Articles
6 Sri Lankan Skies and Sir Arthur .......... T. C. Samaranayaka
8 “Davie Dragon and the Planets” (script) .......... Margie Walter

Features
21 Reviews ................................................................. April S. Whitt
23 Gibbous Gazette ........................................................ James Hughes
27 Forum: Most Important Equipment? .................. Steve Tidey
31 What’s New ............................................................. Jim Manning
38 International News .................................................... Lars Broman
44 President’s Message ............................................... Dale Smith
54 Jane’s Corner ............................................................. Jane Hastings
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Please notify the Editor of changes of IPS officers and affiliate representatives.
Letters to the Editor

Dear Editor

I have just returned from the Southeastern Planetarium Association's annual meeting in Winston-Salem, N.C. As a part of the conference activities, we visited the Morehead Planetarium in Chapel Hill, N.C. There I was able to see the "Phases of the Moon" exhibit described by Richard McColman in the June 2000 issue of the Planetarian. In the article, Richard gave a detailed explanation of how the Morehead staff prepared the exhibit; what he failed to mention is how effective it is. It is fabulous; take it from someone who has taught "Phases of the Moon" many, many times.

While viewing the exhibit last week with Richard present, he mentioned that he and other staff members have observed patrons looking at it for awhile, and a look of genuine enlightenment appears over their head as they finally see why the moon has phases. Please don't miss seeing it if you possibly can; this exhibit should be in every museum or school exhibit area.

On another note, Morehead has the largest working orrery in the world right next door to the "Moon Phases" exhibit. It is mounted overhead, in the ceiling of a large room. The moon, planets, and several moons of planets are moved around the sun mechanically in the correct ratio of speeds and revolution times. It, again, is fabulous.

Morehead should be extremely proud to have two such wonderfully educational exhibits. Although they may be complicated in design and maintenance, they are extremely effective. Congratulations, Lee Shapiro, Richard McColman and Morehead staff in realizing the importance of creating simple, visually elegant exhibits which do a wonderful job of educating patrons.

- Jane Hastings
Richmond, Virginia USA

John,

After many debates with myself over the past couple of years, I've reluctantly decided that the time has come for me to give up the Planetotechnica column. I've enjoyed working with you throughout my tenure with the column, and I'll be forever grateful for your having given me the opportunity to share my thoughts and ideas with the IPS membership. I've been amazed by all of your leadership and hard work as editor of the Planetarian. Therefore, my decision to relinquish authorship of the column is doubly painful.

However, for the past two to three years, I've found it increasingly difficult to find topics about which I was familiar that I hadn't addressed in one way or another in previous columns. To be sure, there are new and advancing technologies and production techniques, but I need to learn more about these myself before writing about them for the IPS membership. Also, I've always tried as much as possible to write about topics which I felt might be useful to more than just one or two planetarians, but I do find that the newer high-tech technologies aren't quite as "accessible" to the average planetarian as the more conventional areas of special-effects construction and slide production. Therefore, I think the time has come for me to step aside and allow someone else to take a crack at things for awhile.

I wish you the very best in finding a replacement author for the production/technical column. Again, I've enjoyed working with you for the past several years and hope that both you and the Planetarian will continue to grow and prosper.

Richard McColman
Morehead Planetarium
Chapel Hill, North Carolina USA

Richard's letter expresses very well the cooperative spirit of giving that makes the Planetarian what it is. I'm very sorry that Richard has departed the editorial staff and thank him for his years of hard work. His column was one of the best, had great illustrations, and I always learned something. I will definitely miss it, as will the readers.

Would one of the readers volunteer to write a column on technical matters for the Planetarian? It need not be named "Planetotechnica" and it need not follow Richard's format. We are all interested in special effects and technical matters, and proposals would be most welcome.

- Ed

Fran Biddy, 1948 - 2000

It is our sad duty to report the passing of our esteemed colleague, Fran Biddy. Fran had left the Strasenburgh Planetarium about 3 years ago on disability leave for a heart condition that simply worsened over time. He died of congestive heart failure at Strong Memorial Hospital in Rochester on July 18, 2000, at the age of 52.


Beyond his planetarium career, one of Fran's major contributions was his work as producer and technical director of the Shipping Dock Theater, which he and his wife Barbara founded in 1980. The Shipping Dock has remained on the cutting edge of theater in Rochester, presenting challenging works that more conservative theaters avoid. In particular, I will always remember a brilliant production of David Mamet's "Glengarry Glen Ross" as typical of the Shipping Dock's philosophy of artistic courage and independence. Barbara Biddy continues as Shipping Dock's artistic director.

Fran was also a writer of mystery stories and a wood sculptor. Cards can be sent to the Shipping Dock Theater, 151 St. Paul Street, Rochester, NY 14604.

- S. Fentress
Sri Lankan Skies and Sir Arthur: A 2001 Odyssey

T. C. Samaranayaka (SAM)
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Colombo, Sri Lanka
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Sri Lanka Planetarium is planning to greet the dawn of the new millennium with a unique event in which astronomical observations will be linked to a 25-centuries-old culture in widening the horizons of astronomical education of children in a developments of the key technologies, especially in communication.

Sri Lanka is a tropical island of 65,000 sq. km. situated in the Indian Ocean. Although comparatively small in size, it can claim an undisputed history going back even to the prehistoric era. It is pregnant with meaning for this country, Sri Lanka, to be known as the “pearl of the Indian Ocean,” for it is endowed with all the gifts of nature—scenic beauty, golden beaches, a varied and varying climate, and gems of world renown, among others. The island occupies a strategic location on the traditional trade routes linking East and West. Colombo is the commercial capital and is an important port in the region. The coastal plains rise gradually to the mountainous region at the center of the island. Climatically the southwestern region and the hill country form a humid wet zone, with a dry zone covering the other areas. A number of rivers trace their origin to the central hills and become great rivers that boost the agriculture and source the hydro power generation of the country and finally disgorge to the surrounding Indian Ocean.

The country has a tropical climate with little seasonal variation, as it is located just ten degrees north of the equator. This makes it an ideal location for clear effective sky observations. Sri Lanka has been known from ancient times to several civilizations of the world by a variety of names. The Greeks called her “Taprobane” and the Arabs named her “Serendib” while the British, the last colonial power to subjugate the country, called her Ceylon. Sri Lanka is an ancient indigenous name, connoting a resplendent island.

