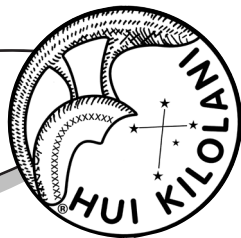


The Astronews



Volume 60, Issue 6

June 2012

www.hawastsoc.org

President's Message *by Chris Peterson*

The June 5th transit of Venus will complete only the 4th pair of transits that have occurred since the telescope was invented, and the first that was not used to significantly increase our understanding of the scale of the solar system. Previous transits were precious and rare opportunities to refine our knowledge of our "local" celestial environment.

How did we figure out the size of the solar system, something beyond our physical reach? We relied heavily on simple geometry and trigonometry along with Kepler's laws. Even a single observation allows for estimation of the size of Venus relative to the Sun. A second observer at a far distant location on Earth can provide the necessary additional data to allow for measurement of the distance to Venus. Of course, real measurements contain errors, and small errors in angular measurement add up to big errors in distance estimation, so each transit was an opportunity to reduce the errors and refine the estimates.

Johannes Kepler predicted the 1631 transit, but it was not observable in Europe and was not scientifically observed. The 1639 transit was observed by Jeremiah Horrocks and others. Horrocks used his data to estimate the size of the astronomical unit. His figure was only about two thirds of the correct value, but a great improvement on earlier guesses.

The 1761 and 1769 transits were observed by many, including Captain Cook. The observations were used to produce a much better estimate of the AU. The error was then reduced to just a few percent. The 1874 and 1882 transits added more precision.

Now that we have radar and other techniques to measure these kinds of distances, Venus transits are

(Continued on page 7)

Inside this issue:

President's Message	1
NASA Space Place	4
Meteor Log	5
Observer's Notebook	6
Calendar	8
Minutes	9
Star Parties	10
Treasurer's Report	10

Upcoming Events:

- ☆ The next meeting is 7:30PM on **Tues., June 5** at the Bishop Museum Planetarium.
- ☆ Bishop Museum's next planetarium shows with **Barry Peckham** are Friday, **June 1 & 15** at 8:00 p.m.
www.bishopmuseum.org/calendar
- ☆ The next Board Meeting is Sun., **June 3** at 3:30 p.m. at the POST building at UH.



Starlight Reserve Committee Update

SB2402 has passed both the House and the Senate, and has been sent to the Governor. You can review the bill by going to: <http://tinyurl.com/7qclgd7>. I don't know the date by when the Gov has to act on this, but I'll update the club at the next general meeting. Next SRC meeting is not scheduled yet, but may be towards the end of June.

Harry Zisko

Lahaina Noon Local Times

Lihue: May 30 12:35 p.m.
July 11 12:42 p.m.

Kaneohe: May 27 12:28 p.m.
July 15 12:37 p.m.

Honolulu: May 26 12:28 p.m.
July 15 12:37 p.m.

Kaunakakai: May 25 12:24 p.m.
July 16 12:34 p.m.

Lanai City: May 25 12:24 p.m.
July 18 12:33 p.m.

Lahaina: May 23 12:23 p.m.
July 17 12:32 p.m.

Kahului: May 23 12:22 p.m.
July 17 12:32 p.m.

Hana: May 23 12:20 p.m.
July 18 12:30 p.m.

Hilo: May 18 12:16 p.m.
July 24 12:26 p.m.

Kailua-Kona: May 18 12:20 p.m.
July 23 12:30 p.m.

Congrats

Congratulations to member **Travis Le**, for his participation at the International Science and Engineering Fair in Pittsburgh last month, and graduation from Punahou School! Good luck and we'll miss you as you head off to Stanford in the fall!

Editor



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The **Astronews** is a monthly newsletter of the Hawaiian Astronomical Society. Some of the contents may be copyrighted. We request that authors and artists be given credit for their work. Contributions are welcome. Send them to the Editor via email. The deadline is the 16th of each month. We are not responsible for unsolicited artwork.

