

Light Treatment and Biological Rhythms

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SLTBR ANNUAL MEETING SLATED FOR JUNE 1990

SLTBR will hold its Third Annual Meeting in Toronto, Ontario as an official satellite symposium in association with the annual meeting of the Association for Professional Sleep Societies (APSS). Our two-day meeting with the theme *Light Treatment of Circadian Rhythm Disturbances* is scheduled for Thursday and Friday, June 13 and 14, 1991. There will be scientific communication in the form of both oral and poster presentations. Topics related to human circadian rhythms will be presented as well as topics related to light treatment of circadian rhythm sleep disorders, adjustment to shift work and transmeridianal air travel, in addition to updates on clinical and scientific developments in winter depression. The meeting will be capped with a Friday evening banquet. Further details, including preregistration information and Call for Papers, will be available for the winter 1991 issue of *LTBR*.

ANNUAL MEETING REVIEW

Consensus-Building Forum on Experimental Controls and Placebos, and Treatment Time of Day

Six papers were presented at the May 1990 meeting, which are now in press in *Psychopharmacology Bulletin*. Herewith is a summary, adding my own critical remarks.

Avery et al. (1990) focus on the question of whether there is a difference in efficacy of evening bright light and morning bright light in treating SAD. The authors list a series of sources of systematic and/or random errors in the estimation of the differential effects of light. They emphasize the need to control the interval allowed for sleep, so as to balance possible sleep deprivation effects and to avoid differences in wake-up time which might influence mood. Studies should also control the amount of

light received at other times of the day, because natural daylight can have intensities far over 10,000 lux that may mask the effects of treatment. Similarly, experiments should compare light treatment in one condition to darkness in the other. Otherwise, differences in response between the groups could be reduced due to the smaller differences in light intensity during treatment.

In order to maximize the likelihood of finding differences in efficacy of morning and evening light, the authors suggest that morning light be given very early, and evening light very late. In addition, they recommend selecting a homogeneous patient sample,

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to avoid ordering effects, and to estimate the size of placebo effects, because these factors may reduce the differences in the therapeutic effects of light.

Terman et al. (1990) add some other sources which can influence the differences in the outcome of morning and evening light application. The use of appropriate rating scales is especially important. The paper suggests that patients be entered into treatment on the basis of the SIGH-SAD interview score (Williams et al., 1988). The total score should be greater than or equal to 20. In addition, the HAM-D score, which is part of the SIGH-SAD, should at least equal 10, and the atypical sub-score should at least equal 5. The paper proposes to develop longer lasting protocols in order to obtain stable mood states which can better be judged with the SIGH-SAD. The importance of checking subject compliance, another possible source of fluctuations, is emphasized.

Studies should include withdrawal periods, especially since differences between studies have been noted with respect to the time course of relapse. A cross-center analysis by Rafferty et al. (1990) reveals sequential dependency in cross-over studies. Beware

of ordering effects — the response to evening light seems highly reduced when it follows morning light, whereas morning light still is effective when evening light has been applied before.

Finally, the authors strongly recommend presenting statistical comparisons in both low- and high-threshold terms. Low-threshold comparisons (e.g., using the *t*-test) may detect statistical differences at nonsignificant clinical change, which still is important from a research perspective. High-threshold comparison (e.g., HAM-D reduction $\geq 50\%$, posttreatment score ≤ 7) may instead resolve clinically significant differences.

Wirz-Justice and Anderson (1990) approach the problem of optimal timing of light from a different perspective. They show that a more or less random timing of light treatment [see Anderson et al. (1990) for details] is at least as effective as early morning light treatment. A regular timing of light does not seem to be required. Placebo explanations of light therapy results are considered unlikely. Despite similar expectation ratings, only 24% of investigated patients responded to oral melatonin, whereas 75% responded to light ($\geq 50\%$ reduction in HAM-D score). The authors argue that expectations or other nonspecific factors should yield transient or non-reproducible therapeutic results. A case study is presented as an illustration.