Sir Arthur in his book “View from Serendib” talks about Sri Lanka and why he likes it as follows: “… Another reason why I like Ceylon is that it is of right size. There is no point, which cannot be reached from any other in a day’s driving. Geography and climate do not make a country, though they determine what kind of a country it will be. There are Islands in the Pacific, lovelier and more temperate than Ceylon, but they have no culture, no sense of the past, nothing to engage the intellect. Ceylon offers far more...
than empty mindless beauty; it has twenty five hundred years of written history, and ruins of cities that were once among the greatest in the world ..."

The Sri Lankan organizers of the conference are confident they will make it a unique experience for the participants by combining a remarkable history with the future of astronomical education. The ceremonial opening of the conference will be in Colombo, the capital city. It will be followed by two days of presentations and panel discussions on the conference theme, combined with planetarium shows. On the third day the delegates will travel to the dry zone, where the ancient civilizations flourished. Here the astronomers will be able to impart their knowledge to groups of children through night sky observations and explore wonders of the heavens together. On the fourth day delegates will travel to the hill country, which has unparalleled scenic beauty spots and other natural wonders such as waterfalls and the highest point, Piduruthalagala, which is 2324 meters above sea level, all making the region’s climate enchanting, salubrious, invigorating, and all-inviting. On the fifth day delegates will travel back to Colombo, relax at the hotel, and leave for their scheduled flights.

As is clear from the programme, this will be conference cum sightseeing and imparting knowledge and furthering education. The conference organizers will handle all arrangements in Sri Lanka and the delegates will have only to participate and enjoy themselves.

As a prelude to this event Prof. Dale Smith, President of the International Planetarium Society, visited Sri Lanka in February 2000 and spent five days covering an extensive area of the country. His visit is described in the previous issue of the Planetarian. He was able to see for himself the activities connected with astronomical education and was the guest of honor at a function held at the Sri Lanka Planetarium, where the chief guest was Sir Arthur C. Clarke. Presently astronomy is a subject incorporated into the school curriculum of Sri Lanka and as a result there is a tremendous interest in the celestial phenomena displayed among school children, enhancing their commitment and enthusiasm to explore celestial intricacies and complexities. The conference will give the delegates an opportunity to see the status of astronomical education in a developing country and to plan and innovate new approaches of “teaching the universe in the 21st century”.

Although it is widely publicized that there is a war situation in Sri Lanka, there is hardly a shortfall in the number of international and regional conferences held in Colombo every year. What is correct is that the country has a terrorist problem and that is confined to the northernmost sector, which is not in the schedule of our itinerary of night sky observations and sightseeing tours.

Last but not least I must say that I have been nominated to the IPS Education Committee and one of my recommendations would be to introduce new methods to promote astronomy in third world countries and surely this conference will be an exercise for all the IPS members who attend to see the status of astronomical education in a developing country and to suggest ways of innovating new ideas to teach the Universe in the 21st century.

(See extensive further information in the President’s Message in the previous issue of the Planetarian. Registration materials will be available soon.)
The results of the 1998 IPS Eugenides Script Contest were announced at the 1998 Conference in London, England. I am pleased to once again congratulate our First Prize winner, Margie Walter, of the South African Museum Planetarium. Her script, *Davy Dragon and the Planets,* is reproduced here for the benefit of all IPS members, and to encourage them to think ahead to the next time the script contest will be conducted. It has been on hiatus during this biennium while the Mars Millennium Project is underway, but the script contest should return in the next biennium leading to awards that will be made at the conference in 2002.

Davy Dragon is a charming public program, focused towards younger skywatchers in the audience, that can be produced for performance in any sized facility. The innocent young title character has a natural appeal and is, to the best of my knowledge, the first space-faring dragon under the dome.

Among mythical creatures, dragons seem to hold a special place in the hearts of children today. Although this could be a creature native to the unique and exotic environs of South Africa, I'm more inclined to believe that the creative scriptwriter brought a mythical critter together with astronomy, adventure, and problem solving in this show. On behalf of IPS members, I would like to thank Margie for submitting the script and sharing it with us.

I also want to apologize for such a long delay in publishing Davy Dragon in the *Planetarian.* There was some difficulty in converting such a large document with script column format into digital files. Once that hurdle was overcome, our editor very quickly attacked the monumental formatting task to prepare for publication. Special thanks to John Mosley for handling that difficult task.

---

**Davy Dragon and the Planets**

*A Planetarium Script by Margie Walter, South African Museum Planetarium*

Eugenides Script Contest
1998 First Prize Award

Alan Davenport
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---

Fade red then blue cove to dark.
40 sec happy music

Title POS 1.

Fade up castle PAN.

Fade title POS 1.

Dragon happy POS 1.

School bell rings.

"Dreary School for Dragons" POS 2
fade after while.

Dragon unhappy- animated POS 1.

NARRATOR: Once upon a time, in a land very far from here ...

... there lived a young dragon called Davy.

(2 sec pause)

Now, he was a very happy and good dragon and always did all his dragon homework when he got home from Dragon School.

(2 sec pause)

But there was one subject that he was having a lot of trouble with.

(2 sec pause)

Flying! Yes, that's right. Flying! To pass Dragon School and become a successful dragon, he had to be able to fly! And fly well! But his feet were too big! They always got in the way and made him trip and fall flat on his face! Late one afternoon, because he had to do a flying test at school the next day, he practised even harder...

---

*Planetarian*  
Vol. 29, No. 3, September 2000
Fade dragon POS 1 and PAN.

Dragon running PAN 12, running sound, then fade pic.

Dragon flying PAN 11, flapping sound, then fade pic.

Dragon falls PAN 10, thud sound, then fade pic.

Dragon runs PAN 9, running sound, then fade pic.

Dragon flying PAN 8, flapping sound, then fade pic.

Dragon falls PAN 7, thud sound, then fade pic.

Dragon runs PAN 6, running sound, then fade pic.

Dragon flying PAN 5, flapping sound, then fade pic.

