In spite of more than a century of intensive exploration our clinical approach to the problem of epilepsy remains largely empirical, and many questions regarding its genetics, mechanisms, prevention, treatment and management remain unanswered. The magnitude of this problem is reflected by the fact that seizure disorders are second in number only to strokes, among the many neurological diseases. Although we are aware that the best model for the study of human epilepsy is the human model, the scope of clinical investigation is limited not only by the obvious ethical considerations but also by our inability to identify precisely and to define the presence, absence or degree of predisposition to seizure susceptibility of specific individuals. In this regard, the utilization of subhuman organisms might provide us with an opportunity to gain insight into a number of problems which cannot be solved by clinical investigation. However, if the scientific subhuman studies are to be meaningful to the problem of the human epilepsies, it is essential for the chosen model to be a valid one.

Many experimental models of epilepsy have been described in the past (1). Since the most outstanding feature of human epilepsies is a recurrent spontaneous seizure state, certain animal species with naturally endowed epileptic traits such as chickens (2), gerbils (3), dogs (4), or baboons (5) share an advantage over the others. Particularly, the Senegalese baboon has been studied extensively during the past decade because of the similarity of its ictal symptomatology to photosensitive epilepsy in man (6). Unfortunately, the unique advantage of such a 'natural' model becomes a disadvantage since its applicability is necessarily limited by its own peculiar nature of inherited abnormality. On the other hand, among many artificially-
created experimental models described in the past, the alumina cream preparation developed by Kopeloff (7) seems to be the best in terms of mimicking the spontaneous and chronic recurrent seizure state of human epilepsies. The inevitable introduction of destructive pathology at the time of alumina cream implantation might also be regarded as an additional attractive feature for the study of epilepsy resulting from focal organic lesions. Our own experience in rhesus monkeys with chronic focal cortical alumina cream lesion has been worthwhile since it enabled us to conceptualize the nature of the chronic epileptogenic brain process as a result of the propagation of epileptogenicity in time and space (8). However, as is the case with naturally-occurring animal epilepsy, the alumina cream preparation has its own weaknesses, the major one of which is a total lack of control over the chronology of seizure development.

Generally speaking, in an ideal experimental model of epilepsy, one should have:
1) precise anatomical control over the brain site and the size of the epileptogenic lesion to be created without introducing destructive pathology,
2) accurate control over the chronology of seizure development,
3) the capability of readily precipitating seizures by a discreet and identifiable experimental event,
4) the ultimate development of a chronic spontaneous recurrent seizure state mimicking the previously established electroclinical pattern, or status epilepticus if not treated, and,
5) evidence of persistence, progression as demonstrated by 4), or remission of the underlying pathophysiology as in the case of some human epilepsies when untreated.

The kindling model of epilepsy as described by Goddard in 1967 (9) and later in 1969 (10) appears to meet most of the above criteria. In this model the investigator will be able to:
1) precisely localize the stimulating brain site,
2) dissociate the epileptic lesion from tissue damage,
3) maintain reliable control of experimental factors related to seizure initiation and development,
4) easily recognize and classify various stages of seizure manifestation and progression,
5) induce persistent electroclinical seizure pattern and susceptibility, and
6) anticipate the emergence of spontaneous seizure or status epilepticus (11, 12, 13, 14) or the remission of such seizures (15).

The fact that a recurrent spontaneous seizure state can develop in kindled preparations highlights the similarity of this model to certain aspects of human epilepsies. As indicated by a pioneer study of Goddard et al (10) kindling can be accomplished in many brain sites with different functional properties, although the limbic system appears to be most susceptible to this procedure. Similarly,