structural transformation: montmorillonite, disordered mixed-layer phase (montmorillonite + chlorite) and chlorite, but in the case of sepiolite there is only the final phase - talc.

Stability fields of the phases. Using the data of Table 2, we constructed a schematic $\underline{P}_{H_2O}$-$\underline{T}$ diagrams (Fig.5A,B) showing stability fields of the starting and some intermediate phases. The upper temperature limit of stability is the same for sepiolite and polygorskite, $\sim$325°C. At higher temperatures (up to $\underline{T}$ = 700°C) sepiolite is transformed into talc, and palygorskite is first transformed into montmorillonite and then (at 500°C) into a mixed-layer montmorillonite+chlorite phase, followed by chlorite. Above 600°C cordierite and talc are the products of transformation of palygorskite. Pressure has little effect on the phase boundaries, except for the cordierite boundary, which shifts into the region of lower temperatures at lower pressures.

SUMMARY

1. Sepiolite and palygorskite are stable under hydrothermal conditions ($\underline{P}_{H_2O}$ = 800 - 2000 kg/cm^2) at temperatures below $\sim$325°C.

2. At higher temperatures, and in the same pressure range, sepiolite undergoes the following transformation : sepiolite $\xrightarrow{325°C}$