In the discussion of order effects, the paper distinguishes between the possibilities of sensitization and desensitization. Examples illustrate both mechanisms. Random assignment of patients to groups receiving either morning ($n = 18$) or evening light ($n = 21$) did not reveal differences in remission rates. The timing of sleep is not considered crucial: the subgroups of patients who reported similar sleep times in both treatment conditions still had comparable responses. Characterization of patients on the basis of urinary 6-sulfatoxy melatonin values in the early morning did not reveal a significant relationship with preferential response to morning light, although there was a correlation with hypersomnia.

Eastman (1990) presents a thorough review of the placebo literature, including studies in the fields of psychiatry and somatic medicine. This paper stresses that placebos can have marked physiological effects, possibly based on the secretion of endorphins, interferon, and steroids. The mere existence of a characteristic time course of response to bright light

and the existence of a dose-response curve cannot be used as evidence that the bright lights produce effects beyond placebo. Furthermore, the doctor's faith in the treatment may be passed on to the patient and influence expectations and treatment outcome. This may partly explain differences in results between research centers. Even the results of double-blind studies can be influenced by the attitude of the doctor. In addition, the use of placebo controls reduces the active treatment response. Because placebo response rates may vary from 0% to almost 100%, it is inadequate to borrow response rates from another study for comparison. Placebo effects do not necessarily wear off and withdrawing the placebo may not necessarily produce relapse.

The paper concludes that the differences in response rates between bright and dim light could be due to differences in expectations. Studies comparing response rates to different types of bright light treatment may just be studying differences in placebo response rates.

After an introduction on some general aspects of placebo problems, which is also included and more extensively documented in Eastman's paper, Stewart (1990) adds some statistical considerations. The author warns that finding no statistically significant difference does not allow the conclusion that two groups are equivalent or two treatments the same. Differences can only be resolved at the power level determined by the number of observations included in the analysis. Furthermore, if one treatment yields significant improvement, while another treatment does not, the conclusion that the first treatment is better is not justified. Only a direct comparison can demonstrate significant differences between treatments.

Stewart suggests that, in evaluating the efficacy of light therapy, some randomly assigned condition must be utilized to assess the combined effects of spontaneous remission and nonspecific aspects of the intervention.

Finally, Brown (1990) acknowledges the therapeutic properties of placebos and suggests estimating placebo effects by means of a randomized, double-blind, placebo-pill controlled antidepressant study. Such an approach can serve as a control for some of the placebo aspects of a light treatment protocol, but not for expectations of patients and clinicians regarding the unique effectiveness of bright light. In addition,

the author proposes that the rate of spontaneous remission be determined from a waiting-list control study.

Besides discussing the possibility that the effects of light treatment are just placebo effects, Brown also considers the risk that the effects of light are erroneously attributed to placebo aspects. He concludes in one instance that because "SAD responds to antidepressants and is associated with relatively low morbidity, and because light treatment is not terribly intrusive or expensive, there is, unfortunately, little pressure on clinical grounds to thoroughly resolve the efficacy issue."

Having summarized these papers, I would like to add a few remarks. First, in my view, the placebo issue is *clinically* rather irrelevant. It does not matter whether a patient improves because of the incidence of a sufficient number of photons on the retina, or because of the friendly gray-haired doctor, or because of the convincingly accurate time schedule of the protocol. The only thing that matters is a rapid and impressive improvement which lasts. *Scientifically*, in contrast, the placebo issue is among the most important issues. The more specific the contribution of light to the therapeutic results, the smaller the number of degrees of freedom for the development of models of the therapeutic mechanism, the faster the growth in insight in the system, and the sooner therapies can be improved.

