Typus lectus in foliis viventibus *Parthenium hystereophorus* L., in loco Osmania University Campus, Hyderabad, mensis septembris, anni 1980, a Satyaprasad, et positus in herbario O.U.B.L. subnumeris 1020.

Oidium Parthenii sp. nov. Satyaprasad and Usharani

Mycelium superficial, creeping, septate, hyaline, 6·6–10 μ; conidiophores erect, unbranched, 2–4 septate, cylindrical, hyaline, measuring 42·9–141·9 × 6·6–13·2 μ; conidia single-celled, oval to cylindrical, hyaline, smooth walled, measuring 17–29·7 × 9·9–16·5 μ.

Holo Type: On living leaves of *Parthenium hystereophorus* L., Osmania University Campus, Hyderabad, September, 1980, Satyaprasad, O.U. B.L. 1020.

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October 10, 1980.

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AN UNUSUAL CIRCADIAN RHYTHM WITH A PRECISE 24-HOUR PERIOD

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All circadian rhythms in nature adopt the strict 24-hour periodicity of their geophysical environment owing to the ubiquitous entraining influence of the light/darkness cycles caused by sunrise/sunset[1]. But it is a diagnostic feature of circadian rhythms that they "free run" and become truly circadian (Latin: circa = about, dies = day) when removed to constant light (LL) or darkness (DD) and temperature conditions of a laboratory. The rhythms then assume periods (τs) varying between extreme values such as 19 hr to 27 hr[1]. τ is species and situation specific[2]. It is almost a chronobiological convention to suspect insidious entrainment when circadian rhythms show an exact 24-hour τ, under LL or DD. Logically, however, circadian rhythms can show precise 24-hour τs just as they show τs deviating only a few minutes from 24 h. Furthermore there are variations between individuals of different species, between individuals of the same species, even between the same individual free running in one intensity of ambient light at one time and another intensity of light at another time[2]. Even so, and very interestingly, all free running rhythms one encounters in the laboratory deviate at least by 0·1 hr from the calendar day and account for an accumulated drift.

We are investigating the circadian rhythms of bats under natural light/dark (LD) conditions in the open, in DD in the laboratory and in natural caves and in LL in the laboratory. Our data for the τs of bats of the species *Taphozous melanopogon*, *Taphozous nudiventris kachhensis* and *Hipposideros speoris* under various conditions of entrainment and free run are fairly extensive. We observe that τs of *Taphozous* spp. are very close to 24 h in DD and longer in LL. In DD values cluster around 23·4 hr 24·1 hr[3]. A general trend predicted by Aschoff's rule[2] for dark active animals holds good for our bats; τs increase with increasing intensity of LL.

In one series of experiments the flight activity of single *Hipposideros speoris* bats was recorded in a solitary cave in DD, constant temperature of 30° C ± 1° and constant relative humidity of 45–75%. Three such experiments were carried out lasting over periods of 47–50 days. The experiments are arduous in that the bats had to be hand-fed inside their suspended flight activity cages with de-capitated and de-gutted cockroaches daily at staggered hours. Efforts were made to feed them within activity time which frequently meant having to feed them during civil nights. For want of electricity within the cave hand-wound (Lambrecht-Goettingen) thermohygrograph drums were used which completed one revolution in 24 hours.

One of the bats shortened his τ by 20 min in free run and another bat lengthened his τ by 8 min relative to the geophysical day. A most unexpected result was the free run of the third bat which displayed a period value (τ) of precisely 24 h for an extended period of 47 days. Figure 1 presents the unprocessed raw data of activity and rest pattern of this bat from which τ has been computed. The onset of nightly activity has been chosen as the "phase of reference" to compute τ values. The precise 24 hr τ is most unusual and uncircadian. We rule out any accidental light leakage since the log-scale of a United Detector Technology (USA) optometer recorded '0' value on exposure inside the cave for over 1000 sec. Further the 2 other bats which were also placed at the same place within the cave showed circadian periods. It is tempting to speculate that circadian systems inhabiting time-cueless environments such as deep seas, caves, etc., might possess biological clocks

