frostbite. The patient had a long history of neuroleptic drug intake and the typical oro-lingual movements, as well as choreiform movements in his fingers and remaining toes of the left foot.

During the assessment of the patient with the Abnormal Involuntary Movement Scale (AIMS), he spontaneously volunteered that he has had ongoing sensations of wiggling in the nonexistent toes of his amputated foot. He added that he had been aware of these movements daily on his phantom limb for about two years, regardless of whether he was wearing his prosthesis or not. In addition, the patient denied that he had a phantom limb sensation immediately after the amputation, which took place 9 years before the onset of the involuntary movements of tardive dyskinesia in his mouth, fingers, and toes. Thus, his phantom limb sensation appeared to be triggered by the development of tardive dyskinesia.

It is widely accepted that tardive dyskinesia is a state of post-synaptic dopamine receptor supersensitivity in the nigrostriatal tract, secondary to chronic treatment (chemical denervation) with neuroleptic drugs (Gerlach *et al*, 1974). The implication for the mechanism of phantom limb in our patient is not only that it is of central origin, but that a motor abnormality in the extrapyramidal system may trigger an otherwise "dormant" phantom limb.

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## TARDIVE DYSKINESIA LESS SEVERE IN DEPRESSION

DEAR SIR,

Recent studies have suggested a high incidence of tardive dyskinesia among depressed patients (Davis *et al*, 1976; Rosenbaum *et al*, 1977). Cutler *et al* (1981) have reported the occurrence of state-dependent dyskinesias in two cases of manic depressive psychosis, pointing out that the observed exacerbation of tardive dyskinesia at the outset of depression and its alleviation during mania are in the opposite direction of what might be predicted from current neurochemical theories of these disorders.

We have data on a patient in whom the dyskinesias consistently subsided during the depressive periods. He was a 40-year-old man with a two year history of rapid cycling bipolar affective psychosis previously treated with chlorpromazine equivalents in an average daily dose of 300 mg. He developed tardive dyskinesias six months before, and since then had taken only lithium 900 mg daily. He was admitted in a severe depression and his dyskinesias rated using the Simpsons *et al* scale (1979) twice weekly at 10 am during 7 months stay in the hospital. The mean ratings of the dyskinesias during the three depressive episodes that followed were 55 ± 10.8, significantly lower than during the euthymic periods (92 ± 16.8). The patient was on lithium carbonate 900–1200 mg daily throughout, and had tricyclic antidepressants and ECT in two of the three depressive episodes. (These treatments did not significantly alter the scores between the episodes in which they were employed and the other episode).

There is evidence that tardive dyskinesias result from a functional dopaminergic hypersensitivity and possibly a cholinergic hypofunction (Gerlach *et al*, 1974). In depression there are reports of decreased dopaminergic activity (Schildkraut, 1975), and cholinergic hyperfunction (Sitaram and Gillin, 1980), so that depression and tardive dyskinesia may involve biochemically opposite mechanisms. Our observation of a reduction in tardive dyskinesia seems to fit in well with this possibility. As the earlier findings were in the opposite direction, we suggest that our finding adds support to the possible biochemical heterogeneity of tardive dyskinesia (Casey and Dunney, 1977).

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# *Book Reviews*

**Strangers in the World.** Edited by L. EITINGER and DAVID SCHWARZ. Bern, Switzerland: Hans Huber. 1981. Pp 370. S.Fr. 41, DM 45.

Hippocrates wrote that movement to another country was always followed by "terrible pertubations". The senior editor of this book is well known for his studies of mental disorder among refugees from Nazi persecution in Norway. He has gathered into one volume a wide range of papers on the topic of human dislocation and mental health with contributions from psychiatrists, psychologists, a sociologist and a philosopher. The psychological problems of migrants, refugees, exiles and "guest-workers" are all covered, as well as those of internal migrants moving from rural areas to the cities.

Economic and political migrants are welcomed in periods of affluence and rejected during times of economic decline. One of the arguments traditionally used against immigration is that there will be an influx of mental patients who will damage the host society. Until Ødegaard's study of mental disorder among the Norwegian-born population of Minnesota there were crude attempts to prove that a disproportionate number of migrants were psychotic, based on the observations that the proportion of foreign-born in mental hospitals was much higher than in the catchment area of the hospitals. These attempts failed to take into account the different age distribution of the foreign and native-born populations and the fact that low socio-economic status tends to produce more institutionalization and long hospital stay, thereby affecting prevalence rates. Early uncontrolled studies used to support the false conclusion that certain "races" have a higher frequency of mental disorder than others. Ødegaard's controlled studies in both Norway and the United States showed that it is the fact of migration itself rather than ethnic origin which influences the frequency of mental disease among migrants. Ødegaard felt that the stress of migration has less influence on the frequency of mental illness than does the self-selection of emigrants who had shown signs of instability and poor adjustment in their country of origin. Other evidence that individuals who are more vulnerable to mental illness emigrate to a greater degree comes from studies of Hungarian refugees in 1956 and of Southern European women in Australia. Some recent studies, on the other hand, have supported the stress rather than the selection hypothesis, since it is often the more capable people who react to limited economic opportunity by migrating. Where migration is difficult only the most stable and enterprising individuals can achieve it. Factors contributing to the stress of migration include hostility in the receiving country, rural-urban dislocation, failure to gain recognition of skills and professional status, disappointment generated by unrealistic expectations and the lack of traditional family and community support. Refugees share these stresses with migrants and, in addition, have been exposed to the trauma of persecution, insecurity and other hardships.

Individual vulnerability and environmental stress factors need to be teased out. The level of mental disorder in any immigrant group will then be affected by factors operating in the society of origin, the transit experience itself and factors in the society of resettlement, including the degree of host acceptance. Stoller's work in Australia shows that there is no migrant psychopathology as such (no "Alien's Psychosis") but there are various groups of individuals who are particularly vulnerable to break down after migration—isolated women in a relatively assimilated family, elderly migrants who have lost traditional supports, the survivors of concentration camps and those with a considerable degree of "status discrepancy"—the gap between expectations and achievement. There seems to be an optimal size of immigrant group which affords maximum protection against mental illness, and higher rates of break-down are found in dispersed immigrants when compared with ethnic group concentrations.

In Britain there is a distinct under-utilization of psychiatric services by Pakistani patients with non-psychotic disorders. Rack outlines the reasons for this which include seeking advice from family elders, Hakims and Vaids, somatization of depression and anxiety and fear of the stigma of mental illness.

In the early phase of migration the newcomer experiences a sense of euphoria and over-valuation of the new society, but faced with the difficulties of adjustment this can be replaced by a rebound idealization of the home-land which inhibits accommodation