



NOVA

NEWSLETTER OF THE VANCOUVER CENTRE RASC

VOLUME 2002 ISSUE 4

JULY/AUGUST 2002

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Looking Ahead

Remember, you are always welcome to attend meetings of Council, held on the first Tuesday of every month at 7:30pm in the G.S.O.

July 9: Planetarium show: *Nightwatch*. Please note the meeting will start at 7pm.

Aug. 13: Dr Harvey Richer of UBC with his talk, "Dating the Universe with Hubble observations of M4."

Next Issue Deadline

Material for the July Nova should be submitted by Monday, Sept. 2, 2002. Please send submissions to:

Gordon Farrell
(gfarrell@shaw.ca)

Standing in Stonehenge

by Gordon Farrell

Farther back than our collective memory can recall, we humans have been fascinated by the heavens. Sometimes this fascination has turned to obsession, driven by the sky's

visited the manifestation of one of these obsessions: Stonehenge.

Located about 10km north of Salisbury, we know far more about Stonehenge's history than its purpose. It began as circular



presumed ability to foretell the future. Sometimes this obsession is driven by more practical concerns, such as keeping track of the passing of the seasons to better plan the sowing and reaping of crops. On a recent vacation, I

earthwork, probably used as a ceremonial meeting place about 5000 years ago. This evolved into a circular ditch, with the excavated earth piled up around its outer and inner edges and a ring of holes cut into the chalk along its inner edge

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The Space Race

by Marc Verschueren

Not long ago, Andrew Chaikin gave us an impressive insight in the history of the Apollo program that put the first and the last men, so far, on the moon. We have all seen, I think, most of the pictures, but they never made an impression on me as on that evening. During the question period, Lee Johnson made the comment that we could not do this anymore. This statement cannot be ignored too easily. We could indeed not do this anymore at this time. There are several reasons for this. Andrew Chaikin immediately pointed to one reason by the sharp observation that the Apollo program was a fluke. In today's terms its cost would be 100 billion dollars, American. No president in the US could go to Congress and ask for such a sum of money for a scientific project. But at that time it was not a scientific project. It was an effort to put the US back into the leading position in space technology. Apollo was not a military project but it sure had military and geopolitical connections. That made it so worthwhile and opened the giant flow of funds. And that is why it was a fluke—the space people and astronomy got a free ride on the fear of Soviet domination. During the early nineties, President Clinton turned down a request for 12 billion dollars for a new particle accelerator in the US. The scientific depth of this project was much greater than the exploration

of the moon, being related to the basic understanding of matter and the physics of the early universe. But it sure could not match the appeal of power in space.

And we can no longer go to the moon, because nobody knows how to do it anymore. All the people who did it have long since retired or are even not with us any longer. And nobody has conserved the necessary skills because we do not do it anymore. There are no doubt enormous technical files and endless reports forming a collective memory of the project, but they are not actively used at this moment. To start a project like Apollo up again would take long training for a large group of people. We could indeed not do it anymore. Not right now

Astronomy can be expensive. It is not as expensive as other branches of science but it does require a strong monetary input at the higher levels. From years ago it has always be of concern to me why society is willing to contribute its scarce resources, like economists call it, to help a study that does not seem to have any practical value. How far is society willing to go? Astronomy has always been blessed with the support of wealthy citizens who are deeply interested in the universe. In the more recent years, the names Hale and Keck come to mind. And astronomy has a great advantage in that telescopes have a long life time. The Mount Wilson instrument, used by Hubble, is still

operational. We astronomers do not throw things out very easily.

But there must be a limit to the generosity of private individuals or of society as expressed with government grants. It also takes more and more effort to get new results. It is a kind of version of the law of diminishing return in the business world where one has to spend more and more to get smaller and smaller increases in production or profits or other interesting things. To get that extra billion years in the distance we can look back into the history of the universe costs a lot more now than the first billion light years. We have to build space telescopes now that will cost a few billion dollars to add a little bit more distance to our knowledge.

This leads to interesting reasoning. We build bigger and bigger telescopes located further and further into space to see further and further, and spend more and more financial resources doing it. But if the expansion of the universe is accelerating, the edge of the universe we can see moves faster and faster away from us. Does that mean that the growth of the funds and of our efforts we can use to see the edges of our universe is slower than this accelerating expanse? Is this some kind of space race we cannot win?