Second, the selection of SAD patients and the quantification of therapeutic results are independent procedures. While the SIGH-SAD interview seems very adequate for patient selection, it is less so in determining responses to treatment. The interview quantifies the state of the patient as an average over the previous week. Rapid changes within that week cannot be resolved although such changes might be very relevant. Preferably, one should frequently quantify momentary states of the patient. In our studies, as in the Basel studies, the AMS (adjective mood scale) is used at preselected clock times, three times per day. Rapid changes, including diurnal variations, can be monitored. It may even be easier for the patient to report worsenings with a self-rating scale than in an interview situation. Third, there are differences in relapse rate between institutes. Rather than just judging the low relapse rate studies to be scientifically inferior because of the absence of a variety of controls, one should instead wonder why

those studies are clinically superior to other studies. Preliminary results from an ongoing study in our department suggest that truncation by light therapy of an episode of winter depression at its very onset significantly increases the probability of having a symptom-free winter, even without continued treatment. Such phenomena may perhaps explain differences in relapse rates between institutes.

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SLTBR WORK GROUPS REPORT

**Committee on Federal/Industrial Relations
Drafts Consensus Statements for the Food and Drug Administration**

Within the United States, the FDA has the mandate to regulate all medical treatments and medical devices concerning their safety and purported efficacy. To provide the FDA with a scientific view of the rapidly

developing field of light therapy, the SLTBR Committee on Federal and Industrial Relations formulated the following seven-step process for reaching a consensus on the safety and efficacy of light therapy for depression and disorders of biological rhythms.

1. The committee forms work groups of qualified clinicians and researchers to discuss targeted questions about the safety and efficacy of light therapy during the 1990 SLTBR meeting in New York.
2. The chairs and recorders of the work groups develop a summary statement from their work group and deliver it at the end of the SLTBR annual meeting.
3. The chairs and recorders write a summary report from the work group discussion and distribute it to all members of the work group for further comment or modification.
4. The chairs and recorders formulate a final report from their work group.
5. The work group reports are published in *LTBR* for general membership comment.
6. The SLTBR Federal and Industrial Relations Committee and Board of Directors review all membership comments and work group reports and write a single, finished document.
7. The final document is submitted to the FDA.

Below are the three finished reports from the SLTBR work groups. We invite the members of SLTBR to read these reports and send us comments or suggested modifications by 15 January 1991 at the latest.

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[Ed's. note: Comments intended for general discussion may also be submitted as Letters to the Editor of LTBR. Deadline for receipt is 15 January 1991. See submission guidelines on p. 2.]

SCIENTIFIC AND CLINICAL ADVISORY WORK GROUP #1

Efficacy of Light Therapy for SAD and Subsyndromal SAD

Chairperson: Anna Wirz-Justice, Ph.D.

Recorder: Dan Oren, M.D.

1. Winter Seasonal Affective Disorder (SAD) can be adequately defined according to the criteria of Rosenthal et al. (1984). These criteria specify SAD as a fall or wintertime depressive episode occurring in a patient who has previously experienced two or more fall-winter depressions, of which at least two occurred successively. The subsequently proposed DSM-III-R criteria for "seasonal pattern" are controversial, since most researchers consider them difficult to implement in practice and there is no evidence that they are of particular help in determining the probability of clinical response to light.

2. Controlled trials performed at research centers around the world have demonstrated the clinical efficacy of light in the treatment of SAD, in keeping with the standards for evaluating new drugs. Typical dosage regimens for light therapy involve 2500 lux for two to four hours per day for at least one week. There is also one published study documenting the efficacy of light administered at 10,000 lux for one-half hour per day for 10-14 days. Documentation of such efficacy may be found in the published articles based on controlled trials listed at the end of this statement.

3. There is an insufficient number of controlled trials in the published literature for recommending the clinical use of light therapy for sub-syndromal SAD.

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SCIENTIFIC AND CLINICAL ADVISORY WORK GROUP #2

Efficacy of Light Therapy for Non-SAD Conditions

Chairperson: Daniel F. Kripke, M.D.

Recorder: James R. Gaddy, Ph.D.

