

THE FOCAL POINT

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April 1992

PROGRAM NOTES

by Bud Rosser



The April 1992 meeting will be held at Fernbank Science Center on Friday the 17th at the usual 8:00 p.m. Saying again, that's **Fernbank!** Go down the second hall to one of the classrooms and look for the friendly faces...

Many thanks to the quintet of adventurers who gave us a taste of the Florida Star Party last month. I hope that Rich, Dave, Phil, Bill and Dave have been successful in enticing more of us to join them next year. I still can't believe that not a single person stumbled into some optical apparatus in the dark with such a crowd of folks there...

This month at Fernbank, we will welcome Don Harmer, professor of Physics at Georgia Tech. Don is a native of Washington, D.C. who has made his home in the Atlanta area for some 30 years. His list of academic credentials include George Washington University and UCLA. Don will speak to us about yet another mystery of the universe—those pesky neutrinos. Perhaps he can explain to me how something can have properties but no mass. Do they *really* have no mass? Why do otherwise normal persons ensconce themselves deep in the earth's bedrock to search for evidence of subatomic bits from beyond our planet? I think it's time to learn.

Of additional note to all may be the invitation I received from the Association of TIT in NoGrad County (Hungary). It invites all who are interested to an International Astronomical Summer University of 12 days length to be conducted in Salgotarjan. The "Programme" includes lots of nifty lectures, lots of observing through various university telescopes, cultural tours, and in short, it's described as a great experience. The *best* part, however, is that it only costs \$240, including food and accommodations at the Karancs Hotel. Airfare is extra. See me at the meeting if you've got some free time from June 27th through July 7th and some extra cash!

THE ORIGIN OF DAYLIGHT SAVINGS TIME

by David Oesper

It's that time of the year again... No, I'm not talking about the April 15 tax deadline, but something even worse—Daylight Savings Time. Just when the weather begins to warm up and we no longer have to "suit up for EVA",

along comes Darkness Squandering Time to end all prospects of early evening astronomical observing. Nature is bad enough at these higher latitudes, but humanity ("pity this busy monster, mankind...") puts the wonders of the night sky out of reach for many millions of people, especially children. It's no wonder there are so few amateur astronomers, with the night sky under the combined assault of light pollution and daylight savings time.

You'd be amazed at how often I get a call while we're still on standard time from a parent or teacher wanting to schedule an observatory program for spring or early summer; their initial enthusiasm turns to dismay when I inform them that at the time they've requested the sky isn't even dark yet! Just when the weather warms up to make the night sky comfortably accessible to millions of people, daylight savings time pushes dark skies so late into the evening that most people can't enjoy astronomy. This includes many amateur astronomers on weeknights, since they have to get up early and go to work the next morning, too.

In this article, I will give you a brief history of daylight savings time, including the original rationale for its adoption. Then, I will try to show how that rationale

is no longer valid, and how we can actually save energy, time, and money by staying on standard time year-round. Finally, I will show how daylight savings time can actually be harmful to people.

The first person we know of who proposed governmental tampering with the clock to make the best use of the daylight hours was the American statesman and scientist Benjamin Franklin (1706-1790). But until 1883, each community in the U.S. observed local solar time, and the clocks in other locales differed by an increasing number of minutes as you traveled further either east or west. Setting your clock to local solar time in a community meant that, on the average, the sun would be on the meridian and at its highest point in the sky at noon. As communication and transportation improved in the 1800s, making the country effectively smaller, confusion resulted as telegraph and railroads met a different local time at each location. In 1883, the railroads adopted a nationwide system of four standard time zones for the continental United States, each separated by an hour. These zones, with some minor boundary changes, are still in use today: Eastern, Central, Mountain, and Pacific. States and municipalities quickly adopted standard time, and soon everyone in the nation was using it. In 1884, the International Meridian Conference convened in Washington, D.C., and the entire world was then officially divided into 24 time zones of 15 degrees longitude and one hour intervals.

