Inherited or acquired predisposition to a rhythm of seizures. They some­
times have periods of quiescence and again periods of frequency. It also brings out the fact that it seems
Wisconsin, The result is very, very striking, showing the incidence of
nocturnal case would run along for a time, then would have seizures in
the daytime, and finally would come into the diffused group.
Mr. Swendsen: What do you think about that, Dr. Henry?
Reverend Henry: I will just say that in the beginning of my work
we had almost every patient isolated on shaking hands at the close of the service. Now I leave that and go on my way.
Mr. Swendsen: We are highly honored here this afternoon by having
with us Dr. Wheeler, of the Mayo Clinic. Dr. Wheeler will give us a
"Report of Survey of Incidence of Seizures in Epileptics," with stereop­
ticon views.

The Doctor has done some research work in this institution, and the
superintendent, Dr. McBroom, is very well acquainted with Dr. Wheeler's work here. I wish he would tell us what she has done with regard to research work.

Dr. McBroom: Dr. Wheeler volunteered to do this work, and we have
had the most enjoyable contact for almost three years. She has carried
on this work on her own hook, has paid regular visits to the institution
to study our records, and has made a survey of the incidence of the
seizures of all patients in this institution covering a period of three years. Her results will speak for themselves, but I think it is a fore­
runners of a very important thing in epilepsy.

Up to the present time we have had no kind of a haphazard classifica­
tion of the epileptics. We have had the group which had daylight seizures,
patients who had only nocturnal seizures, and the diffused type. The
nocturnal case would run along for a time, then would have seizures in
the daytime, and finally would come into the diffused group.

Dr. Wheeler has made graphs and is now working in Illinois and
Wisconsin. The result is very, very striking, showing the incidence of
seizures in the different patients. It also brings out the fact that it seems
as though the great majority of epileptic patients have either an in­
herted or acquired predisposition to a rhythm of seizures. They some­
times have periods of quiescence and again periods of frequency.

1 heard Dr. Wheeler read this paper at Toronto and it brought forth
a great deal of favorable comment.

Mr. Swendsen: It gives me great pleasure to introduce Dr. Wheeler.
The first succession was in the first week of January, when the patient had eight major convulsions between 5 a.m. and 10 a.m. A few days later a minor seizure occurred near 10 p.m. Soon after the middle of the month there was another seizure succession, not as severe as the first one. This commenced near 2 a.m. as petit mal, and was followed by two major seizures, one occurring near 3 a.m. and the other near 8 a.m. There were no more seizures throughout the year until about the middle of December. On the fifteenth of that month a major convolution occurred near 11 p.m., and a day later there was a minor seizure at 2 a.m., followed in five hours by a major seizure at 7 a.m. On January 7, and a major on May 22 at 7 a.m. In 1929 seizures occurred on six days: minor seizures on March 31 and April 15. September 14 a seizure succession occurred, beginning with a major at 3 a.m. followed during the next eight hours by some fourteen minor seizures. On November 18 there were four minor seizures at 4, 6, 7, 8 a.m. and at 8 p.m. Then, on December 6 and 14, single minor seizures occurred near 11 p.m. It may be noted, that the majority of seizures occurred between midnight and noon, though there were a few in the afternoon and evening. In this three-year record convulsions did not occur between 6 p.m. and 9 p.m.

Figure 3. C. B., m., aged 42 years, 1928 — , 1929 , 1930 •. 1931 — .

This is the record of a patient whose seizures over the three years averaged less than one in each month. In 1928 there was one seizure during February; there were two in March and one in June, with no seizure succession day. In 1929 there were eight seizure days in all, occurring during the months of May, July, August, September and December. In 1930 there were seven seizure days, not more than one occurring in any month. In April the seizure day was also a seizure succession day with two convulsions, a major at 7 a.m. and a minor at 10 a.m. During the three years the majority of seizures occurred between noon and 6 p.m., with almost every hour represented. There were fewest seizures around midnight.

Figure 4. 1. W., f., aged 42 years, 1928 — , 1929 , 1930 •. 1931 — .

This patient showed an intermittent, decreasing, three-year seizure record, with most of the seizures of major type; there were four extended remission periods of from two to seven months' duration. In 1928 there were two seizure "peaks," one between 6 and 8 a.m. and the other between 8 and 10 p.m. While in 1929 and 1930, with smaller yearly totals, most seizures occurred in the afternoon.

Figure 5. F. D., f., aged 22 years, 1929 — •. 1930 — .

During the first year and a half the majority of this patient's seizures occurred at night. During the last week of July 1929 status epilepticus supervened, with a total of 111 seizures in seven days. Following this there was complete remission of seizures for seven months. They commenced again in May 1930, starting in the late afternoon and evening; over the next eight months they extended gradually throughout the daytime.
Figure 6. V. B., m., aged 21 years. 1928—, 1929—, 1930—.

The feature of this record was the absence of seizures during the first part of 1928 and 1929, and the frequent seizures during the latter part of these years; whereas in 1930 the seizures were spread more evenly throughout the year.

Figure 7. E. J., f., aged 42 years. 1928—, 1929—, 1930—.

This patient showed throughout the three years a marked tendency to have seizure successions for three or four days, followed by remissions for three or four weeks.

In this brief presentation the relative severity of the disease and its variations from year to year have not been analytically considered. One may call attention to the fact that more than four-fifths of the patients had seizures on less than 150 days a year, and that in most instances the numerical shift in yearly total of seizure days for each patient was small; in less than one-fifth of the entire 272 instances of year-to-year progressions was there a greater difference than twenty-five days. With regard to age distribution, it may be noted that this ranged between nine and eighty-two years, slightly over half of all patients being between eleven and thirty years of age. These findings need not be interpreted as representing general characteristics of epilepsy among patients of state institutions. Most of these patients had been transferred to Cambridge from the older institution at Fairbault, and had been selected because they were individuals with moderate grades of epilepsy, and hence thought to be good risks for change to a new environment.

The data available on the charts suggest many problems of prognosis, such as spontaneous remissions or expected mortality. The consideration of such questions is necessarily deferred until the accumulation of further evidence provides sufficient material for rigid statistical treatment. Owing to the many possibilities of error in the observation and recording of the data here considered, judgment regarding the general reliability of the method must be reserved. At Cambridge special effort is being made to have records of seizures as complete as possible, and particularly to watch for petit mal and nocturnal seizures.

In the United States today there are probably several score or more of public hospitals and colonies where constant effort is made to keep accurate records of the time of occurrence of each patient's seizures. It is not unreasonable to hope that this condensed graphic chart, efficient as it is in presenting many other relationships of a year's seizure incidence for the individual as well as for groups of patients, will stimulate increased interest in observation and in the making of records.

Footnote—All individuals in the group of 155 patients except 52, and all patients whose charts are shown here, received from three-fourths to 1 gram of phenobarbital daily during the three years.
Mr. Swendsen: Thank you very much, Dr. Wheeler. It was very interesting. I am sure.

Have any of you any questions you would like to ask the Doctor?

Dr. Murdoch: We certainly have reason to be indebted to Dr. Wheeler and Dr. McBroom for their ingenuity in collecting and recording the data which Dr. Wheeler has so ably presented.

(Adjourned)