✱

President's Message

Summer brings us those warm nights of amazing sights to see: the wonders of the summer Milky Way. There is so much stuff to look at as we point our scopes toward the centre of our galaxy that I am always happy when summer rolls around. Of course the fact that we have some of our favourite annual events at this time of year doesn't hurt, either.

By the time you read this, we will have held the first of our Manning Park Star Parties. The event takes place over the weekend of July 6th at the Manning Park East Gate site. Conditions at this site are primitive but we are presented with some of the best skies we get all year. In my opinion, Manning is the one of the darkest sites we attend locally.

The Manning Park Outreach appears to be in jeopardy. Due to the cuts in funding, the Visitors' Centre has been closed permanently. At this time, Manning Park has no scheduled interpretive programs in place. I will continue to work on resurrecting this event and hopefully by the time we have our July meeting I will have good news to report. We had

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cbrecken@shaw.ca

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Marcellus Redmond 604-533-1830

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Marc Verschuere 604-986-1485
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Librarian

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pomponia@telus.net

Bob Parry 604-215-8844
robpar@telus.net

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smrgeog@yahoo.com

Chair, CARO Committee

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eric.fuller@ballard.com

Director of Telescopes

Phil Morris 604-734-8708

Public Relations

Norman Song 604-299-7924
norman_song@telus.net

Speakers

Barry Shanko 604-271-0615
barry.mail@intouch.bc.ca

Merchandising

Doug Montgomery 604-596-7058
moondoug@home.com

Nova Editor

Gordon Farrell 604-734-0326
gfarrell@shaw.ca

Councillors

Dan Collier 604-732-6046
Jason Rickerby 604-502-8158

Trustees

Sally Baker 604-324-3309
Lee Johnson 604-941-5364

About RASC

The Vancouver Centre, RASC meets at 7:30 PM in the auditorium of the H.R. MacMillan Space Centre at 1100 Chestnut St., Vancouver, on the second Tuesday of every month. Guests are always welcome. In addition, the Centre has an observing site where star parties are regularly scheduled.

Membership is currently \$51.00 per year (\$26.00 for persons under 21 years of age) and can be obtained by writing to the Treasurer at the address below. Annual membership includes the invaluable Observer's Handbook, six issues of the RASC Journal, and, of course, access to all of the club events and projects.

For more information regarding the Centre and its activities, please contact our P.R. Director.

NOVA, the newsletter of the Vancouver Centre, RASC, is published on odd numbered months. Opinions expressed herein are not necessarily those of the Vancouver Centre.

Material on any aspect of astronomy should be e-mailed to the editor, mailed to the address on page 5, or uploaded to SpaceBase™ at 604-473-9358, 59.

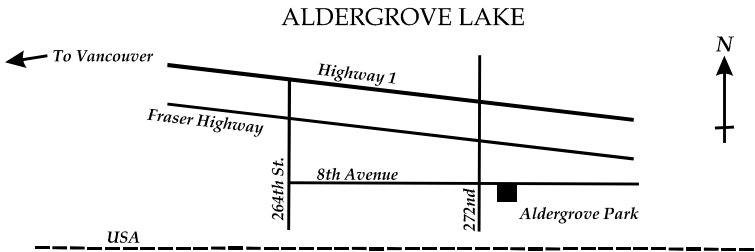
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Nova encourages free use of its classified ads for members with items for sale or swap. Notify the editor if you wish your ad to run in more than one issue.

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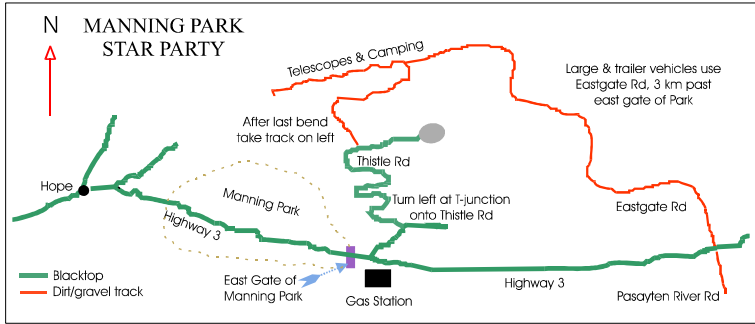
1/2 Page: \$25.00 per issue
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Rates are for camera-ready, or electronic files. Payment, by cheque, must accompany ad material. Make cheque payable to: RASC Vancouver Centre.