Daylight Savings Time (DST) was first seriously proposed in 1907 by William Willett, an English builder, member of Parliament, and member of the Royal Astronomical Society. Willett originally proposed setting the clock forward by 20 minutes at 2:00 a.m. on each of four Sundays in April (for a total advance of 1 hour 20 minutes), and then setting it back by 20 minutes at 2:00 a.m. on each of four Sundays in September. Not surprisingly, this proposal was soon modified to advancing the clock one hour at 2:00 a.m. on the third Sunday in April and setting back the clock one hour at 2:00 a.m. on the third Sunday in September. Willett's plan was introduced in Parliament in 1908. The six principal

advantages claimed were (1) to move the usual hours of work and leisure nearer the sunrise, (2) to promote the greater use of daylight for recreative purposes of all kinds [except astronomy and sleeping], (3) to lessen the use of licensed houses, (4) to facilitate the training of the Territorial forces, (5) to benefit the physique, general health, and welfare of all classes of the community, and (6) to reduce the industrial, commercial, and domestic expenditure on artificial light.

Opposition to Willett's idea was sizable. He was ridiculed, and called a dangerous crank. Farmers complained that their animals follow solar time, not clock time. Scientists, businessmen, and others objected to the use of a non-standard time after having recently adopted (1884) a worldwide time zone system. Still others claimed that people's habits must change, not the clock. From 1907 to 1916, Parliament rejected several DST bills. It was not until Germany became the first country in the world to adopt daylight savings time on May 1, 1916 to aid its war effort (conserving fuel, allowing increased production of war supplies) that England and other European countries followed suit. The British have had DST (British Summer Time) continuously since 1916.

Soon after America entered World War I, accounts of DST's success in conserving fuel and increasing national efficiency in Europe led Congress to enact its first national time management legislation, the Standard Time Act of 1918. This Act officially sanctioned the system used by the railroads since 1883 (including a fifth time zone for the territory of Alaska) and provided for a seven-month period of Daylight Savings Time, from the last Sunday in March to the last Sunday in October. On March 31, 1918, national daylight savings time went into effect in the United States for the first time.

In the fall of 1918 (World War I ended on November 11), Congress was deluged with protests against continuation of daylight savings time, then thought of as a wartime measure. A bill to repeal the daylight saving provision of the Standard Time Act

was passed by Congress, vetoed by President Wilson, and then overridden by Congress in 1919. National daylight savings time ended on October 26, 1919.

From 1920 to 1942, there was no national policy regarding daylight savings time, and DST was left to local option. In many areas, strong opposition to DST developed, but by the summer of 1941, DST was generally observed throughout the New England states, by numerous cities in New York, Pennsylvania, New Jersey, Delaware, Illinois, and Indiana, and at scattered points in Virginia, West Virginia, Florida, Kentucky, Tennessee, the Upper Peninsula of Michigan, and in North Carolina and Mississippi.

In 1942, Congress put the entire United States on year-round "advanced time"; and at President Roosevelt's suggestion, it was called "War Time". The hoped for purpose of this year-round daylight savings time was to help lower evening peak electrical power loads, which were even greater in winter than in summer. Thus, nationwide daylight savings time was in effect continuously from February 9, 1942 until September 30, 1945. At the end of World War II, this wartime measure was once again sensibly repealed. By the way, during the war years, Britain was on double daylight time—two hours advanced over standard time.

From 1945 to 1966, there was again no national policy regarding daylight savings time, and different states and localities adopted their own beginning and ending dates. By 1965, some form of DST was observed in the entirety of 18 states and in portions of 12 others. At one point in Iowa, there were 23 different pairs of DST transition dates in use in the same year!

The Uniform Time Act was passed by Congress in 1966, requiring all states to be on advanced time (they didn't call it daylight saving time) for six months, from the last Sunday in April until the last Sunday in October. Exemptions were allowed only for entire states or, for states with two time zones, for the entire area of a state lying within one of the time

zones. Arizona, Hawaii, and Michigan quickly took advantage of this option to exempt themselves.