Yes, the club has had a “bulletin board” on the Web, then a real website, and more recently a sort-of-but-not-really affiliated Yahoo group, then our affiliation with the Night Sky Network. Why bother with a Facebook page? Here is why:

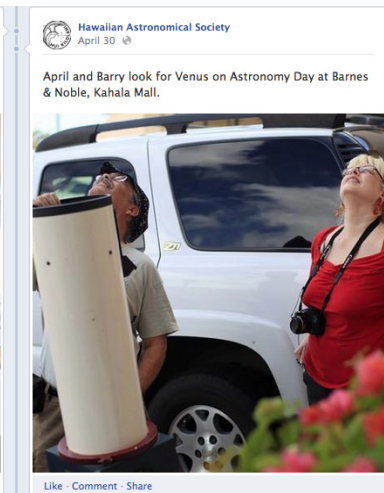
This is the Age Of Facebook. It will not last, but while it does its engines are firing on all cylinders. Popularity increases networking power, which is both the power to access information and the power to share it. Facebook’s feedback loop tends to engage those of us inclined to share and to learn about our hobby, our club and our activities. Club members have astro-pals outside the club and an accumulation of interests/activities/articles creates a powerful learning and bonding tool. Facebook is the essence of interactivity. Every “friend” is a sort of webmaster, posting whatever interests them, from other sites on Facebook, or from the larger Web, or from their own keyboard and camera. The controls are very simple. VERY SIMPLE. Yes, there are administrators to remove the stinky stuff.

When you “like” (by clicking a button) The **Hawaiian Astronomical Society** on Facebook, your email inbox gets notified each time something gets posted to their “Wall”, which is a catch-all for friends’ postings. Freddy puts up his latest planetary images, Barry and Sue post star party pics, Sky&Tel articles and NPR news briefs get posted, worthy sightings are shared. It gets better as more people participate. Currently there are more non-HAS friends on the HAS Facebook page than club members, and there are twice as many friends as there are HAS members who attend meetings. But your input will make it better.

It goes without saying that many fear Facebook as a soul-stealing monster. I say just be careful what you share. Keep your checking account and credit card info to yourself, and don’t post embarrassing pictures. Fools can find trouble without Facebook’s help.

I’d like to see observing session reports, spontaneous gatherings announced, photos of amateurs and equipment in action, astronomy questions put out to the membership, shared news found on the Net, professional/NASA imaging... anything that relates to our passion and the practice of it. Cute pet pictures need not apply.

If you are already on Facebook, type “Hawaiian Astronomical Society” into the search window, then “like” it, or type in my name and send me a message requesting that I forward an invitation to you. I’m not promoting Facebook but rather promoting its use by the club. It is a tool, like a hammer, and while hammers can kill you, they can also hit the nail right on its head.



Barry



Thank Goodness for Magnetism

by Dr. Tony Phillips

Only 93 million miles from Earth, a certain G-type star is beginning to act up.

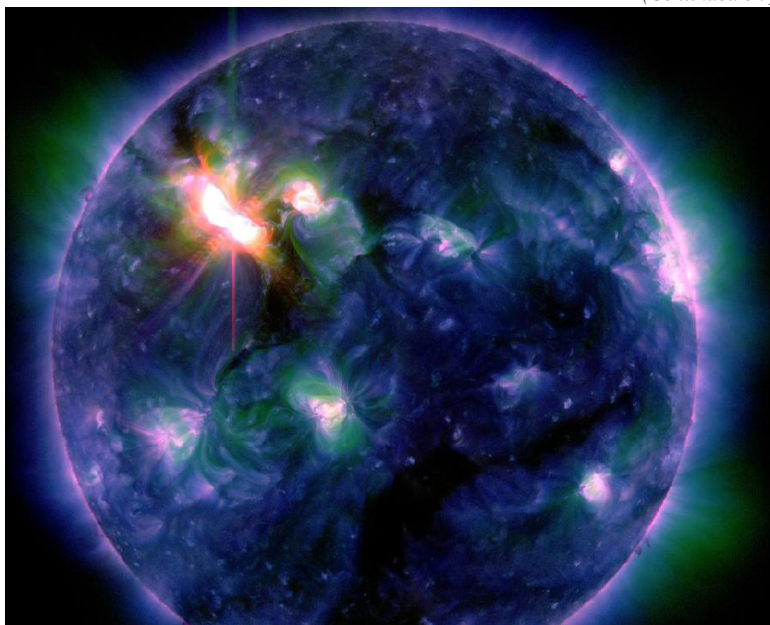
Every 11 years or so, the solar cycle brings a period of high solar activity. Giant islands of magnetism—"sunspots"—break through the stellar surface in increasing numbers. Sometimes they erupt like a billion atomic bombs going off at once, producing intense flares of X-rays and UV radiation, and hurling massive clouds of plasma toward Earth.