Observing Sites

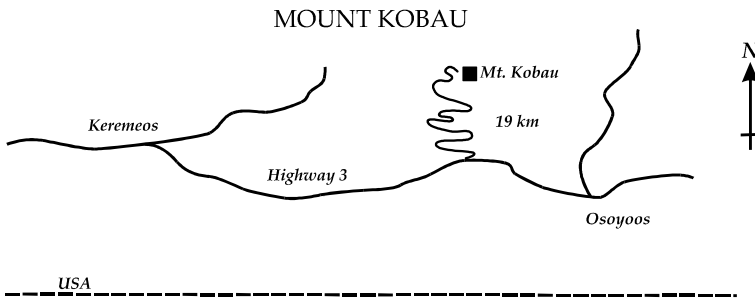


Dale McNabb Observatory in Aldergrove Lake Park (RASC Vancouver Centre's regular viewing site)

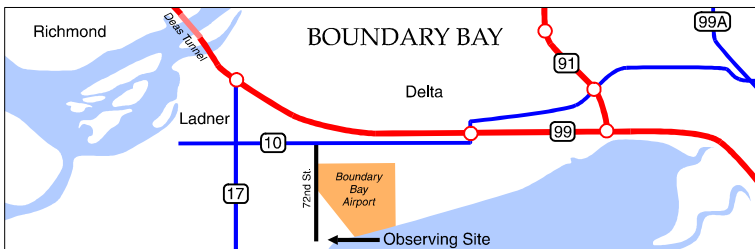
Contact Mike Penndelton (604-888-1505) or Howard Morgan (604-856-9186)



Site of the annual star party organized by the RASC Vancouver Centre



Site of the annual Mt. Kobau Star Party organized by the Mount Kobau Astronomical Society



Site of the regular Thursday night star party. On the dike at the foot of 72nd St.

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(the hardpan in this region of England is made of chalk). These holes were originally filled with wooden posts, but were later used for ceremonial burials.

Over the three centuries spanning 2900 to 2600BC, the area surrounded by this ring was filled with many wooden posts, both around the inner edge and at various locations within and outside of the circle. What these posts may have been used for, as supports for structures or as tribal markers, is still a mystery.

It was after 2600BC that Stonehenge began to take on the form we see today as the obsession really began to take hold. Blue stone from Wales, weighing 4 tonnes apiece, were brought over water and land from a site about 385km away (the only site where stones of this colour are found in Britain). Originally, 60 of these "bluestones," most about 2m in height, were placed in a double crescent, open to the northwest, in the centre of the earthen ring.

Two to three hundred years later, these bluestones were removed and Stonehenge entered its final stage of construction. Huge sarsen stones, weighing between 25 and 50 tonnes and reaching up to 7m in height, were brought to the site from a quarry 30km to the north over hilly terrain—a difficult task, to be sure. These stones were arranged into 5 trilithons—two upright stones with a lentil across the top—arranged in a horseshoe shape open to the

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ASTROCOMPUTING

SpaceBase™ (604-473-9358,59). Affiliated since 1992 with RASC Vancouver, our link to RASC Net, RASC Members only chat area. Future data distribution hub for CARO Project. Features include latest HST images, current world space news and astronomy programs. Provides a file uploading facility for submitting articles and imagery to Nova.

LIBRARY

The centre has a large library of books, magazines and old Nova's for your enjoyment at the GSO. Please take advantage of this club service and visit often to check out the new purchases. Suggestions for future library acquisitions are appreciated.

RASCVC on the Internet

<http://members.shaw.ca/rascvan/>
or <http://www.rasc.ca/vancouver>

H.R. MACMILLAN SPACE CENTRE

The Pacific Space Centre Society is a non-profit organization which operates the H.R. MacMillan Space Centre and Gordon M. Southam Observatory. Annual Membership (\$30 Individual, \$65 Family) includes a newsletter, Discounts on Space Camps, special programs and lectures, Vancouver Museum Discounts, and free admission to the Space Centre. Admission to the Space Centre includes: Astronomy shows, Motion Simulator rides, multimedia shows in GroundStation Canada, and access to the Cosmic Courtyard Exhibit Gallery. For Membership information, call Mahi Jordao at 604-738-7827, local 237 for information. You can also reach them on the Internet at <http://www.hrmacmillanspacecentre.com/>

MEMBERSHIP HAS ITS PRIVILEGES!