The Uniform Time Act's nationally mandated six months of daylight savings time again predictably stirred up a great deal of controversy. Several rural congressmen bitterly fought for a shorter period of DST. At that time, Congressman H.R. Gross of Iowa responded,

"I am not going to vote today to make myself part of a tragedy on the highways of Iowa where school children, coming across the highway to catch a school bus in the darkness and semidarkness of late fall, are mowed down by a truck or car. ... Let the blood be on your hands, not mine."

The Uniform Time Act's Six-Six System (six months on DST, six months off) continued until the energy crisis of 1973. President Nixon urged year-round daylight savings time, and the Emergency Daylight Saving Time Energy Conservation Act of 1973 was passed by Congress, thus establishing year-round daylight time from January 6, 1974 until April 27, 1975. Opposition to year-round DST was fierce, primarily because schoolchildren had to go to school in the dark, and the Act of 1973 was amended to allow four months of standard time in the winter of 1974-75 (October 27, 1974 to February 23, 1975). When the Act of 1973 expired in April 1975, it was not renewed. The Uniform Time Act of 1966 once again went into effect (six months on DST, six months off).

The latest chapter in this continuing saga of daylight savings time opened in 1986 when President Reagan, who had promised to take government off the backs of the people, signed a "decree" moving the start of DST to the first Sunday in April. Congress had approved the measure to make the time-switch three weeks earlier in response to studies showing that it would mean increased revenue for leisure products businesses (up to 4 billion dollars, by one estimate) and more jobs. So, the first Sunday

in April start of DST first began on April 5, 1987, and has continued to the present day. Arizona, Hawaii, and the Eastern time zone part of Indiana are the only states which do not observe DST today. Over 25 countries around the world now use a DST system of one kind or another, affecting over 850 million people. Japan is not one of them, preferring to stay on standard time year-round. We should follow their example!

As should be obvious by now, the history of daylight savings time is a textbook example of our tolerance of meddling by government (federal, state, local) in that which is none of its business. If people wish "more daylight", let them get up with the sun! With the advent of flex time in many work places, why not just leave the clocks alone and let people adjust their work schedules if they want to take advantage of extra daylight hours at the end of the work day?

The much vaunted claim that daylight savings time saves energy is the subject of much debate. If it saves any energy at all, it is such a small amount that there are literally hundreds of other ways we could save far more significant amounts of energy. Think about it. So you have the lights on in your house an hour less when on daylight savings time. Is that really significant when you consider that during the warm months of the summer, you are coming home from work an hour closer to the heat of the day, turning down the thermostat and thus running your air conditioner or fans a lot more than you would on standard time? In hot weather, daylight savings time means it is an hour later at night before it cools down to a decent temperature! And, the myriad of streetlights and insecurity lights are on the same amount of time, regardless of what time system we're on. Are we really saving energy?

Other reasons we should abolish DST include (1) it stays light plenty late enough on standard time at northerly latitudes, and at southerly latitudes it is hot so you want it to cool off sooner in the evening; (2) changing all the electronic devices with clocks in them twice a year is a real pain: wristwatches, clocks, computers, VCRs, microwave ovens, stove clocks, car clocks, etc.; (3) the changeover to and from DST creates a psychological and physiological stress in people not unlike the effects of "jet lag" and rotating work shifts. Is this additional stress of modern life really necessary?

As it turns out, many people feel crummy for several days to a week or more after we "spring forward" in April. Perhaps you are one of them. Some people claim they never get completely used to DST. Suddenly, we are getting up an hour earlier every morning than what our body is used to, and who needs that? Some studies have shown that there is an increase in traffic accidents in the week following the onset of DST as compared with the week preceding it. The return to standard time in the fall may have similar detrimental effects, but perhaps not so severe since we are "gaining" an extra hour.

How popular is DST? Polls show that only about half of the people like DST, and the other half either dislike it or don't care one way or the other. So why not abolish DST and all its associated hassles and encourage flex time as a national priority instead? Besides, who really likes to get up and go to work in the dark if they can avoid it, as sometimes occurs under DST? Others have to go to bed while it is still light. This is particularly a problem with children. Getting them to go to bed while it is still light out is just about impossible!