This is happening right now. Only a few years ago the Sun was in a state of deep quiet, but as 2012 unfolds, the pendulum is swinging. Strong flares are becoming commonplace as sunspots once again pepper the solar disk. Fortunately, Earth is defended from solar storms by a strong, global magnetic field.

In March 2012, those defenses were tested.

At the very beginning of the month, a remarkable sunspot appeared on the Sun's eastern limb. AR1429, as experts called it, was an angry-looking region almost as wide as the planet Jupiter. Almost as soon as it appeared, it began to erupt. During the period March 2nd to 15th, it rotated across the solar disk and fired off more than 50 flares. Three of those eruptions were X-class flares, the most powerful kind.

(Continued on page 9)



March 6, 2012, solar flare, as seen by the Solar Dynamics Observatory.

Multiple-wavelength view of X5.4 solar flare on March 6, captured by the Solar Dynamics Observatory (SDO) in multiple wavelengths (94, 193, 335 angstroms).

Credit: NASA/SDO/AIA

The meteor quiet month of June has a couple of possible viewing events for the intrepid. The June Bootids (JBO) “peak” late in the month on the 27th. Although it is difficult to say that a shower peaks when it can sometimes have an hourly rate near zero!

If we dig a bit further into this shower’s heritage we find that it comes from good stock as experts say that the shower’s parent is Comet 7P/Pons-Winnecke.

There have been two large outbursts some years ago in 1998 and 2004; adding six years to this trend disappointed numerologists with a poor showing in 2010. All in all, the moon is out of the way if you observe after midnight – might be worth a look!

Full Moon
June 4

Last Quarter
June 11

New Moon
June 19

First Quarter
June 27

Shower	Activity	Max Date	λ 2000	Radiant α	δ	V_{∞} km/s	r	ZHR
June Bootids (JBO)	6/22 - 7/02	Jun 27	95.7°	224°	+48°	18	2.2	Var

If you happen to catch any celestial manna from heaven, let us all know!

Tom Giguere, 808-782-1408, Thomas.giguere@yahoo.com

Mike Morrow, PO Box 6692, Ocean View, HI 96737.



Star Party Report

by Sue Girard

Sat May 12, 2012:

The Club Star party at Dillingham turned out very well for those members who showed up. We didn’t have a very big turnout with only **Gretchen, Bryon and Hannah Thomas, Greg Wilson, Peter and Leslie Galloway**, and myself. But what a night! It was clear all evening long and the seeing was quite spectacular.

Venus was a beautiful, bright crescent and Saturn showed a tremendous amount of detail. The receding Mars even offered an enticing look. We took advantage of the cloud-free sky and perused all our favorites with Omega Centauri, the galaxies of Virgo and Leo offering wonderful views.

However, with the moisture in the high atmosphere, it wasn’t the best night for doubles. It started to get chilly about 10pm and the talk went from galaxies and star clusters to coffee, parkas and mittens - yes, we definitely decided to plan the preparations for the next Star Party a bit better! Bryon and Hannah decided to call it quits, but the rest of us braved the ‘Hawaii version’ of cold and stayed until midnight. It sure was worth it!