Six questions were posed for the work group's consideration:

1. How effective is light therapy for non-SAD depression?

2. How effective is light therapy for premenstrual syndrome?
3. How effective is light therapy for circadian dysfunctions, such as jet lag and shift-work problems?
4. What parameters of light therapy are necessary for effective treatment of each of these conditions?
5. What contraindications are known for light therapy for non-SAD conditions?
6. What side-effects occur with light therapy for these conditions?

The committee decided to answer the last three questions as subtopics for each of the first three. This summary is organized accordingly.

Efficacy of light therapy for non-SAD depression

Light therapy may have positive effects in both primary and adjuvant use. Reports of both positive and negative findings indicate that further research is necessary.

Parameters: There are insufficient data to make recommendations for general practice.

Contraindications: Bipolar I without adequate lithium dosage.

Side effects: Insufficient data

Efficacy of light therapy for premenstrual syndrome

Light therapy may be effective against late luteal phase dysphoric disorder.

Parameters: Evening light exposure seems to be preferred, but there are insufficient data to make recommendations for general practice.

Contraindications: Insufficient data

Side effects: Insufficient data

Efficacy of light therapy for circadian disorders

There is ample evidence that light can advance, delay, and entrain human circadian rhythms. The amount of phase shift and its direction depend on when the bright light is used.

Parameters: There are insufficient data to make recommendations for treatment of circadian disorders in general. However, the dominant strategy among researchers at this time is to time light in accordance with a putative human phase response curve (PRC), which is assumed to approximate those of other mammals. Thus, to advance circadian rhythms, bright

light should be aimed at the advance portion of the PRC (i.e., morning) and bright light should be avoided during the delay portion of the PRC (i.e., evening). To delay circadian rhythms bright light should be aimed at the delay portion of the PRC and avoided during the advance portion of the PRC. Assessing exactly when these portions of the PRC occur in any given individual may be difficult, especially for shift workers and jet travelers. Naturally occurring zeitgebers (time givers) may oppose the desired phase shift.

Contraindications: Insufficient data

Side effects: Insufficient data

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Efficacy of light therapy for premenstrual syndrome

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SCIENTIFIC AND CLINICAL ADVISORY WORK GROUP #3

The Safety of Light Therapy Devices

Chairperson: Morris Waxler, Ph.D.

Recorder: Roger Cole, Ph.D.

Light therapy devices used to treat seasonal affective disorder (SAD) and other disorders of biological rhythms must be as safe as current knowledge allows. Our work group has reviewed the literature on the photobiological safety of lamps to determine a set of principles for the safe use of light therapy devices for the treatment of SAD and other disorders of biological rhythms. We believe that light therapy devices are as safe as any lamp used for general illumination when manufacturers, therapists, and patients adhere to these principles.

The principles set out below are considered first for low pressure mercury vapor lamps ("fluorescent" lamps) and then for filament and arc type lamps. Principles 1c and 1d apply to all light therapy devices. Principles 2a and 2b apply only to devices using filament and/or arc type lamps.

1. Fluorescent Lamp Light Therapy Devices

a. The optical radiation emitted by these devices is not a thermal hazard to the skin or eyes (ACGIH, 1989; UNEP/WHO/IRPA, 1979; Sliney and Wolbarsht 1980).

b. The "blue" light (380-480 nm) emitted by these devices does not exceed threshold limit values established to protect the retinal pigment epithelium from damage (Sliney and Wolbarsht, 1980).

c. The ultraviolet-B (285-315 nm) radiation (UV-B) emitted by these devices can exceed threshold limit values (Oren et al., 1990), and there are reports of skin erythema and photokeratitis in humans exposed to UV-B emitted by these lamps (Soc. Light Treatment Biol. Rhythms, 1990). Much higher intensities of UV-B (e.g., that contained in sunlight) are associated with skin cancer (van der Taylor et al., 1988), cataracts and corneal disorders in humans (Pitts et al., 1986; Berler, 1989). Therefore, the UV-B emitted by these lamps should be attenuated by filters with properties similar to UF3 and UF4 Plexiglas. If UV-A (315-380 nm) is to be used in an experimental clinical study, the protocol should be submitted for approval to an Institutional Review Board or to the Food and Drug Administration through application for an Investigational Device Exemption.