Dragon falls PAN 4, thud sound, then fade pic.

Dragon runs PAN 3, running sound, then fade pic.

Dragon flying PAN 2, flapping sound, then fade pic.

Horiz. Moving Mirror R-L flying dragon, flapping sound continues.
Fade up castle PAN.

Magic tinkle sound

VERT. MM flying dragon - moves up
Fade pan. Stars on.

MM L-R flying dragon.
Turn stars ACW.

Stop stars turning.

Cartoon Mercury POS 2.

Dragon POS 3.

Orrery on.

Word “solar system” PAN 1.

Fade “solar system” PAN 1.

(2 sec pause)

DAVY: Oh, I will fly!

I will fly!

I won't give up!

(grunt)

I can do it!

(pant-pant)

Think positive!

(pant-pant)

Try again!

(pant-pant)

(grunt)

I'll get it right now!(pant-pant)

That's better!

(pant-pant)

Won't give up!

(grunt)

Once more!

(pant-pant)

Hey, I can fly!

I can fly! I can fly! This is fun! I'm high in the sky! I'm sure if I close my eyes and flap my wings very, very hard, I can fly even higher!

(2 sec pause)

Oh dear! Now I've gone and done it! Where am I?

(6 sec pause)

Where's home? I can't see my home any more! I just see stars. Lots and lots of stars. Am I lost then? ... I want to go home now ... I want my mommeee!(cries)

(2 sec pause)

MISTER MERCURY: There, there. Don't cry little dragon.

(2 sec pause)

DAVY: (sniff) Who's that? Is there someone else who's also lost then?

(2 sec pause)

MERCURY: Oh no. I'm not lost. I'm the planet Mercury. I live up here with my family of planets and we all travel around and around the Sun.

(2 sec pause)

DAVY: That sounds like fun. (sing) Around and around the Sun you go ... By the way, I didn't know planets had families. What's your family called?

MERCURY: The Sun and its family of planets are called the solar system.

DAVY: So,lar sys..tem.

MERCURY: The Sun is at the centre of our solar system and all the planets travel around and around the Sun in big circles.

DAVY: Don't you bump into one another?
Word “orbit” PAN 1 - fade after a while.
Fade orrery.
“Mercury - first planet from the Sun” POS 1 - fade after a while.
Fade dragon POS 3, Mercury POS 2 Mercury PAN.
Hot visual POS 1, ping sound
Add cold visual POS 1, ping sound
Add no water visual POS 1, ping sound.
Add no air visual POS 1, ping sound.
Add no plants visual POS 1, ping sound.
Fade composite POS 1.
“Craters” POS 3 - fade after a while.

MERCURY: Oh no! Each planet has its own path around the Sun, called an orbit. But I’ve been talking so much, I’ve forgotten my manners… So what’s your name dragon?

DAVY: I’m Davy. Sorry sir (sniff) … what, what’s your name again?

MERCURY: Mercury. The planet that is closest to the Sun.

DAVY: Mer…cru,ry.

(2 sec pause)

MERCURY: That’s right, Davy Dragon. But why do you sound so sad?

DAVY: (sniff) I was practising my flying, and I flew too high and now I can’t find my way home again. I’m lost! I think my teacher said my home planet’s name is Earth, but I can’t seem to find it. Please, Mister Mercury, will you be my home planet? I’m a very good dragon and I’m house-trained as well.

MERCURY: Oh no, Davy. I’m a planet that’s too close to the Sun for you to live on. My days are very, very hot ...

... and my nights are very, very cold.

(2 sec pause)

DAVY: Oh dear. Planet Mercury doesn’t sound like the place for me!

MERCURY: There’s no water ...

(2 sec pause)

... or air on Mercury either ...

(2 sec pause)

... so you wouldn’t be able to live here, Davy. Dragons need water to drink and air to breathe, don’t you?

DAVY: Yes, we do. And we eat plants and things. There doesn’t seem to be any plants to eat on Mercury either.

(2 sec pause)

MERCURY: That’s right, Davy. No plants or trees! Nothing grows here!

DAVY: Mercury doesn’t seem a very friendly place at all ... By the way, why are you so full of holes and dents, Mister Mercury?

MERCURY: Oh, you mean my craters.

(2 sec pause)

DAVY: Cra … cra ...

MERCURY: Craters.

DAVY: What are craters?

MERCURY: Craters are huge holes made millions of years ago by big rocks from space that crashed into me.

DAVY: Ouch! That must have been very sore! Was it sore, Mister Mercury?

MERCURY: Not really. I think the crater holes give me character, actually.

DAVY: Yes, they do, but I don’t think I’d like any craters on me. I must go now, Mister Mercury. I must look for my home planet. It’s almost supper-time and my mom will be wor-
ried if I'm not home. Oh dear, oh dear, I hope I find Earth again.

MERCURY: I hear there's another planet a bit further away from the Sun than I am. Maybe that will be your home planet. Why don't you try there?

DAVY: Okay, that's a good idea. I'll do that. Thank you and bye, Mister Mercury.

MERCURY: Good bye, Davy Dragon, and don't be sad. I'm sure you'll find your planet Earth again.

(6 sec pause)

DAVY: I wonder if the next planet will be my home?

MISS VENUS: (humming - “Venus in blue jeans”)

DAVY: Hey, that sounds like my mommy singing Mommy! It's me, Davy! I'm lost! Where are you?

VENUS: I'm not your mother, child. My name is Venus. I'm the second planet from the Sun.

(2 sec pause)

DAVY: Oh dear. I thought you were my mommy. I'm lost and can't find my home planet, Earth. Can you help me please, Miss Venus? Will you be my home planet?

VENUS: Oh, I can never be your home planet, child.

DAVY: Why not, Miss Venus? You sing so beautifully and you seem like a friendly lady. I'm a very good dragon!

VENUS: Oh, I'm sure you are a good dragon, but the problem is it's much, much too hot on my surface!

(2 sec pause)

DAVY: Oh, but when I'm big, I'll be a fire dragon, like my dad. I can't blow fire yet though. I'm still too small but I do try. (tries to blow)

(2 sec pause)

VENUS: That's very good, little dragon. With a bit more practice and some time, you'll be able to blow real fire. But I'm a lot hotter than that! Too hot even for fire dragons! Venus is the hottest planet in the whole solar system!