New members, did you know? The Vancouver Centre has 6 telescopes available for loan free of charge! We have telescopes ranging from 3" to 10" diameter. For more information call Phil Morris, Director of Telescopes at 604-734-8708, or see him in the lobby of the GSO after the members meeting. The loaner period is for one month only. All telescopes are to be picked up and returned after the members meeting. No telescope will be allowed to circulate outside of these meetings!

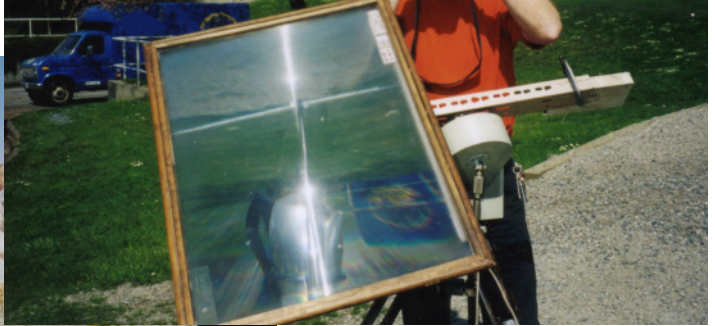
Your greatest opportunity as a member of the R.A.S.C. is to take advantage of the company of other enthusiasts to increase your knowledge, enjoyment and skill in astronomy.

The best thing you can do to gain the most from your membership is to get active! Take in the club meetings; engage other members with questions; come out to observing sessions (also known as "star parties"), and, by all means, volunteer to take part in our many public events.

Observing takes place at the Dale McNabb Observatory in the Aldergrove Lake Park, located in Langley, on 8th Avenue, just east of 272nd Street. We are there most clear nights. Contact Mike Penndelton at 604-888-1505 or Howard Morgan at 604-856-9186.

RASC
1100 Chestnut Street
Vancouver, B.C.
V6J 3J9
604-738-2855

Astronomy Day Pictures



Upcoming Events

July

5-7 – Manning Park Star Party #1

TBD – Manning Outreach – CANCELLED

August

3-11 – Mt. Kobau Star Party

12 – Perseid meteor shower peaks; observation at Aldergrove Park

September

6-7 – Manning Park Star Party #2

28 – East Vancouver Neighbourhood Party

October

4 – Sidewalk Astronomy #2 (rain day: Oct. 5)

November

18 – Leonid meteor shower peaks

December

10 – Annual General Meeting

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originally planned to hold the event on July 20th so keep in touch with the web page or your executive as it may come up at short notice.

On August 3rd, Jason Rickerby and I will be hosting the successful bidders of the two Rotary Club auctions. Our “Night with the Stars” should prove to be very enjoyable for all of us involved. We plan to show them a variety of objects through our two scopes and will supply donuts and hot chocolate as well.

Also on August 3rd the Vancouver Centre will join some of BC’s Cubs and Scouts as they make their annual BC Heritage Canoe trip down the Fraser River. We will meet up with the boys at Derby Reach Park near Langley and will

make a short slide presentation prior to retiring to the field and scopes. Bob Parry will be spearheading this event and I am sure he could use a few more helping hands. The last time we did this was two years ago and we were quite busy with five scopes set up.

August 3rd to 11th brings the next edition of the Mount Kobau Star Party near Osoyoos. This annual event is widely attended by amateur astronomers from all over western Canada and Washington State. I love this event for the social aspect of chumming with friends I haven’t seen since the last party. The event can run from 150 to 250 people and is always a great time, even when the weather isn’t so hot. For those who attended last year and got

a little wet, cheer up, it was only the second time it has rained on me and it didn’t snow like it did in 1990.