d. Quantitative data on the dose of light (380-760 nm) which could damage the photoreceptors (rods and cones) of the human eye do not exist, as far as we know. Therefore, threshold limit values have not been established in this wavelength region for this kind of damage. However, photoreceptor damage has been demonstrated in animals using light emitted by fluorescent lamps under a number of experimental conditions. These experiments provide some guidance about limiting the theoretical possibility that such damage might occur in the course of light therapy for SAD.

Some of the factors which might increase the risk of photoreceptor damage are listed below. It should be emphasized that none of these factors are specifically known to increase photoreceptor damage to the human eye from light emitted by fluorescent lamps. Nevertheless, these factors should be excluded in a regime of light therapy for SAD unless the benefit of its inclusion clearly outweighs the potential risk to the patient.

- pupil dilation (Sliney, 1984)
- drug photosensitization (Dayhaw-Barker et al., 1986)
- prolonged (days) dark adaptation prior to phototherapy (Organiciak et al., 1989)
- allowance of an insufficiently-short recovery time

(<8 h) between exposure sessions, e.g., intermittent therapy sessions with 1-2 hour intervals (Organiciak et al., 1989)

- treatment of patients with
 - genetic vulnerabilities (Naash et al., 1989)
 - retinal degenerative problems or a family history of such problems (Young, 1988; Tso, 1990)
 - aphakic or pseudophakic eye without a corrective filter (Werner and Spillman, 1989)
 - work/recreational history of more than 10 years of daily exposure to sunlight (Munoz et al., 1990; Taylor et al., 1990)
- treatment of patients currently using drugs that have not been evaluated for photosensitization effects (Terman et al., 1990)

2. Filament and Arc Type Light Therapy Devices

a. If light therapy devices are used which incorporate filament or arc type lamps, a hazard analysis must be performed on the final device configuration to minimize thermal, UV and blue light (380-480 nm) injury to the human eye. Safe times for each of these hazards should be calculated (Sliney and Wolbarsht, 1990) using the most recent threshold limit values (TLVs) published (American Conference of Governmental Industrial Hygienists, 1989). Each safe time must be longer than the light therapy session.

The thermal, UV, "blue hazard" threshold limit values will minimize denaturation of the retina, photochemical damage to the skin, cornea, lens and retina of the eye, and photochemical damage to the retinal pigment epithelium.

b. Flashed or strobed sources should be used with extreme caution (Sliney and Wolbarsht, 1980). Calculation of the threshold for thermal injury to the retina requires special equipment and expertise. In addition, selective damage to short-wave cones may occur from pulses of blue light of approximately 3.0 J/cm² (Sperling et al., 1980; Szel et al., 1988). Although insufficient quantitative information is available to establish a TLV at this time, Berniger et al. (1989) have some data which suggest that the short-wave length cones in the retinas of ophthalmic surgeons can be damaged by flashback of the 488 nm line of the argon laser photocoagulator.

Additional putative safety measures have been proposed (Terman et al., 1990). However, consensus has been reached only on Principles 1a through 2b

herein. The work group has reached the consensus that adherence to these principles by manufacturers, therapists and patients will provide safe light therapy for SAD and other disorders of biological rhythms.

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HighLights

From The Association of Professional Sleep Societies' Annual Meeting

The Association of Professional Sleep Societies (APSS) held its 4th annual meeting in Minneapolis, Minnesota, 27 June to 1 July 1990. This meeting has been an important forum for presentations on light therapy and circadian rhythms. Woven throughout the meeting were special advisory sessions for the National Commission on Sleep Disorders Research. This newly appointed, 10-member commission is charged with conducting a comprehensive study of the present state of knowledge on sleep disorders, evaluating current resources for research and treatment, and identifying programs by which improvement in research and management can be accomplished. William Dement, President of the APSS and one of the founding fathers of sleep disorders medicine, was clearly trying to "pump up" the troops for a major political effort [see also *J. NIH Res.* (1990) 2: 30 for a report of this fall's activities in Washington, DC]. It would be very worthwhile for SLTBR members to support this effort by sending the commission reports of our research, and especially materials from patients that can be used for political appeal.