DAVY: Why are you so hot then, Miss Venus? Did you eat some burny food? Burny food always makes me hot.

VENUS: Oh no, child! I'm so hot because my clouds keep the Sun's heat in. You would melt instantly if you tried to live on Venus.

DAVY: (intake of breath)

VENUS: But that's not the whole problem. Even if my heat didn't melt you, the acid gas in my clouds would poison you!

(2 sec pause)

DAVY: Oh dear! Venus sounds like a terrible planet for dragons!

VENUS: And the pressure of the gas in my clouds is so strong, it would crush you!

(2 sec pause)

DAVY: And I thought you looked so pretty!

VENUS: Oh, but I am! Would you like to fly over me and see for yourself?

DAVY: Well ... I'm not sure ...
VENUS: Oh come child, I'll protect you.

DAVY: Well, if you say so, Miss Venus.

VENUS: Here we go...

(10 sec pause)

DAVY: Oooo... won’t I crash?

(4 sec pause)

VENUS: Oh no... I won’t let you.

(10 sec pause)

DAVY: I don’t think I like this very much, Miss Venus.

(2 sec pause)

I’m scared... Please stop!

(4 sec pause)

VENUS: Okay then, child. If you say so.

(10 sec pause)

DAVY: Ooo... I don’t want to live on Venus! Venus definitely doesn’t look like a planet for dragons. I don’t mean to be rude, but I think I had better continue looking for my home planet now. Bye, Miss Venus.

VENUS: Off you go then, child. Good luck with your search and don’t be sad. I’m sure you will find your mother again. Good bye.

DAVY: Bye.

(3 sec pause)

DAVY: Good heavens. Planet Venus scared me a bit!

(2 sec pause)

I don’t suppose the next planet is my home planet either, so I’ll fly over it and try the next one after that.

(hums “oranges and lemons”)

My mom always says I should hum to myself if I feel a bit scared. Let’s see if it works. (hums) Wait! What’s that? There’s a little red dot over there. Maybe that’s home. Yoo hoo! Planet!

(2 sec pause)

MISTER MARS: (angry) What do you want! Who do you think you are, disturbing me like this?

DAVY: Hello mister planet. I’m Davy Dragon, sir. My, but you’re cross. Is that why you’re so red in the face? What’s your name, sir?

MARS: Questions, questions, questions! I haven’t got time for all these questions! Don’t you know who I am? I thought everyone did. I’m the planet Mars, fourth planet from the Sun.

(2 sec pause)

DAVY: How, how do you do, Mister Mars.

MARS: What I do is none of your business! But I’ll tell you what I don’t! I don’t like to be
annoyed by little dragons!

DAVY: Well, I’m glad you’re not my home planet, sir. I don’t like being shouted at.

MARS: Hmph! ...

... Well you can’t live here anyway! There’s not enough air for you to breathe!

(2 sec pause)

And no water!

(2 sec pause)

DAVY: My, even the sky on Mars looks cross!

MARS: That’s nothing! When I was younger, I made my volcanoes erupt! Those mountains you see are volcanoes.

DAVY: Volcanoes! Oh no! Not volcanoes! They make more fire than dragons can!

MARS: Yes, but I don’t do volcanoes these days. Now, when I’m really, really cross, I make huge dust storms that last for weeks! I think I’ll make one now, in fact!

DAVY: Oh no! Oh no! Please don’t make a huge dust storm, Mister Mars! I’ll get frightened!

MARS: I will! Don’t you tell me what I can do and what I can’t do! I’ll do what I want to!

(4 sec pause)

DAVY: Oh dear, oh dear! I had better get going before Mister Mars gets even crosser! Who knows what kind of storm he’ll make then! And I thought my dad gets cross!

(6 sec pause)

Pfew! That was close! Mars is definitely not a friendly planet! I’m glad I don’t live there! I wonder what planet I’ll find next? Wait! There seems to be another planet up ahead! Seems quite a big one too!

(2 sec pause)

Ooo ... You’re a big planet! What’s your name? Jumbo?

KING JUPITER: I’m Jupiter! Fifth planet from the Sun.

(2 sec pause)

I’m king of all the planets because I’m the biggest planet in the solar system! And who goes there?

DAVY: D ... D ... Davy Dragon, your majesty. I didn’t know I was speaking to a king!

JUPITER: Dragon, dragon? I don’t have any dragons in my kingdom that I know of. Have you come to serve me, dragon? You seem a bit small though. Can’t think how a little dragon can serve me.

DAVY: No, no, King Jupiter. I haven’t come to serve you. I’m lost. I can’t find my home planet, Earth.

JUPITER: Well, I’m not your home planet, little dragon. I am the largest of all the planets. That’s why I’m king, you know. But I’ve told you that already. I can’t be your home planet, though.

DAVY: Why not, King Jupiter?.

JUPITER: Because I’m a giant planet made of gas and liquid.

DAVY: I know what giant means. That means you’re very big and I can see you are, but what does the other bit mean, your majesty?
JUPITER: It means that I am made of swirling gas and liquid.

(2 sec pause)

I don't have any ground for you to walk on. There is no sand to play in, no stones to pick up, no mountains to climb. The strong winds that blow over me, twist and curl the gas clouds, making all the beautiful patterns you see.

DAVY: Well, I understand now why you can’t my home planet. This definitely doesn’t look like my home. There's not even any blue sky to look at! All these swirling gas patterns would make me dizzy!

(2 sec pause)

By the way, I hope you don’t mind me asking, but is that red spot a pimple, your majesty? My older brother has red pimple spots on his face. My mommy says its because of girl dragons.

JUPITER: Ho, ho, ho! No, little dragon. It is a fierce swirling storm that has been raging on me for at least three hundred years and it's called my Great Red Spot.

DAVY: A storm of three hundred years! A one day storm is bad enough! Storms frighten me, your majesty. I had better get going!

JUPITER: Well, good bye, little dragon. Good luck with your quest!

DAVY: Thank you. Bye, King Jupiter, bye.

