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Motility During Sleep in Psychopathic and Mentally Defective Subjects.*

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Extensive studies on the sleep of the insane by Ladame[1] and Courbon[2] have attempted to correlate particular types of insanity with various types of sleep habits. Muncie[3] and Richter[4] have also made observations on the sleep characteristics of psychotic patients. Forbes[5] and Page[6] have compared the motility during sleep of psychopathic patients with that of normal individuals. Their findings indicate that in several types of psychopathic patients the motility during sleep is fairly comparable to that of normal individuals. The motility of catatonics in Page's study was found to be quite low and more or less uniform throughout the night, while normal individuals and manic-depressives and postencephalitic parkensonians all moved more during successive thirds of the night.

Using recording devices[7] for measuring the time spent in motility, the amount of motility, and the distribution of the night's movements, supplemented by regular hourly observations recorded on sleep charts by nurses and attendants, we studied a number of psychopathic patients and mentally defective individuals.

Psychopathic patients in the Division of Psychiatry of the University of Chicago Clinics (Billings Hospital) whom we studied were divided into 3 groups: psychoneurotics, schizophrenics, and affective psychotics. Only those subjects whose sleep motility was

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1 Ladame, C., *Schweiz. Arch. f. Neurol. u. Psychiatr.*, 1923, **13**, 371.

2 Courbon, P., *Rev. Neurol.*, 1927, **1**, 869.

3 Muncie, W., *Bull. Johns Hopkins Hosp.*, 1934, **55**, 131.

4 Richter, C. P., *Arch. Neurol. Psychiat.*, 1934, **31**, 149.

5 Forbes, W. T., *Psychiat. Quart.*, 1934, **8**, 538.

6 Page, J. D., *Arch. Psychol.*, 1935-36, **28**, 1.

7 Kleitman, N., Cooperman, N. R., and Mullin, F. J., *Am. J. Physiol.*, 1933, **105**, 574.

observed for at least 10 days were used in the analysis of the results. The results of 408 nights' sleep of 24 patients are given in Table I. Thus we see that all of these psychopathic patients showed sleep habits and motility quite similar to that found in normal persons.[8] Just as in the normal individual, the incidence of spontaneous awakening in each class of psychopaths was over twice as great in the second half of the night as during the first half of the night's sleep. There was also considerable individual variation among these subjects, though the time spent in motility for the group as a whole was rather less than the average time spent moving about by normal persons.

TABLE I.

Classification	No. of patients	No. of nights	Motility per half night—sec/hour 1st half	Motility per half night—sec/hour 2nd half	Time taken to fall asleep, in min.	Avg No. of spontaneous interruptions per night	Avg duration of interruptions, in min.
Psychoneurotics	10	226	14.4	20.9	23	0.6	27
Schizophrenics	8	95	16.4	22.8	45	1.0	39
Affective Psychotics	6	87	18.9	21.5	36	0.3	19

At the State Psychopathic Hospital in Galveston, Texas, studies were conducted using a simple work-adder device for recording the extent of motility during the night. Four psychoneurotic patients and 8 patients showing various mild degrees of depression were studied for a total of 437 nightly records. Most of these patients showed a rather even distribution of motility throughout the night, similar to that observed in schizophrenics by Page. There was considerable individual variation among these patients in Galveston, although except for the first hour the average motility of the group was slightly lower than that found in normal individuals. A few of these patients tended to be quite restless after getting in bed and before going to sleep. No direct correlation could be made between the motility of the sleeping subjects and the room temperatures.

Terman and Hocking[9] studied the sleep in normal children of various ages and also in mental defectives of various mental age levels. They found that normal children of the lower age group slept more than the mental defectives of the same mental age level, while at higher age levels the normal children and the mentally de-

[8] Kleitman, N., Mullin, F. J., Cooperman, N. R., Titelbaum, S., *Sleep Characteristics*, 1937, Univ. of Chicago Press.

[9] Terman, L. M., and Hocking, A., *J. Educ. Psychol.*, 1913, **4**, 138, 199, 269.

fective subjects slept about equally. We studied 36 mentally defective individuals for a total of 531 nights. The subjects were divided into 3 classes: 10 idiots (average I.Q. of 18), 12 imbeciles (average I.Q. of 34), and 14 high grade mental defectives (average I.Q. of 58). These mentally defective subjects showed considerable individual variation and there was only a slight tendency for a greater amount of movement in the second half of the night in the imbeciles and high grade mental defectives, while the idiots had a slight tendency for the majority of the motility to occur in the first part of the night. On the whole, the motility in these subjects was more evenly distributed throughout the night than is the case for normal individuals, but there was no marked difference in the sleep of these mentally defective individuals and that of normal persons. No correlation was found to exist between the type of motility shown by these patients and their chronological ages.

Seven children, whose I.Q.s were all above 60, at a private school for the mentally and physically subnormal were also studied. Although 2 of the children did not show a typical distribution of motility, all the others definitely moved more in the later part of the night. The group motility curve for all 7 was quite similar to that of normal children.

Thus we see that the sleep of certain types of psychopathic patients or of mentally defective individuals may be quite similar to that of normal persons, as judged by their night motility, but that normal people seem to have a greater amount of movement during the night and it is more unevenly distributed in favor of the second half of the night. Certainly, we could make no correlation with mental condition in any individual case on the basis of a study of sleep motility, both because of wide individual variations found and because of the tendency of all of these subjects to have similar sleep habits and characteristics to those of normal people.