The purpose of this paper is to report the incidence, prevalence, and death ratio for various neoplasms affecting the central nervous system in the resident population of Rochester, Minnesota, for the 10-year period 1945 to 1954, inclusive.

It is desirable to have such statistics for various populations. Such information might disclose differences in frequency by race, geographic area or characteristics of population and would be of value in planning for research and needs of medical care. Epidemiologic studies in areas with appreciable variances in incidence might provide relevant clues to etiology.

Most previous reports dealing with the frequency of neoplasms affecting the central nervous system have been based on the personal experience of practising neurosurgeons or upon selected necropsy series or proportionate rates of hospital admissions. These data, although of value in describing clinical or pathologic experiences, do not necessarily provide a true picture of the incidence of neoplasms or of their frequency by type in the total population.

Surgical series are more likely to be representative of operable neoplasms rather than of all neoplasms in the population; operability, in turn, is influenced by such characteristics as age and general health of the patient and by the presumed type or accessibility of the lesion. The interest and reputation of the surgeon may influence the nature of his series; the relatively high proportion of pituitary tumors in Cushing’s series of intracranial neoplasms is an often cited example of this type of bias. The admission policy of a hospital, such as age, sex or racial limitations, or its emphasis on neurosurgical problems may present another form of bias that prevents accurate generalizations from its data.

Series of cases seen at necropsy may likewise be unrepresentative because of the frequency of special interests in research in neoplastic conditions and because of the greater effort expended by the resident staff in obtaining permission for necropsy in cases of puzzling or relatively uncom-
mon disorders. The rate of 2 per cent mentioned by Merritt as the proportionate rate of necropsy for brain tumors contrasts with the death ratio of 0.5 per cent of the deaths in the United States for the years 1952 to 1954, inclusive, that were certified as caused by neoplasms of the nervous system.

Recently a series of monographs on the incidence of cancer in specified populations has been published describing the results of extensive surveys in 10 metropolitan areas in the United States and in urban and rural Iowa. In these studies, an attempt was made to register all diagnosed cases of cancer, including neoplasms of the central nervous system, for a preceding calendar year. Similar data were obtained for Connecticut in a long-term study of cancer-registry reports. Comparisons have been made of the cancer rates, geographically, by age, sex and race; some of the results of these studies relating to the central nervous system will be compared with the results in Rochester, Minnesota, to be presented here.

Most surveys dealing with tumors of the central nervous system are limited to primary neoplasms. In a few instances, however, data have been presented on the relative frequency of primary and metastatic neoplasms observed at operation or necropsy. Since operations on the brain or cord are less likely to be undertaken in the face of recognized metastatic disease, the metastatic lesions are probably underestimated in the surgical series.

The Selection of Rochester, Minnesota. It is the impression of the author that the excellent and in many respects unique facilities for medical care concentrated within the organization of the Mayo Clinic are able to provide unusually complete statistics for many serious disorders including neoplasms of the central nervous system for the community's 30,000 residents. A substantial proportion of the local residents are examined during life at one of the facilities of the Mayo Clinic or after death by the pathologists of the clinic.

It is assumed in this study that all residents of the community in whom neoplasm of the central nervous system was suspected or diagnosed during 1945 to 1954, inclusive, were observed at one of the facilities of the clinic and that data on these patients were included in the clinic's unified record system.

The rates presented in this report are based on the diagnosed cases among local residents and must still be considered minimal; that is, less than the

* Almost half of the residents of the city are examined each year by the Mayo Clinic physicians at the clinic, in one of the local hospitals, or at home for emergency house calls. The Mayo Clinic record system, at the time of the study, included the reports for all hospital and other medical diagnostic facilities within the city, with the exception of the State Mental Hospital and the few general practitioners in the community. These physicians in private practice refer practically all patients with disorders of any serious nature to the large staff of specialists at the clinic. Neurologic consultations are routinely arranged for all patients who are examined in other sections of the clinic and suspected of having any serious disease of the nervous system. The clinic's diagnostic file consists of diagnoses made in all Sections and includes surgical and necropsy reports from the Section of Pathologic Anatomy. The diagnoses made by each clinical consultant during the patient's period of registry are cross-indexed by means of a system using IBM punch cards and tabulating devices. It is a relatively simple task to obtain the records of all resident patients for practically any clinical disorder.