(6 sec pause)

Good heavens! Will I ever find my way home again? (sniff) Will I have to fly up here between the planets forever? (cries)

(2 sec pause)

MISTER SATURN: Who’s crying there?

DAVY: Me. (sniff)

SATURN: Who’s me?

DAVY: Me, Davy Dragon. I’m lost. (sniff) Who, who are you?

SATURN: I’m Saturn, a giant planet made of gas and liquid, and sixth planet from the Sun.

(2 sec pause)

DAVY: Oh dear. Another one! I can’t live on a planet made of gas and liquid! King Jupiter showed me why. There’s no ground for me to stand on! Just lots and lots of twisty, curly gas and liquid clouds.

(2 sec pause)

SATURN: I’m too cold as well, for you to live on me.

(2 sec pause)

DAVY: You’ve got pretty rings though, Mister Saturn. Are you married then? My dad wears a ring because he’s married to my mom. Is there a Mrs Saturn out here too? Can Mrs Saturn be my home planet then?

SATURN: Ha, ha, ha. No Davy. They’re not wedding rings. My rings aren’t solid at all. Look...

(2 sec pause)

DAVY: Wow! Look at that!

SATURN: My rings are made of millions and millions of pieces of rock and ice that float around me. A long time ago, when people first saw my rings, they didn’t know what they
Planetarian

Vol. 29, No. 3, September 2000

Planet with ears POS 2 - fade after a while. were. They thought I had ears! Can you imagine that! A planet with ears!

DAVY: Ha, ha, ha.

SATURN: There. That sounds better. Would you like to fly along my rings?

DAVY: Yes please, Mister Saturn. As long as no rocks and bits of ice bump into me.

SATURN: Don't worry. I'll make sure you're safe. Come …

(10 sec pause)

DAVY: Oh, this is exciting! It's like I'm a racing driver on a race track!

(2 sec pause)

SATURN: I knew you would like it.

(6 sec pause)

DAVY: And I can fly through your rings without bumping into any rocks and ice!

(2 sec pause)

SATURN: I told you I would keep you safe.

DAVY: Weee …

(10 sec pause)

DAVY: Oh, thank you, Mister Saturn. I enjoyed that very much.

SATURN: I'm pleased you did. Now, how can I help you?

DAVY: I don't know where Earth is, sir. It's my home planet and I must get back there. My mom will be really worried about me if I'm not home for supper soon.

SATURN: Well, I know I'm one of a whole family of planets, but I'm not sure where your planet Earth is. Have you tried the planet next to me?

DAVY: No. Not yet. I had better go and see. Maybe the next planet is Earth! Thank you, Mister Saturn. Bye-bye.

SATURN: Good bye.

DAVY: I hope the next planet is Earth! I'm getting tired! Hey, there's something up ahead now!

(6 sec pause)

DAVY: Hey! A sideways planet with rings! Hello, mister sideways planet. I'm Davy Dragon and I'm looking for my home planet, Earth. What's your name?

MISTER URANUS: I'm Uranus, seventh planet from the Sun.

(2 sec pause)

DAVY: Are you also a giant planet made of gas and liquid, Mister Uranus?

URANUS: Yes, I am.

(2 sec pause)

DAVY: Oh dear, so you won't do as a home planet for me either. You've got no ground for me to stand on ... so I'll fall right through you! King Jupiter told me.

(2 sec pause)

URANUS: I'm also a very, very cold planet.

(2 sec pause)
DAVY: Oh dear! A sideways, cold planet, with no ground to stand on, won’t do at all! I had better try the next planet.

URANUS: I don’t think my neighbouring planet will be of any use to you.

(2 sec pause)

DAVY: Why, Mister Uranus?

URANUS: Well, Neptune is also a giant planet made of gas and liquid.

DAVY: Oh dear! Are there any more planets after that?

(2 sec pause)

URANUS: Mmmmm ... let me see now. What’s its name again? Oh yes, then there’s Pluto.

DAVY: What! Pluto? Like Mickey Mouse’s dog? Is Pluto also a giant planet made of gas and liquid?

URANUS: No. From what I’ve heard, it’s a very, very tiny planet that’s made of rocks and ice.

DAVY: Sounds like a very cold planet to visit.

URANUS: It is. And because it is so far from the Sun, Pluto is also quite a dark place as well. The Sun is so far away, that Pluto gets hardly any heat and light from it.

DAVY: Oh dear. Not like my home at all! Oh, well. Thank you. You’ve been very helpful, but I had better get going again. Bye Mister Uranus.

URANUS: Good bye, Davy Dragon.

DAVY: Oh dear! Where to now? Let’s see ... first I met Mister Mercury ... The little planet, with all the craters, that’s closest to the Sun.

(2 sec pause)

Then there was Miss Venus, the hottest planet with poisonous clouds..

(2 sec pause)

Then there was the planet that I missed ...

(2 sec pause)

And then came horrible Mister Mars. That cross, red planet! I didn’t like him at all!

(2 sec pause)

Then I met King Jupiter, the biggest of all the planets and made of gas and liquid, with a Great Red Spot that’s actually a storm...

(2 sec pause)

Who was next again? Oh yes, now I remember ... Mister Saturn, the giant planet made of gas and liquid, with the pretty rings made of rocks and ice ...

(2 sec pause)

Then there was Mister Uranus, the sideways giant planet, made of gas and liquid. He also had rings, but not as pretty as Mister Saturn’s rings, though.

(2 sec pause)

And Mister Neptune, another giant planet, made of gas and liquid, with faint rings ...

(2 sec pause)

And then there was Pluto, the smallest planet in the solar system family. The one that’s so cold and dark ... Brrr ...
So, what must I do now? Oh dear, oh dear!

(sniff) Wait a second! Maybe, maybe ... maybe that planet that I flew over, maybe that one is my home planet Earth? It must be! It can only be Earth! What am I waiting for? Let's go?

(2 sec pause)

If I hurry, maybe I'll still be home for supper? And my mom won't have to worry!

Wait. I think that's planet Earth I see now...

(2 sec pause)

... and I know that my home planet Earth has air for me to breathe ...

... and ground to stand on ...

... and water to drink ...

... and plants ...

... and other dragons to talk to ...

