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VARIACIONES PETROLOGICAS REGIONALES EN EL BATOLITO PATAGONICO

REGIONAL PETROLOGIC VARIATIONS IN THE PATAGONIAN BATHOLITH

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The Patagonian batholith is one of the largest of the Mesozoic circum-Pacific batholiths, and forms much of the western exposures in the southern Andes south of 41°S latitude. Almost the entire exposure of the batholith is unpopulated and is inaccessible by roads. As a result, little detailed information is available on the batholith.

The batholith is a complex of calc-alkaline plutons ranging in age from Jurassic to Miocene (some younger, isolated plutons are exposed near 46°S, but are not considered part of the batholith). Both I- and S-type granitic rocks are present, I-types being dominant. Lithologies vary from cumulate mafic rocks to true granites and include hypersthene norite, hornblende diorite, granodiorite, quartz monzonite, biotite-hornblende tonalite, biotite granite, and 2-mica garnet-bearing granite. Textures are dominantly hypidiomorphic granular; some basic rocks have cumulate textures. Some fine-grained to aphanitic, porphyritic granitic (rhyolitic?) rocks were mapped, but their relationship to phaneritic phases of the batholith is enigmatic. Much of the batholith is massive and undeformed; a few foliated granites and tonalites are present, particularly along major tectonic lineaments (shear zones?).

Regionally, the batholith everywhere contains a wide variety of rock types but large terranes of one dominant rock type can be mapped. Boundaries between terranes are often sharp, commonly paralleling major fjords. Cross-cutting relationships and limited geochronologic data suggest a general intrusion sequence of the batholith, although further age data may show that this sequence holds only at the outcrop or local scale, not regionally. Early phases are medium- to coarse-grained hornblende diorite with cumulate hornblende. Intermediate rocks, making up the bulk of the batholith, cut or contain xenoliths of the early diorites. These intermediate rocks consist of less mafic hornblende diorite, granodiorite and hornblende and biotite tonalite. Some S-type 2-mica granites and granodiorites intrude concurrently with the tonalites (some are much older). The youngest phases are medium- to coarse-grained granite, some with miarolitic cavities. A large percentage of the batholith is cut by syn-late plutonic and post-plutonic diabasic dikes. Most outcrops consist of $< 5\%$ diabase, but some localities consist of $> 25\%$ diabase, often in irregular bodies.

Tectonically the batholith represents a major magmatic addition to the South American continental crust since the late Jurassic as a result of continuous or semi-continuous subduction along the western active margin of South America. At least a minor component of crustal recycling is indicated from the presence of S-type rocks. The country rocks

are primarily a sequence of accreted late Palaeozoic forearc rocks. The extent of older (Precambrian or Palaeozoic) basement at depth is unknown but may be present as suggested by the presence of S-type rocks. A central, north-south belt of intermediate to acidic volcanic rocks may represent a roof pendant or down-faulted portion of the volcanic arc, or it may be related to the late Jurassic "Tobifera" volcanic sequence.

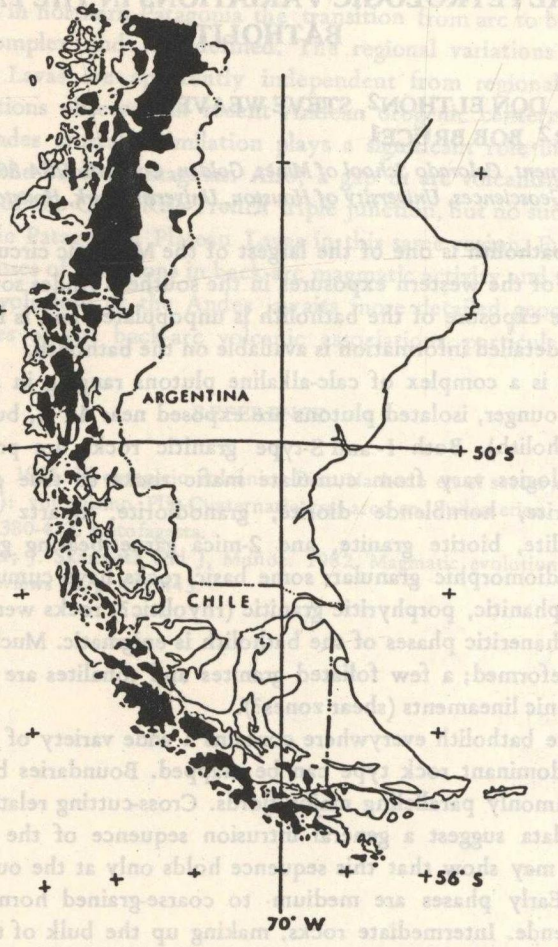

Fig.1. Patagonian batholith shown in black