



WHAT DO COWS DREAM ABOUT? AND WILL GPS BE THE NEXT NEW SLEEP TECHNOLOGY?

by Steven Grenard RRT, RPSGT

Sabine Begall (University of Dulsberg-Essen) and colleagues in Germany have been occupying their time spying on herds of cows and deer using satellite images from Google Earth. What they found surprised them. The herds, it seems, regularly were lining up in what they called a north-south alignment like a collective living compass with their heads facing magnetic north. They checked wind conditions and the angle of the sun to see if these were the reasons for this behavior and were able to rule them out. The only correlation was to the earth's magnetic poles. Magnetic considerations have long been postulated as being of therapeutic

value but such treatments have never been confirmed in scientific studies, which validate the claims made for magnet therapy. Of course magnetics has found an important place in medical imaging (MRI) and at least two animal groups (sea turtles and bats) have been

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studied for their ability to use a sixth sense to navigate which may be related to an anatomical built-in magnetic compass. Migratory birds and salmon are also believed to navigate with the help of internal sensitivity to magnetic fields.

The German researchers looked at 8,500 satellite images spread over different sites worldwide. This included some 300 pastures and plains. Some 3000 deer in 225 different locations in the Czech Republic were also evaluated. This large group also included different breeds of cattle and deer. Geographically their sample ranged from South Africa to India and the U.K. Statistically, the odds of all these cattle and other herd animals doing this by sheer chance were calculated to be less than 1 in 100,000. The chances that their free ranging deer herd samples coincidentally lined up by chance were much slimmer.

And while this observation may be interesting, more importantly what are its implications? How come herds of cattle, buffalo, various species of deer and even sheep apparently at various times line up in the way they do. The answer, remarkably, may be REM sleep related. One theory being floated is that by keeping magnetic fields in symmetry along the axis of the body, various bodily functions, including the ability to enter REM, are effected. Obviously more research needs to be accomplished to understand and explain the mechanisms involved.

In humans the time it requires to enter REM after sleep onset has usually been time related with a REM period occurring on average approximately every 90 minutes. But some people don't have REM at all, others follow the normal pattern and on occasion polysomnography reveals people with particularly prolonged and frequent periods of REM. The latter, known as REM rebound often occurs in previously REM deprived patients when first placed on PAP therapy. People with severe REM behavior disorder (RBD) are often treated by medications used to suppress REM and represent yet another diagnostic where manipulation of REM may be of therapeutic value. Putting aside the REM deprived OSAHS patient, subjects who sleep in a bed aligned in a north-south position seem to have more REM than those who are sleeping along an east-west axis. Could something as simple as prescribing an east-west sleeping axis ameliorate RBD?

According to this new research observation all herds of large ruminants including not only cattle and deer, but also wildebeest seem to regularly align north-south whether they are resting or grazing. Could they be setting themselves up for some dreamtime? And if so what does a cow dream about? Hmm. Studies of people in REM seems to confirm that those who sleep in an east-west alignment have statistically much shorter REM periods compared to north-south sleeps. These early observations can easily be confirmed in a sleep lab that has beds set up in different alignments.

Writing in the Proceedings of the National Academy of Sciences (U.S.) Begali says, "Our results call for an in-depth study of this phenomenon and challenges neuroscientists, biochemists and physicists to study the proximate mechanisms and biological significance of magnetic alignment." Add to this list of scientists sleep specialists and technologists.

Sandyk and Anninos published a series of papers on this subject in 1992, which may be a starting point for anyone who wants to justify additional research stimulated by these latest findings on cattle and deer:

1. Sandyk, R., Anninos, P.A. [1992] *Attenuation of epilepsy with application of external magnetic fields* Intern. J. Neurosci., 66, (1-2), 75-85
2. Sandyk, R., Anninos, P.A., Tsagas, N. [1992] *Magnetic fields alter the circadian periodicity of seizures* International Journal of Neuroscience, 63, (3-4), 265-274

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they do, and how fulfilling they find their jobs to be. Sleep problems are often treatable, and there is clearly a great deal of satisfaction in being part of successful treatment. RPSGTs are often in a position to see a patient experience immediate improvement, and that improvement in sleep can be life-changing. The BRPT did a survey of sleep technologists in 2007 that found more than 90 percent were "satisfied" or "very satisfied" with their credential and their profession.

Q. Do you sleep better now that you work with the BRPT?

A. (Laugh). You know, I've always been a pretty sound sleeper! I think I'm often a bit sleep deprived, like most of us. I do certainly have a much deeper understanding of sleep as a public health issue

Q. When you're not focusing on BRPT, what do you like to do?

I've always loved the outdoors, and outdoor adventure remains a real passion. And I'm a dog guy, through and through. I adopted a six-year old golden retriever, Henry, about a year ago. He is, without question, the best dog on the planet. And, he sleeps like a champ!

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3. Sandyk,R., Anninos,P.A., Tsagas,N., Derpapas,K. [1992] *Magnetic fields in the treatment of Parkinson's disease : A case report* International Journal of Neuroscience vol.63, 141-150.

One of the tantalizing conclusions in this research was that some magnetic fields mimicked the behavioral effects of REM deprivation in two human subjects, one with MS and the other with Parkinson's Disease. An extensive bibliography including the above papers can be found at: <http://physlab.med.duth.gr/biocns.html>

Sandyk et al's research paper on the relationship of REM, and more specifically REM sleep deprivation and magnetic fields appeared in the Intl J Neuroscience 1992 65(1-4) pp 61-8. The abstract of this paper follows.

"The discovery of rapid eye movement (REM) sleep by Aserinsky and Kleitman in 1953 initiated the impetus for sleep research and specifically the investigations of the effects of REM sleep deprivation (RSD) on animal and human behavior. The behavioral effects of RSD include the enhancement of motivational and "drive"-related behaviors. In laboratory animals, RSD has been reported to increase appetite, sexual behavior, aggressiveness, and locomotor activity. Moreover, RSD reportedly improves mood in patients with endogenous depression and heightens appetite and sexual interest in normal subjects. Since "drive"-related behaviors are thought to involve activation of limbic dopaminergic reward sites, RSD may enhance motivational behaviors through an action on limbic dopaminergic functions. In the present communication, we present two patients (one with multiple sclerosis and the other with Parkinson's disease) in whom treatment with magnetic fields produced behavioral effects which paralleled those observed in REM-sleep-deprived animals and humans. We propose, therefore, that the behavioral and mental effects of treatment with magnetic fields may be mediated via RSD and, by inference, involve activation of limbic dopaminergic reward sites."

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