... and ... and. Oh Earth is just perfect for me! And I'm so pleased to see it again! I thought I was lost forever! Let me go home!

(6 sec pause)

Mommy, Daddy! I can fly! I can fly! I flew as high as the planets! And I got lost! And I flew through Mister Saturn's rings and over Miss Venus. That was a bit scary ... I thought I was going to crash and melt! And I spoke to all the other planets! King Jupiter too! And then I worked out where our planet Earth was and then I flew home again!

FATHER DRAGON: Slowly, slowly! Oh Davy! What an imagination you have! Flying to the planets and talking to them! That's the best one I've heard so far!

DAVY: But I did, Daddy. I did visit the planets!

FATHER DRAGON: Oh Davy child, what ever will you come up with next! Come on then, we mustn't keep your mother waiting. Supper is ready.

DAVY: But really, Daddy ... I did talk to the planets!

FATHER DRAGON: If you say so, dragon child.

END
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Most Frequently Asked Questions:

**Question:** What is the most frequently asked question about ‘Star Gazer’?

**Answer:** That’s easy. Everybody asks about our theme song which is the classic ‘Arabesque #1’ by Claude Debussy performed by Tomita on the still available “Snowflakes Are Dancing” album (RCA).

**Question:** At what times and days of the week can I see ‘Star Gazer’?

**Answer:** Most TV stations air ‘Star Gazer’ just before nightly sign-off. However, due to ‘Star Gazer’ s enormous popularity a number of stations find the show’s 5-minute format can fit anywhere during the broadcast day and air the show more frequently. Local TV listings seldom include 5-minute shows, so it’s best to call the station for the broadcast schedule.

**Question:** If I can’t find ‘Star Gazer’ on my hometown PBS station, how can I see it where I live?

**Answer:** ‘Star Gazer’ is provided free of charge by WPBT, Miami to all PBS stations. If you can’t find it, write or call your local PBS station and ask if they will air it and remind them that it is available free of charge.

**Question:** Is it necessary to get special permission to use ‘Star Gazer’ for astronomy club meetings, teaching in the classroom, science museum or planetarium use?

**Answer:** No. In fact, many astronomy clubs, teachers, science museums and planetariums have been taping ‘Star Gazer’ off the air and using it regularly as a way to reach their public.

**Question:** Is there any way I can get ‘Star Gazer’ other than my local PBS station?

**Answer:** Yes. A month’s worth of ‘Star Gazer’ episodes are fed monthly to a satellite from which all PBS stations take it for their local programming. Anyone with a satellite dish is welcome to the satellite feed. Again, no permission is required. For satellite feed dates and times call Monday through Friday (Eastern time) 305-854-4244. Ask for Ms. Harper or Mr. Dishong.

**Question:** I am a teacher planning my curriculum and would like several ‘Star Gazer’ episodes in advance, but I do not have access to a satellite dish. Is there any other way I can obtain ‘Star Gazer’?

**Answer:** Any teacher anywhere around the world can obtain ‘Star Gazer’ episodes in advance through their NASA C.O.R.E. Teachers’ Resource Center. For details write: NASA C.O.R.E.; Lorain County Joint Vocational School; 15181 Route 58 South; Oberlin, OH. 44074. Or visit our website: www.jackstargazer.com.

**Question:** Why does ‘Star Gazer’ always say “Keep Looking Up!” at the end of each show?

**Answer:** Have you ever tried star gazing looking down?
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Innovative Controls for Planetariums and Laser Displays
Here's a short column for the shortening days/night (pick one to fit your equinox season). With thanks to our clever reviewers, Francine Jackson and John Schroer, who have managed to fit six books into two reviews.


Reviewed by Francine Jackson, URI Planetarium, Providence, RI, Bryant College, Smithfield, RI

At first, I had trouble believing that an entire book could be written on just one meteor shower - especially a book of over 300 pages. But, Mark Littmann did it – and quite well.

Much of this book recounts the human side of the phenomenon: Denison Olmstead waking up in the middle of the night in November, 1833, to unbelievable brightness, then jumping out of bed at his neighbor’s persistent bashing; the 1202 shower described as celestial grasshoppers; Joseph Henry’s description of a railroad trestle to explain the radiant; and, of course, the normal infighting among thinkers as to the origins, heights, and velocity of these shooting stars.

Once again, the traditional legends of the astronomical community come into play in attempts to explain the why's...

The only major problem with this book is that it was written in 1998. Therefore, I found myself reading prophecies for the already past ‘99 Leonid storm. Littmann predicted a “promising circumstance,” but did not put a solid number on “promising.” Likewise with 2000, but not as “promising,” the results of which will reveal themselves soon after this reading. I would have preferred an analysis of the already concluded observation, with comparisons to the past and apparent future of this infamous phenomenon. However, if you really enjoy reading the human side of science, and appreciate a good progressive format of a topic, this book will really hold your interest. Your annual freezing November nights’ observing sessions will never be the same.


Reviewed by John Schroer, Schenectady Museum, Schenectady, NY, U.S.A.

Science books for children are in a crowded field, with many authors and titles to choose from. A listing from amazon.com showed a list of dozens of kids’ books about space and astronomy alone. How is a parent to choose books that are scientifically accurate, that cover more than a list of discoveries and scientists, help children understand that the people who work in science have an interesting story to tell; while at the same time encouraging curiosity and still fun to read?

This is not an easy task, but there are books that accomplish the task. Roy Gallant, Director of the Southworth Planetarium at the University of South Maine, has written a series of such books. Published by Benchmark Books, this series is named the Story of Science. Covering the topics of geology, the evolution of humanity, physics, and astronomy, each book explores the topics from the myths of our ancient past to what we understand of the science today.

The Dance of the Continents covers how the earth can be a dangerous place to live, with examples of death dealing earthquakes and fiery volcanoes demonstrating that the earth is constantly changing. Packed with information and colorful maps and illustrations that bring the study of our planet to life for any student.

Early Humans takes you on trip through our family tree from the Dawn Ape through Neandertal and Cro-Magnon to rise of Homo Sapiens, with lots of pictures, maps, and other illustrations that easily guide you through a lot of our ancient past.