A new area of basic research has been stimulated by the discovery that light induces c-fos mRNA in the suprachiasmatic nucleus (SCN) of rodents (Rusak et al., 1990). C-fos is classified as a "proto-oncogene" or "immediate-early gene" and its protein products may

function as "third messengers" which interact with other gene products to control transcription (e.g., cellular protein synthesis). C-fos expression is thought to be an one of the intermediate and temporary intracellular responses to external stimuli, inducing longer-lasting changes in neurons. Light-induced c-fos expression is phase-dependent and parallels the behaviorally expressed phase response curve. Interestingly, melatonin can also induce c-fos in the SCN at C.T. 22 (late subjective night). These developments were discussed extensively in a symposium entitled *The Mammalian Circadian Clock, a Review of Basic Studies and their Clinical Implications* presented by L. Morin, W. Schwartz, D. Earnest and C. Czeisler.

One of the major controversies in the clinical arena of light therapy has been its mechanism of action. In addition to the circadian phase-shifting effects of light exposure, light may benefit patients by means of an "activating" or "arousing" effect. P. Badia and his associates from Bowling Green University presented two papers consistent with such an effect. They compared the immediate effects of bright and dim light exposure in normal subjects who were maintained awake for the night in the sleep laboratory. Each subject was exposed to bright and dim light through the night in alternating 90 minute blocks. Dependent variables included core body temperature, sleep latency using a "maintenance of wakefulness test," tonic skin conductance, spectral EEG and performance testing. In all of these variables, bright light exposure produced changes that were consistent with arousal effects. This study suggests that night workers who need to maintain vigilance would be well advised to work in a brightly lit environment (unless the concomitant circadian phase shifts would be counterproductive for the next work shift).

C. Czeisler and associates presented their studies of "clock resetting" with bright light in simulated night shiftwork, recently published in more detail in the *New England Journal of Medicine* (1990). This study shows that bright light during the night shift coupled with a strict home daytime sleep schedule in specially darkened bedrooms produced adaptation of the core temperature rhythm by the sixth night shift. In contrast, no adaptation was seen in control subjects who spent the simulated night shift in dim light and were free to sleep at times of their own choosing. Czeisler's study suggests that night workers, under

natural conditions, may not shift their circadian clock very much and may therefore be significantly compromised. They emphasize the importance of the daylight commute home from the lab in their study, distinguishing it from many other simulated shift work studies. This study has generated some lively debates [see *LTBR* (1990) 2: 5]. One practical issue is whether the experimental group experienced an improvement in alertness or performance on any of the first five night shifts, since shift systems do not usually contain six consecutive night shifts. Another unknown is to what extent the adaptation in the experimental group was due to the strictly enforced sleep schedule as opposed to the bright light during the simulated night shift.

Another area of controversy is to what extent, if any, the circadian rhythms of "real" shift workers adapt to the night shift. There is evidence that evening types, but not morning types, gradually shift their circadian rhythms to the night shift (Moog, 1987; Moog and Hildebrandt, 1989). There is also speculation that season could influence adaptation since morning daylight on the way home from the night shift may prevent the circadian rhythms from shifting to the night shift. In the winter, especially at higher latitudes, some workers may go home from work before sunrise, whereas they would be exposed to daylight at this time in the summer. Thus, there could be large differences in the amount of adaptation seen in different samples of shift workers, with evening types measured in the winter showing greater shifting than morning types measured in the summer.