We need darkness just as much as we need light. That's the way we're made. Studies have shown that bright light at night can cause or contribute to insomnia and other psychological and physiological disorders because it can in effect "reset" one's biological clock. In fact, one of the best treatments for insomnia is to make the room you are sleeping in as dark as possible by blacking out windows (we wouldn't have to do this if there weren't so many !@#^%* throw the light everywhere streetlights shining in our windows at night!), using clocks and radios without lights (or with deep red light only), and not using night lights. If you are an insomniac and need to leave the bed at night, use a red light. Red light has a wavelength that should not affect the biological clock. Upon

awakening in the morning, lots of light and preferably sunlight is the best medicine.

The next time someone asks you about or mentions the alleged increase in crime or mental illness at times when the moon is full, tell them that it is the moon's bright light at night which allows the criminal to see better and that unbalances some people. Tell them that streetlights and dusk to dawn yard lights have the same effect, and the higher the illumination level, the worse the effect. Too much light at night agitates people!

And we are a very agitated society. The stars, like music, soothe the savage beast.

TAHITI ENTERS SPACE AGE

by Ace Gilbreath,
South Pacific Bureau

Earlier this week the small island nation of Tahiti entered the space age with the first successful launch of their rocket, the Conch 6. The Tahitian space program is a joint venture between the government of Tahiti, the University of Fiji, and a Japanese bank which wishes to remain anonymous.

The Conch 6 booster rocket is of a unique design. It's the first rocket built entirely of palm trees. Researchers at the University of Fiji concluded that large hollowed palm trees could be lashed together with jungle vines to form the base of the booster unit. The hollowed trees could then be filled with a solid rocket propellant similar to that used in the solid rockets on the Space Shuttle. Since there is an abundance of palm trees in the South Pacific this would allow quick assembly of the Conch series rockets as well as greatly reduce construction cost. Basic assembly of the rocket booster requires an axe and a machete.

The Conch rocket performs well above original expectations however there are several "minor" problems which still need to be addressed by the launch team. For example, since palm trees are slightly curved the rocket tends to arc during flight rather than fly a straight path. This makes orbital calculations a bit tricky but it's nothing that a couple of hours of processor time on a Cray XMP supercomputer can't handle.

Another minor problem is holes in the booster formed by either wood decay or woodpeckers. This

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Submissions: Article submissions are welcome and encouraged. Please deliver to the editor for consideration. Electronic submissions are preferred and accepted at mike@beow.uucp. The submission deadline for the next issue is *April 29*.

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caused a rather embarrassing incident two months ago when the Conch 4 booster was test fired from the launching pad on the Motutunga Atoll, 200 miles east of Tahiti. The rocket was in mid flight when apparently a hole formed in the side of the booster causing the rocket to veer off course. The rocket flew out of control for almost a thousand miles before striking and sinking a Greenpeace ship anchored off the coast of Pago Pago, in the Samoa Islands.

While those problems are still being addressed the Conch 6 was a successful launch and delivered its payload into a low orbit. The payload is a large coconut with a radio transmitter inside. Ham radio operators around the world can tune into 443 megahertz and listen to Don Ho's "Tiny Bubbles" repeatedly broadcast from 180 miles above the earth.

WELCOME NEW MEMBERS

We would like to welcome Charles & Florence Woodall and Tony & Eileen Brooks to the AAC.

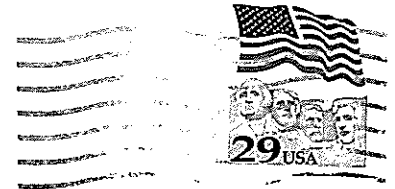
Please make them feel welcome when you see them at club functions.

OBSERVING SESSIONS AT VILLA RICA

Future observing sessions have been scheduled for the following dates:

May 1 and 2, 1992

It is strongly recommended that you call Bill Snell at least one week prior to any observing session to let him know you are going to attend. You can still come to the observatory if you do not call but he will not be able to inform you of changes due to weather. Also, he will have some idea how many people to expect and hopes to plan better sessions as a result. If none of the sessions listed above are convenient because of work, school or baby-sitting problems, please let him know and he will try to work around your schedule, if possible.



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