On August 12th we will hold our second Persied Meteor watch at Aldergrove Lake Park. Last year we held a small event with the GVRD Park interpretive guides and about thirty registered guests. We had a great turnout of about a dozen scopes and everyone had a great time. Although we missed the peak last year, this year’s peak is predicted to be around 2:30 in the afternoon local time (Garry Kronk). We will be following the peak by only a few hours so the show should be pretty good. Last year we had quite a few that were very bright. ✨

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northeast. These were surrounded by a ring of thirty upright sarsens capped with a continuous ring of lentils, each weighing about seven tonnes, to form a complete circle about 30m in diameter. The bluestones (which really are bluish in person, contrary to most photographs, including mine) were rearranged in a circle within the larger sarsen circle. There was evidently some indecision about what to do with the bluestones, since they were rearranged no fewer than three times over the next 700 years, with evidence of an intended fourth move that was never completed.

It is the placement of several sarsen stones outside of the circle that hint at Stonehenge's astronomical

purpose. Two of these stones, now known as the Slaughter Stone and the Heel Stone, when viewed from the tallest trilithon, are aligned with the point on the horizon where the sun rises on the summer solstice. If viewed from the opposite direction, the stones are aligned with the winter solstice sunset. Other stones outside the circle suggest other astronomical purposes, such as the northern and southern extents of the rising and setting of the sun and moon, and even the prediction of eclipses, but

such alignments are generally viewed as happy coincidence rather than actual intent of those who built Stonehenge.

So whose obsession culminated in the Stonehenge we see today? Contrary to popular opinion (and *Spinal Tap's* song), the Druids are not responsible. A historian by the name of John Aubrey first advanced the Druid



The view from the summer solstice sunrise, facing Stonehenge. The Slaughter Stone is in the foreground, and the Heel stone is behind the camera.

theory about 300 years ago, but it is most certainly wrong. The Druids were a Roman-era people, so Stonehenge predates them by 2000 years. So who, then, built Stonehenge? Though we don't know them by name, its constructors were most certainly late stone age to early bronze age people. Since this time predates the written word, we will likely never know their true identity.

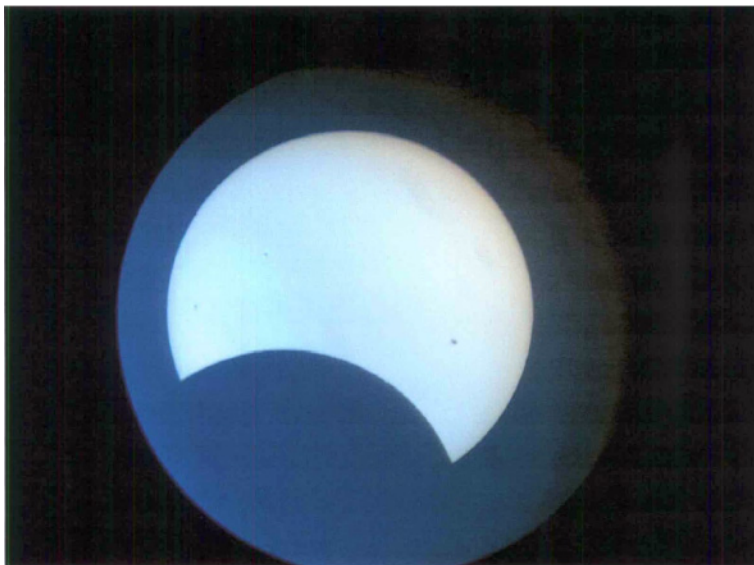
Still, the truth never gets in the way of a good time. Had I visited Stonehenge a week later, I would

have been surrounded by throngs of self-styled neo-Druids, all celebrating madly as the sun poked over the horizon. If I had been there, it probably would have been best if I kept this little nugget of information to myself.