The Oregon group presented some data addressing the question of circadian adaptation in shift workers. M. Blood et al. measured melatonin rhythms in nine shift workers immediately after a week on the "graveyard" shift. These subjects had been working on the night shift for at least six months. The melatonin rhythm was definitely shifted to a later phase position in 8 out of 9 of the subjects. This degree of adaptation is quite different than Czeisler et al. in their study of simulated night work. In the Oregon study, the melatonin rhythm appeared to be shifted later than would be predicted from sleep diaries, so these subjects were evidently attempting to sleep "too early" in relationship their body clocks. The result may be a decrease in sleep efficiency.

These presentations left us with the impression that shift work is going to be a major focus for light

treatment. It appears that there is good reason to think that both the immediate alerting effects as well as the phase-shifting effects may be beneficial if properly utilized.

P. Lavie and O. Tzischinsky reported that the circadian rhythms of sleep propensity and oral temperature were phase delayed by bright evening light. Lavie has been developing a paradigm which reveals a circadian rhythm of sleepiness with very clear demarcations of the early-evening "forbidden zone" and the nocturnal sleep gate. Subjects are sleep deprived for 24 hours and then placed on an alternating "7/13 schedule" (7-minute sleep attempt, 13-minute wake outside the bedroom). Lavie's paradigm provides an additional — but extremely arduous — marker for the phase of the circadian oscillator.

In addition to light exposure, melatonin administration may be another way to reset the circadian clock. The Oregon group presented a case report on successful entrainment with exogenous melatonin administration of a free-running endogenous melatonin rhythm in a blind person. The subject of this study, and one of the co-authors, was James Stevenson, a totally blind person, the first to have his free-running rhythms documented (Miles et al., 1977). Stevenson was burdened for many years by recurrent daytime sleepiness and nocturnal insomnia which occurred when he attempted to sleep at conventional times that were out of phase with his free-running rhythms. He learned of the experiments by Redman et al. (1983) in which rats free-running in constant dim light were entrained by daily melatonin injections. He obtained some melatonin on his own and began to take an oral daily dose just before bedtime. After about a year of treatment, his endogenous melatonin rhythm was studied by the Oregon group and was found to be entrained. Stevenson is the first blind person to have entrained his endogenous free-running rhythms with exogenous melatonin.

In summary, light therapy and circadian rhythms continue to attract a great deal of interest for sleep researchers and clinicians. The 5th annual meeting of

the APSS will be held in Toronto, 15-19 June 1991. SLTBR has scheduled its own annual meeting for 13-14 June 1991 as a satellite.

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BULLETIN BOARD

WELCOME TO NEW MEMBERS

Our membership has passed the 400 mark with 138 Regular Members, 224 Associate Members, 17 Student Members, 12 Corporate Members and 10 Corresponding Members. The Board of Directors welcomes the following new members who have joined SLTBR since publication of the last issue of *LTBR*.

Regular Members

Wolfgang Ehrenstein
Edward E. Stopa

Rae Silver

Associate Members

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MEMBERSHIP INFORMATION

Please note that the membership application form included in the August 1990 issue of *LTBR* incorrectly lists the annual membership dues for Corporate Members. Annual dues for this membership category are \$500. Future applications will reflect this amount.

Included with this issue of *LTBR* is a membership renewal form and a cover letter explaining SLTBR's membership policies. Membership renewal deadline is 15 January 1991 with a \$10.00 late penalty assessed for all renewals received after 15 February 1991. New members who joined the Society

following the 1990 annual meeting are paid through the 1991 membership year.

The renewal form provides space for you to correct address and phone/fax information, as well as provide updated information relative to practice and research interests. The latter information is particularly helpful in developing appropriate clinician referral lists in response to public inquiry. (SLTBR does not endorse clinical services by any member.)