(Continued on page 11)

Planets Close To the Moon

Times are Hawaii Standard Time

June 9, 15h, M 5.9° NNW of Neptune
(106° from sun in morning sky)

June 12, 12h, M 5.1° NNW of Uranus
(73° from sun in morning sky)

June 16, 20h, M 1.4° NW of Jupiter
(25° from sun in morning sky)

June 17, 14h, M 2.1 N of Venus
(18° from sun in morning sky)

June 21, 07h, M 5.5° S of Mercury
(24° from sun in evening sky)

June 26, 01h, M 5.4° SSW of Mars
(81° from sun in evening sky)

June 27, 22h, M 6.1° SSW of Saturn
(105° from sun in evening sky)

Other Events of Interest

Times are Hawaii Standard Time

June 4, 01:11h, Moon Full

June 5, Transit of Venus

12:10h - Ingress, exterior contact

12:28h - Ingress, interior contact

15:27h - Mid

18:12h - Sun sets










June 5, 15h, Venus at inferior conj. with sun (Passes into morning sky)

June 19, 05:02h, Moon New

June 20, 13:07h, Summer Solstice

June 29, 00h, Pluto at opposition

(Best time of year to observe this minor planet, look near midnight when it is highest in the sky)

 Mercury Mercury makes an evening appearance during the last 2 weeks of June.	 Venus After transit on June 5th, Venus rises rapidly in the morning sky and by the end of the month is rising 2 hours before the sun.	 Mars Still shines brightly in the southwest during the evening hours, after reaching opposition in March.
 Jupiter Jupiter is above Venus in the early morning sky - still pretty close to the sun.	 Saturn Saturn shines brightly in the evening sky in the southeast.	 Uranus Rises before midnight and can be viewed before dawn.
 Neptune Neptune is in the morning sky and rises before midnight.	 Dwarf Planet Pluto Reaches opposition on June 29. This is the best month to view this minor planet in the hours around midnight.	 Asteroid 3 Juno Still in the sky most of the night after reaching opposition in the middle of last month.

From songs to poesy, even now, there is a personal mythology of the stars, not to mention the sun, moon, and the planets. Even so called primitive cultures had myths about the stars. For example, referring to the Pleiades: "Due to a high visibility, these stars gained a special place in many ancient cultures. They are winter stars in the Northern Hemisphere and summer stars in the Southern Hemisphere; we can tell that these stars were known since old times, by several cultures all around the world, including the Maori and Australian Aborigines, Chinese, Maya and Aztec and the Native people of North America." <http://arxiv.org/ftp/arxiv/papers/0810/0810.1592.pdf>

I use the word *myth/mythology* in the sense advocated by Joseph Campbell where a belief or narrative was at some time and place held as true. The old myths have in common a subjective sense where the person's tribe/culture plays a prominent role. The old myth-making factories suffered a rupture when Galileo forcibly maintained that the earth revolved the sun and Darwin followed with the haymaker punch that said not only was the earth an insignificant speck in a galaxy which itself was one in billions, but that humans had evolved from single-celled slime.

One of the prime functions of myth is to provide a safe and comfortable "home" for the tribe/culture. The rift between religion and science continues to this day but with a very interesting twist. There is a revolution going on in the scientific community. In a typically human way, the scientific community had found its stable "home" in mathematical causal models. Not suitable for the general public because of the subject/object split. Most people want something personal and subjective in their myths.

Einstein's relativity and Schrödinger's quantum mechanics brought the subjective back into science. The science of consciousness has cemented the necessity discarding the myth of objectivity. The sand castle of mathematics was elucidated by a documentary done by BBC 4 "Dangerous Knowledge" It is available on YouTube. The gist of the story is that there is an infinite variety of ways of doing mathematics but most physicists did not believe this had any relevance to physics. Stephen Hawking recently (<http://www.physics.sfasu.edu/astro/news/20030308news%5CStephenHawking20030308.htm>) said that indeed the implication of there being an infinite number of ways of doing physics obliterated the "home" of safe and stolid mathematics.

What is so ironic about these developments is that the subject/object split and a focus on physical nature allowed science to get a divorce from the catholic church and flower in the process. The tragedy was that most scientists made the subject/object split into its own religion with mechanistic materialism and the search for a theory of everything.

These new discoveries that unite present philosophy of science with old time religion like Buddhism may be just what is need to bridge the great cultural divide between science and religion.

Charles

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(President's Message continued from page 1)

no longer useful for this purpose. However, there will be scientific observations of this transit. Earth's nearly full Moon will be observed to try to detect the difference in the amount and color of light that is reflected before, during, and after the transit. There should be a small drop in light reaching the Moon during the transit, and the portion that refracts through the atmosphere of Venus should show spectral differences from unfiltered sunlight. If successful, these techniques could be applied to the investigation of planets around distant stars.