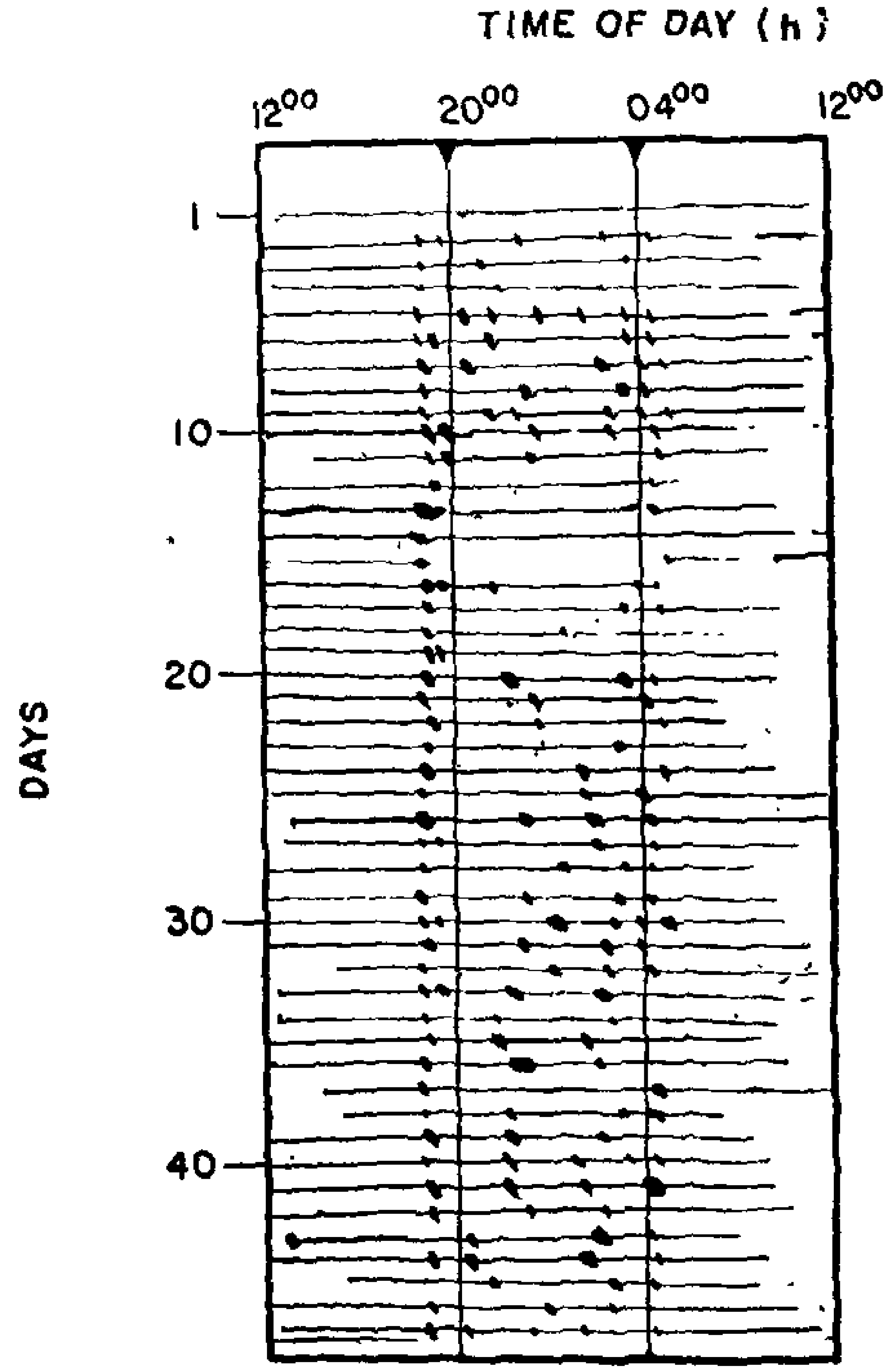

FIG. 1. Raw and unprocessed data of the flight/rest activity rhythm of a solitary male *Hipposideros speoris* bat recorded in a solitary cave for an extended period in time of 47 days under absolute darkness conditions, 30° C ± 1° and 45%–75% relative humidity. Bouts of activity represented by the vertical blotches made by the deflections of the felt-writing tip of the stylet and rest is represented by horizontal tracings. The onsets of activity occurred at the same time evening after evening and activity ceased in the early morning hours. The τ (tau) of this rhythm free running in darkness and in social isolation is exactly 24 hours.

(circadian rhythms) with τs very close to (but not exactly) 24 hr. The law of parsimony dictates that we consider our 24 hr—τ bat as an unusual and *isolated* instance of a circadian system quite accidentally possessing and displaying a very uncircadian-circadian rhythm. We do not know if this individual bat has any pre-eminence (alpha male ? leader animal ?) in Hipposiderid social hierarchy.

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NEOLIGA SINGHI N. SP. (CESTODA: DILEPIDIDAE) FROM *MICROPUS AFFINIS* AT PARBHANI

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THE genus *Neoliga* was established by Singh in 1952, with *N. diplacantha* as the type species obtained from common house swift, *Micropus affinis*.

Examination of intestines of common house swift, *Apus affinis* Madrasz, from Parbhani (Maharashtra, India), yielded four cestodes different from the one described by Singh[1] in the number of rostellar hooks 24, mature segments broader than long, in the number of testes 20 and body spinose and therefore is being described as a new species *Neoliga singhi* n.sp. All measurements are in mm.

The worms are very small, with about 12 segments and body covered with numerous minute spines. Scolex well marked broad at base and tapering anteriorly; measuring 0·171 in length and 0·168 in breadth. Prominent, armed rostellum is present with a well-developed rostellar sac (0·151 × 0·007), reaching upto the posterior margin of the scolex, with two rows of hooks, 24 in number. Hooks are of two types, one large and the other small in size (0·065 × 0·009 and 0·047 × 0·006 respectively). Four large, almost round suckers occupy major portion of the scolex, measuring 0·079 × 0·066 in diameter. Short neck present.

Mature segments are more broad than long, broad at posterior border, tapering anteriorly, measure