How is a parent to choose books that are scientifically accurate, that cover more than a list of discoveries and scientists, help children understand that the people who work in science have an interesting story to tell; while at the same time encouraging curiosity and still fun to read?

The Ever-changing Atom reveals how humanity has learned about the basic building blocks of the universe, with a strong message of concern about radioactive waste and its long term (0,000 to 100,000 years) problem of safe storage.

Earth’s Place in Space stars with our location in the center of the universe, and progresses with astronomy as we move to a sun-centered solar system in just one of many billions of galaxies. A great deal of material is covered, from mythology of the heavens through the heliocentric revolution, to the
If your planetarium is interested in laser shows, then you probably know about our Lasershow Designer. It's the world's most popular software for professional-quality laser shows.

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LD 2000 is compatible with ILDA connectors, DMX lighting, and Pangolin projectors. Any show created on the older LD for Windows system will run on LD 2000.

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I've just returned from the IPS conference in Montreal and it was a truly stellar experience! The staff and volunteers of the Montreal Planetarium did a marvelous job hosting this most important event of our society. There was never a dull moment in this weeklong celebration of all things planetarium. I had an opportunity at the conference to ask many of you to send me news, tips and personal anecdotes to make this column as useful as possible. Today, I received the news that we have lost one of our own, so let us send...

Our Condolences

...to the family and friends of Fran Biddy (former producer at Strasenburgh Planetarium, Rochester, New York) who died of cardiac arrest at Strong Memorial Hospital on July 18th, 2000. He was 52 and had been suffering from heart failure.

An appreciation appears on page 5 of this issue.

Did You Know?

The oldest and most famous planetarium in Japan will be closing for good in March 2001. Kimura Kaoru (Educator at the Astronomical Museum & Gotoh Planetarium in Shibuya-ku, Tokyo, Japan) reports that her husband, who was a staff astronomer, has found a new position and that she will soon be looking for new opportunities at another planetarium.

James C. Wallace II (Educator/Programmer at The Children's Museum of Indianapolis, Indianapolis, Indiana) has created an interesting web page on The Expedition to the North Magnetic Pole Mission, which mirrors the team sent to the Arctic. To find it, go to http://www.childrensmuseum.org/cosmic-quest/magpole/. James also created a planetarium show, Celestial Navigation, to tie in with the project. The planetarium show includes a brief history of celestial navigation, a live demo on sextants by two gentlemen from the Institute for Marine Technology, and a current mission status update, including web pages and emails. In between shows, these gentlemen also set up a station in the planetarium gallery and do hands-on demonstrations of navigational equipment with visitors. There was also a gallery exhibit called Passports to the World on Arctic gear and animals. In addition, Jeff Ward returned on June 10 and did a gallery day showing off the results of his trip.

Loris Ramponi of the Italian Planetarium's Friends Association (c/o Serafini Zani Astronomical Observatory Via Bosca 24 - 25066 Lumezzane, Italy) wrote to report on the web site called A Week In Northern Italy For An American Planetarian. Since 1995, Serafini Zani Astronomical Observatory together with Learning Technology Inc. have invited planetarians to spend a week doing what they love best in a planetarium in Italy. If you'd like to see the images of the previous "Weeks" on their web pages visit: http://www.citylineit/CULT/photog.htm.

Previous participants include Susan Reynolds Button, Jeanne Bishop, Jerry Vinski, Dee Wanger and April Whit. Planetarians from the U.S. and Canada interested in this initiative are invited to send notice before next May to: Susan Reynolds Button (International Planetarium Society, Portable Planetarium Committee, OCM BOCES Planetarium, PO Box 4754, Syracuse, NY 13221 USA.

While listening to Neil deGrasse Tyson explaining one of the exhibits on cosmology at the New Hayden Planetarium in New York City, New York, Jerry Seinfeld was heard to exclaim, "The way you tell it, it sounds as if you were there!"

Have you seen the web site of German Photographer Helmut Dersch? At Panorama Tools http://www.fh-furtwangen.de/~dersch/ you can download his freeware programs to experiment with panoramic imagery.

Looking for a used star projector? If so contact Craig Nelson (Technical Support and Event Services Coordinator at the Denver Museum of Nature and Science Denver, CO, 303-370-6395). He is trying to find a home for the Minolta Star Machine (Series IV) from the Charles C. Gates Planetarium, which has now been closed since January of 2000.

Felix deForest (President, Corporation du Planetarium de la Mauricie) recently announced the following: FOR SALE Complete Planetarium installation: Spitz A4 (ca. 1970) projector with star sphere and xenon source, 30-foot hemispheric dome (aluminum, perforated), planet projectors, orrery, elevator assembly, 60+ seats, control console (rebuilt), cove lights, manuals, various accessories. Was used in a high school for 8-10 years, in storage since then. Relatively little accumulated running time. Mechanical and electrical parts have been overhauled in the last two years. Fine-tuning required. Total sale only (no parts). Buyer to arrange for transport (and customs clearance if necessary). Price negotiable. This equipment can be visited in Montreal (Cosmodome de Laval), Contact Jean-Pierre Ranger, Director-general of the Cosmodome, for viewing arrangements (tel. 450-978-3606). Interested buyers please contact Felix deForest, c/o LeVerrier Planetarium, Trois-Rivières, Québec, Canada. Phone 819-376-4602.

(Author's Note: I visited the Cosmodome and thought that this museum was one of the best-kept secrets in the Greater Montreal Area! It had a Space Camp with a full size Space Shuttle model including the Canadian Robotic Arm. It also had a very nice exhibition hall with a really well done model of the solar system which featured the terrain or atmosphere (fog machines in use for the gas giants) of each planet below each model. But my favorite feature was the multimedia theater. It contained a motion platform with seating for about 50 visitors inside a 360 degree curved retractable screen that revealed 3-dimensional sets under a ceiling full of fiber optic stars, phew!)

