusion emplaced between the biotite-plagioclase gneiss (Archer type) and a sheet of slightly deformed dark granodiorite. A revised geological map of Rio de Janeiro prepared to IPLAN/RIO shows well the main structures.