

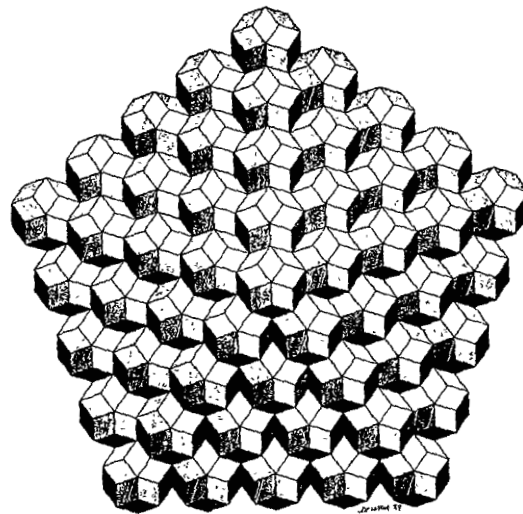
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Abstracts

II.



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ASYMMETRY OF THE BRAIN IN SCHIZOPHRENIA

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The history of asymmetry of the Human brain reaches as far back as to the discovery of aphasia as a disease process of one brain hemisphere .

Kraepelin was one of the first who thought about neuropathological changes in endogenous-psychosis. But it took about 70 more years to establish this idea. Today they are several well controlled morphometric post-mortem studies giving evidence of pathological changes in the limbic system of schizophrenics (Bogerts 1982,1984,1985, Brown et al 1986 , Jakob and Beckmann 1986 , Kovelmann and Scheibel 1984). Nearly all studies were done on only one hemisphere , which meant that a comparison of both hemispheres was not possible so far. On a completely new set of whole brain sections from 20 schizophrenic patients and 20 age-and sex-matched controls we determined the volume of the hippocampal formation and amygdala planimetrically. The volume of the hippocampus was significantly reduced in both hemispheres in the

schizophrenic group by approximately 35 % . whereas the amygdala showed no difference compared to the controls (Bogerts et al. personal communications). Crow and his team filled the lateral ventricle of 19 formalin-fixed brains of schizophrenic patients and 23 controls with radio-opaque material (urographin 150) to obtain an X-ray image of the ventricle from the lateral aspect. He found that on the right side of the brains the difference between the schizophrenic and control groups in temporal horn area was negligible ; on the left side however it was in excess of 130 %. It was concluded that the structural changes in schizophrenia have an affinity for the temporal region selective to the left hemisphere (Crow et al 1989).

CT-and MRI-studies confirm this finding of asymmetry in the brains of schizophrenics. In the CT scans of 54 schizophrenics and 54 controls matched for age and sex , we found the left Sylvian fissure most enlarged on several levels (by 79-233 %) , followed by the right Sylvian fissure (42-96%) (Bogerts et al. 1987). In a recent study we measured the anterior horn of the lateral ventricle planimetrically on two CT-levels in 150 schizophrenic patients and 150 age-and sex-matched controls. The left anterior horn area was significantly enlarged in the schizophrenic group (Falkai et al 1989).

Finally Delisi et al (1988) found a significant volume reduction of the limbic complex - meaning the amygdala plus the hippocampal formation - in both hemispheres in the MRI's of schizophrenics. Lack of gliosis and a lateralized volume reduction of temporal lobe structures reflects an arrest of cerebral growth in this region. Handedness and the asymmetries in the brain to which it relates are a late evolutionary development; they may be

controlled by a single gene. Thus schizophrenia could result from an anomaly of this specifically human gene (Crow et al. 1989).

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