SIGH-SAD NOTES

The Structured Interview Guide for the Hamilton Depression Scale — Seasonal Affective Disorder Version (SIGH-SAD, by J.B.W. Williams and colleagues), which incorporates eight additional items assessing atypical symptom severity, is now widely used by SAD researchers, and serves to standardize clinician-administered ratings within and across centers. A self-rating version (SIGH-SAD-SR) was subsequently designed to ascertain whether outpatients produce reliable scores using a pencil-and-paper instrument without the clinical interview. Preliminary results at New York State Psychiatric Institute show very high correlation between scores on the two instruments ($r \approx 0.85$). In the original SIGH-SAD-SR, however, only 17 items of the 21-item Hamilton scale subset were included. This has now been rectified in revision, providing comprehensive item-for-item correspondence between SIGH-SAD and SIGH-SAD-SR. Colleagues who have previously ordered SLTBR's *SAD Assessment Tools Packet* or *The Complete Works*, both of which contain these instruments, may write the Executive Office for copies of the SIGH-SAD-SR revision and scoring sheet, at no cost. It will also be substituted in the assessment packet, which is available to SLTBR members at \$15 (nonmembers, \$19).

EXECUTIVE OFFICE ACTIVITY

Since the beginning of July 1990, our Executive Office has received requests for information on light therapy from over 500 individuals throughout the United States and Canada. The majority of these

inquiries is the result of articles on SAD and light therapy published in magazines and newspapers which include SLTBR's name and address as a reference source. On request, respondents are sent a copy of our public information brochure and publications list. We also have available a listing of primary research centers and addresses of clinician members on a geographical basis.

In order to ease the work load of our executive secretary, preserve our printing and mailing budgets and prevent misconception concerning the purpose and activities of SLTBR, we ask that members giving interviews for publication emphasize the following information concerning our society:

1. SLTBR's primary purpose is to foster research, professional development and clinical applications in light therapy and biological rhythms. The Society does not manufacture lights for treatment nor does it recommend any particular lighting product for purchase by patients.

2. Individuals seeking advice on SAD and light treatment are urged consult an experienced clinician. SLTBR does not provide clinical advice or light specifications.

3. Those requesting a copy of the public information brochure or referral lists from SLTBR should send a self-addressed, stamped envelope for our reply.

SAD AND LIGHT THERAPY FEATURED BY PSYCHOPHARMACOLOGY BULLETIN

The upcoming issue of *Psychopharmacology Bulletin*, due out in January 1991, will feature SAD and light therapy, including a long, critical review of research, several editorial-style discussion papers, and the first comprehensive bibliography in our area.

We understand that only a few additional copies of the publication will be printed for sale to non-subscribers and that the best way to obtain this particular issue is to pay for an annual subscription, specifically requesting that Volume 4 be included. Subscription rates are reasonable — U.S. subscribers \$18/foreign \$22.50. Requests should be directed to the U.S. Government Printing Office, Superintendent of Documents, Washington, DC 20402. Immediate action is recommended if you wish to receive the "SAD issue".

LIGHT EXHIBITION IN BASEL

If you are changing trains in Basel, Switzerland on your way to the ski resorts and 100,000 natural lux this winter, you are invited to stop and visit an interesting exhibition on light in the Applied Arts Museum — mostly light symbolically, electrically and architecturally, but including an essay in the catalog by Dr. Anna Wirz-Justice on "Light and Rhythms", to remind of the biological dimension. *Museum für Gestaltung Basel. "Licht", 15 December 1990 - 17 February 1991.*

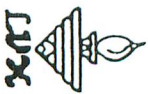
LTBR ADOPTS REFERENCE FORMAT

This issue of *LTBR* incorporates a reference-style format in lieu of full in-text citations. We intend to adopt this format for future issues so that articles are not encumbered by extensive referencing which interrupts the flow of discourse. Please note the following general format style as well as the samples given below when you prepare your contributions to *LTBR*.

References should be listed in alphabetical order according to the name of the first author. Include all authors, year of publication, title of paper, journal title (abbreviated as appropriate), volume number and page(s). Papers cited in the text of an article should include author (et al. for more than two) and year of publication.

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