Chris



Hawaiian Astronomical Society

Event Calendar

<div> List View Past Events < June 2012 > Upcoming Events Add/Log Event </div>						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
27	28	29	30	31	1	2
						Sunset: 7:12 PM
3	4	7:30 PM Club Meeting	5	6	7	8
						6:45 PM Club Star Party (D)
						Sunset: 7:14 PM
10	11	12	13	14	15	16
						6:45 PM Public Star Party(D)
						Sunset: 7:17 PM
17	18	19	20	21	22	23
					6:45 PM Public Star Party(K) 6:45 PM Public Star Party(G)	
						Sunset: 7:18 PM
24	25	26	27	28	29	30
						Sunset: 7:19 PM

NOTICE

HAS has published a complete listing of Club members in the this issue of the Astronews. This publication is required by Club by-laws, Article III, Section 2 Para C(e) and Article VIII, Section 1B. Unless notified otherwise, this list includes all member’s names, mailing addresses, and phone numbers.

Please be advised that this listing is intended for Club members’ personal use only in contacting one another. It is not to be used for any commercial or solicitation purposes. With the exception of our membership in the Astronomical League, HAS does make this list available to, nor do we sell its contents to anyone for any purpose. *Please respect our member’s right to privacy.*

(Space Place continued from page 4)

As the eruptions continued almost non-stop, Earth's magnetic field was buffeted by coronal mass ejections or "CMEs." One of those clouds hit Earth's magnetosphere so hard, our planet's magnetic field was sharply compressed, leaving geosynchronous satellites on the outside looking in. For a while, the spacecraft were directly exposed to solar wind plasma.

Charged particles propelled by the blasts swirled around Earth, producing the strongest radiation storm in almost 10 years. When those particles rained down on the upper atmosphere, they dumped enough energy in three days alone (March 7-10) to power every residence in New York City for two years. Bright auroras circled both poles, and Northern Lights spilled across the Canadian border into the lower 48 states. Luminous sheets of red and green were sighted as far south as Nebraska.

When all was said and done, the defenses held—no harm done.

This wasn't the strongest solar storm in recorded history—not by a long shot. That distinction goes to the Carrington Event of September 1859 when geomagnetic activity set telegraph offices on fire and sparked auroras over Mexico, Florida, and Tahiti. Even with that in mind, however, March 2012 was remarkable

It makes you wonder, what if? What if Earth didn't have a magnetic field to fend off CMEs and deflect the most energetic particles from the Sun.

The answer might lie on Mars. The red planet has no global magnetic field and as a result its atmosphere has been stripped away over time by CMEs and other gusts of solar wind. At least that's what many researchers believe. Today, Mars is a desiccated and apparently lifeless wasteland.

Only 93 million miles from Earth, a G-type star is acting up. Thank goodness for magnetism.

With your inner and outer children, read, watch, and listen in to "Super Star Meets the Plucky Planet," a rhyming and animated conversation between the Sun and Earth, at <http://spaceplace.nasa.gov/story-superstar>.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration. ☆

Meeting Minutes

by Gretchen West

President Chris Peterson called the May 2, 2012 meeting of the Hawaiian Astronomical Society to order at 7:30p.m. The meeting was held at the Planetarium on the grounds of the Bishop Museum. As **Gretchen West** is not in attendance, meeting minutes are taken by H.A.S.-at-large member, **Sue Girard**.

President's report: Chris reported that he has not lined up any speakers yet for the next meeting, but is working on getting one.

It was reported that the ISS would shortly be passing over the city, so Chris broke up the meeting for a break to go and watch it. We went out on the lawn and at 7:39pm the ISS began its pass. It was -2.5 in mag and was about 38 degrees at its highest.

When the meeting resumed, Chris said that the University of Hawaii will be the first university to design, build, and launch its own satellite. The launch is set for Barking Sands Launching site on Kauai. The project will be funded by NASA.

Chris mentioned the recent HAS activities from the past week. There were two school star parties, the Astronomy Day event on Saturday at Kahala Mall, and the Institute for Astronomy Open House event on Sunday April 28, 2012 and thanked those that helped out.