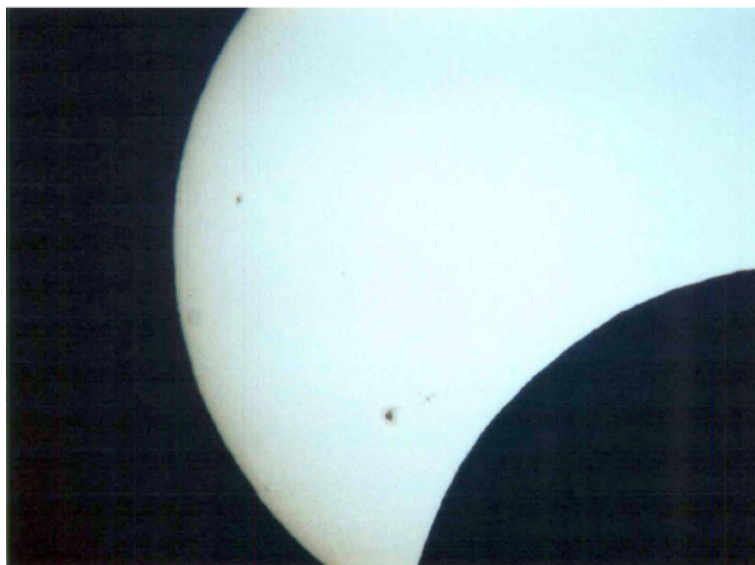
But standing there, watching the sun try to poke through the clouds and shine upon this ancient calendar, I couldn't help but wonder at the extents to which humans would go to mark the movements of heavenly objects. Whether the construction of monuments like this throughout the world was originally driven by practical or religious concerns, the one drive certainly must have become crossed with the other in order to marshal the resources needed to complete these often massive

structures. Alas, obsession can be a fickle thing. As with most great ancient monuments, Stonehenge's draw eventually waned and it fell into the ruin we see today, both through decay and vigorous recycling by the locals. But we can still marvel at the strange ways the ancients manifested their odd obsession with the skies, while we put our resources to far better use... like building glass and steel monuments to money (ahem). Oh, well. I guess some things never change. ★

Members' Gallery



Doug Cann
Partial Eclipse
June 10, 2002



Doug Cann
Partial Eclipse
June 10, 2002

Of Fires in the Near Sky

by Dan Collier

As Mauricio steered me up some stone steps alongside a vineyard, I noticed some wild-looking cats.

“Many cats, eh?”

He snickered. “Many mouse.”

Mauricio, the man whose basement rooms we rented for two nights, asked me where I was from. I answered in general terms, and added that I was an *ingeniero electrico* who worked in the mobile radio industry. It seemed wiser not to say writer or part-time astronomer. I didn’t have any cash on hand to hold the room in case the rent was suddenly demanded in advance.

“*Ingeniero?* Like Bill Gates?” he said. “Bill Gates stay here last year.” That made me think for a moment. Gates? *Here?* In Riomaggiore? Then it occurred to me that Gates rather resembles Rick Steves, whose guidebook had brought us here.

Behind some beads was the oaken door of the suite of rooms that Mauricio rented out. Like so many premises managed by single men, this one was a combination of marginal neglect, piecemeal upgrades and ruthless capital efficiency. I don’t think Mauricio declared his lodging income to the revenue branch, either. The one amenity I couldn’t find fault with was the view. Vineyards spilled down terraced slopes to the Mediterranean Sea. Breathtaking.

Down in Riomaggiore’s first restaurant we had dishes garnished

with the local specialty, a pesto sauce of nose-watering strength. Afterwards, most of the diners joined us at the little harbour to watch the sun drop behind the mountains of the Ligurian coast. The sky was clear, and though the sun had already set, its dying rays caught the trails of eight airliners (I counted). Someone started playing an American folk tune on his guitar. I had never understood, until now, why people lugged their guitars around with them on vacation. Nothing could have been more appropriate for the scene than a man strumming and singing badly under the deepening indigo sky, here in the Italian Riviera.

An hour later the sky was black with many stars. There, a little higher than I was used to seeing it at home, was Virgo. The star that represents the ear of wheat that she holds in one hand, bright blue Spica, glinted over the vineyard. Spica is Persephone, the patron goddess of the farmers. Later in the year, Virgo and Spica are in the sky only briefly before sunrise blots them out. It is said that in past ages, the disappearance of Spica in the dawn’s light stirred the farmers to harvest.

In another of the Roman legends Virgo was Astraea, whom we know as Justice holding a balance. And to her left within her reach lay the Balances themselves, in the house of the Ecliptic where the Sun resides when the last harvests are coming in and the nights are lengthening to balance

the days. When the gentle Golden Age came to a close, Astraea was the last of the gods to withdraw from Earth. In the Ages that followed, wealth and luxury ruled, then declined into decadence and finally into the strife that marks the outset of recorded history. Today we are a little uneasy in our current state of wealth, knowing that while societies come and go, the stars never change.

The chronology of the Ages is attributed to Hesiod of Boeotia, who for all we know existed not as an individual but a school of poets, whose works, among the most powerful in Western literature, are like my dreams. When the Sun rose over the Mediterranean Sea and our civilization awakened and surged, the dreams of Hesiod and others became one with the last morning mist. Only tatters survive, which have been nurtured through the modern ages to become the basis of sentiment. How else, after all, than by sentiment do human beings decide what is fundamentally important? My urge to see Europe, I now understood, satisfied an unconscious need to read our civilization’s manuscript of evolving values. I am also the astronomer devoting the negligible interval of my lifetime to reading the stars in an effort to grasp the far greater age of the universe. Perhaps these thoughts lay in all our minds when we teach our children to look at the stars.

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The faint sound of wingbeats betrayed a flight of bats coming out to feed. The bats made me realize how very quiet it was, and I paid a few respects to the process which somehow protected Riomaggiore from the imposition of technology. The only sound now was the wind in the vineyards.

The next day...

The town was nearly wild, with sparrows, bumblebees, swallows, cats and lizards taking advantage of the spring weather. Wildflowers grew among the grapevines. We went down to the water's edge intending to walk the cliffside path, the *Via dell'Amore*, that the Cinque Terre authorities have built from Riomaggiore to Manarola. Unfortunately, they were effecting repairs and it was closed. The next segment of the path, that led from Manarola's train station to Corniglia, was not blocked. It presented me with probably the most picturesque view of our entire journey—a gem of a Mediterranean village, with rumpiled-looking houses stacked up the mountainside, a little boat basin lay by the water, and a gnarled old pine tree in the foreground to frame the view. Get out the camera! Click! Hmm—last exposure on the roll.

My old OM-1 has made an astrophoto or two in its time. However, I think I've had more fun with it taking vacation pictures. It had never failed me, nor I it, until now. Like the amateur that I am, I forgot to release the takeup

sprocket and ripped the film inside the camera.

One piece of advice for this situation: do not open the camera. Take it to a camera shop where an expert can extract what is left of the film and salvage it. You have brought a second camera, of course, and since you have been careful to alternate the two, little will have been lost by your forgetfulness.

Near the science museum in Munich (highly recommended, by the way!) a camera shop did indeed present itself. The manager, a Herr Honig, working in a light-tight bag, got my film out, losing only the three last frames.

The path became treacherous, with sheer drops of fifty feet to jagged rocks in the water. About five minutes short of Corniglia we came to a locked gate across the path. Rather stupid, this, blocking a dangerous path at only one end. I pushed the gate experimentally, and lo, the chain came slack just enough to let us through. Just beyond the gate was a bar overlooking the sea where we drank espresso and iced tea. We got on the train to see Pisa, but fatigue and threatening skies led to a decision to get off at Riomaggiore for an early dinner and bedtime. By nine o'clock, as we were getting ready for bed, thunder and lightning started coming in from over the sea.

Just then, all the lights went out. If we had gone to Pisa, we would probably have been stranded on a powerless train. Inside a tunnel. At night.

In the remaining minutes before the end of twilight, I determined that (1) there were no candles anywhere, (2) Mauricio had not put any kerosene into the kitchen lantern, and (3) my flashlight, which had worked a few days ago, now would not. So the only thing to do was go to bed.

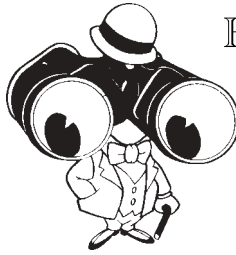
Rain came down in buckets for a while. Unable to sleep, I got up to see whether anyone else had their electricity restored. What I saw outside astonished me. The fireflies had come out! Hundreds of thousands of them. Something about the rain stopping and the temperature and humidity being just right had stimulated multitudes of these bluish-green sprites to flicker among the vines in the terraces as far as I could see. Neither of us had ever seen fireflies before. One actually flew into our bedroom, and with each flash everything in the room was starkly visible in our dark-adapted eyes.

By eleven the power was restored—and that was the end of the light show. ★

RASC MERCHANDISE

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meetings:

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