(Continued on page 11)

Treasurer's Report

by Jim MacDonald

HAS Financial Report for the month ending as of June 15, 2012

Initial Balance:	\$4,689.72
<i>Receipts:</i>	
Donations	48.00
Dues Received	130.00
Telescope Rental	20.00
Total Income:	\$198.00
<i>Expenses:</i>	
Astronews	57.74
Magazine Subscription	34.00
Total Expenses:	\$91.74
Final Balance	\$4,795.98

The club gained four new members this month. They are *Mark, Cheryl, Lura and David Looper*. Our special thanks to *Jane and Morris Jones* and *Robert Humphreys* for their donations. Our thanks to all those who remembered to renew their membership. Come join us for some great views of the Summer skies.

<<Upcoming Star Parties>>

CLUB Party-Dillingham	June 9 (L. Galloway)
Public Party-Dillingham	June 16 (J. MacDonald)
Kahala/Ewa Party	June 23

SCHOOL STAR PARTIES

SUMMER VACATION!

**NO SCHOOL STAR PARTIES SCHEDULED
UNTIL FURTHER NOTICE**



(Minutes continued from page 9)

Visitors: *Steve and Jeannie* found us on Yahoo. *Sarah and A.J.* are students from Windward Community College who came to pick up some extra credit for their astronomy class.

Volunteers: Chris asked for a show of hands to see who will be coming to Bishop Museum on June 5th for the Transit of Venus to help out. He said the Museum was going to be open to the public from 12 noon to 5pm, but HAS folks could stay on for the regular meeting that evening.

There will be a partial eclipse of the Sun from Hawaii on May 20th, peaking about 3:00 pm, with the Moon covering about 20% of the Sun's surface.

Chris reminded members of the upcoming 'Lahaina Noon' on May 27th at 12:30pm and said there will be another one in July.

He also reminded members that the full membership list will be published in June and asked anyone who did not wish to have their name on the list to contact **Jim MacDonald**.

Astronomy article: *John Sandor* showed club members a publication he just purchased from Astronomy magazine, entitled 'Worlds Greatest Telescopes', which includes an article by **Peter Michaud** on the Mauna Kea scopes.

Since there was no other speaker the meeting was adjourned at 8:33pm and everyone went out to look at the Moon, Saturn, Mars, and Venus through several scopes set up on the deck over the Planetarium. (Thanks to **Jim MacDonald, Sue Girard, April Lew, Peter Galloway** for bringing their scopes!)

Respectfully Submitted,



Sue Girard for Gretchen West

Secretary

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(Star Party Report continued from page 5)

Sat May 19, 2012:

The Public Star Party at Dillingham saw a big turnout of visitors with about 100+ folks in attendance. We even had an astronomy class from Punahou School (who brought their own scope). Before it got dark, we were treated to the antics of a couple of ultra-lites that took off from the field and did a few loops around the airfield.

Again, as last week, the sky was very clear so the views of Venus and Saturn were a joy to behold. Venus has transformed itself into a very nice thin crescent and most folks were surprised to learn it went through phases just like the Moon. Saturn, of course, was the highlight for many of the visitors and they were treated to a nice view of four of its' major moons. Mars was getting noticeably smaller, so not much detail was to be seen.

As it started to get dark, we were engulfed with a hoard of termites which got all over everything and everybody! They lasted until about 8:30pm when they finally left. During that time we tried to show the folks all the old favorites - galaxies held sway overhead and star clusters of all kinds were also very appreciated. It was a pretty good night for doubles, and the 'double-double' split very nicely. Some satellites were pointed out as they crossed overhead, and a few bright meteors whizzed by too. Most of the visitors left at the 8:30pm exit, but a few stayed with us until the 10:30pm exit time. It didn't seem to get quite as cold as last week, but the sweaters and coffee came out anyway. I was the Key Master this time, so with the beautiful sky conditions we stayed until midnight when a few high, puffy clouds came by to bring an end to a great night at Dillingham.

Sue



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Club member ***Alex Dzierba*** posted this image of the May 20 partial solar eclipse on the Hawaiian Astronomical Society's facebook site. See story by ***Barry Peckham*** on page 3.

Image courtesy: Alex Dzierba

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Office will not
deliver mail
without proper
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