People On The Move

Long-time planetarium veteran Jim Horn worked his last day at Morehead Planetarium (University of North Carolina-Chapel Hill, Chapel Hill, North Carolina) on Monday, April 24, 2000, completing a 31-year career. Jim was responsible for technologically advancing Morehead and helping advance its program presentation capabilities over the past three decades. He will be missed greatly by not only the Morehead staff, but also by his friends and colleagues in the greater planetarium field. For the past year, he has been working for Thorburn Associates, Inc., a comprehensive engineering firm specializing in designing solutions in acoustics, audio-visual design, sound systems design, and control systems design. They have asked him to spend more time with them starting this year and he has happily agreed. Since they provide services to a cross section of related industries, including the museum and large format film industry, Jim hopes to continue seeing many of us at related gatherings or conferences in the future.
Marc Rouleau (formally of the Buehler Planetarium in Fort Lauderdale, Florida) is the new director of the Paulucci Space Theater in Hibbing, Minnesota.

Arnie Nelson (former Director of the Planetarium at Wausau West High School in Wausau, Wisconsin) has left to head up a new Digistar facility.

After a dozen years and countless shows, Chuck Greenwood (former producer at the William M. Staerkel Planetarium at Parkland College in Champaign, Illinois) is heading south to a new opportunity in Cocoa, Florida.

After an exciting 4.5 years at Sudexum Planetarium in Nashville, Waylena M. McCully has accepted the position of Planetarium Production Designer at Staerkel Planetarium in Champaign, Illinois.

Jeffery S. Potter (formerly with the Alexander Brest Planetarium in Jacksonville, Florida) is returning home to where he got his start in the business at the Ritter Planetarium at the University of Toledo in Ohio as its Planetarium Education Specialist.

Aase Roland Jacobsen is the new Curator for the Planetarium at the Steno Museum at The Danish National Museum for the History of Science and Medicine. She had previously worked for four years developing educational materials on Geology in Canada.

Suzy Chippindale (formerly the Planetarium Director at the Santa Fe Community College in Santa Fe, New Mexico and former Hayden Planetarium staffer in New York City) is heading west again as she takes on a new position as an Astronomy Educator with the Astronomical Society of the Pacific.

Jeff M. Brindie (formerly with the Hatter Planetarium at Gettysburg College in Gettysburg, Pennsylvania) is now working for Lockheed Martin in King of Prussia, Pennsylvania.

After 28 years in the planetarium field, Ken Miller (formerly Planetarium Chairman of the Kilolani Planetarium at the Bishop Museum in Honolulu, Hawaii) is shifting gears in order to serve astronomy education in another way. He recently accepted the job of USA Liaison to the GOTO Optical Mfg. Co. He'll be helping GOTO develop their next great planetarium projector, this time for 30-foot to 40-foot domes.

Mike Shanahan (formerly of Seattle's Pacific Science Center Planetarium) has moved up to the post of Planetarium Manager at Bishop Museum (Honolulu, Hawaii) from the Producers position.

Michael Jones (formerly the Education & Evaluation Specialist for The Explorers Project at the Bishop Museum in Honolulu, Hawaii) is heading off to take a position as Technical Programs Administrator for a science think tank in Honolulu called Science & Technology International.

Mike Murray (formerly the Assistant Director of the Taylor Planetarium at the Museum of the Rockies in Bozeman, Montana) is now the Assistant Director for the NASA-funded Montana Space Grant Consortium. “Even though it's going to feel strange not going through the 'production hell periods' anymore,” Mike assures us that he will continue to volunteer and consult for the Taylor Planetarium.

Congratulations

to Rovy Branon (of Instructional Systems Technology at Indiana University) who reports that his web site Planetarium.net was featured on the Discovery.com site as a Web Pick for space sites on July 9, 2000. They particularly liked his “Cool Nite Sites” that have been hand picked over the last couple of years! Way to go Rovy!

to Martin Ratcliffe (Director of Theaters at Exploration Place in Wichita, Kansas) on the opening of the new Boeing Cyberdome Theater. The new theater was also featured on Discovery.com. The theater contains the second Star Rider installation from Evans and Sutherland, (Salt Lake City, Utah).

to Jim Manning (Director of the Taylor Planetarium at the Museum of the Rockies in Bozeman, Montana) for using the exclamation "Lord, have mercy" and for pointing out on Dome-L that there is an official statement on the IPS web page concerning Star Naming. It is at http://www.ips-planetarium.org/ips-starnaming.html.

Helpful Hints, Tips & Tricks

Ken Wilson (Director of Astronomy and Electronic Outreach, Science Museum of Virginia, Richmond, Virginia) recently posted this idea on Dome-L and it is worth repeating here. “I like this demo that I came up to demonstrate why the North Star doesn’t seem to move as the Earth rotates: First get a swivel chair that can easily spin continuously and repeatedly through 360 degrees (e.g., a bar stool) and place it in an open area. Then place a thumbback, piece of tape, Post-It note cut-out in the shape of a star, or any other such marker on the ceiling directly above the center point of the chair's rotation to represent Polaris. If you can’t reach your ceiling, you can project a Polaris marker with a laser pointer, narrow flashlight beam, etc., attached to some sort of holder.

“Now ask for a volunteer (if it’s a small group, everyone can take a turn) to sit in the chair and slowly spin around to their left (counter clockwise as seen from above) while keeping his/her head still and eyes open. Ask him/her to observe the things in the room around them. He/she should notice that everything seems to be moving in circles around him/her. Ask him/her to lean their head back about 45 degrees and notice that things still seem to be moving around them in circles, but the circles are smaller. Finally ask him/her to look at the marker you’ve placed on the ceiling above them. Ask if this ‘star’ seems to be moving. From here you can launch into a traditional explanation about the Earth’s axis being pointed at the North Star, etc. A standard Earth globe is a nice supplemental prop. Good luck!”

Gene Zajac of Shaker Heights High School Planetarium (Shaker Heights, Ohio) does a lot with props and short demonstrations before going under the dome. They are reprinted here from Dome-L for your information. “To show that gravity does exist in space between Earth and the Moon, I use the globe and tennis ball as described earlier. Add a model of the Apollo lunar lander and the command module for the trip to the moon. It left Earth at 24,000 miles/hr. The trip should take 10 hrs (I use the average 240,000 miles to the moon.) Why did the trip take over three days? What is pulling the lander back? They (the astronauts) kept losing speed. They slowed all the way until about here. Then they sped up and were at 5,000 miles/hr going around the moon. Having kids travel to the moon while others hold the Moon and Earth help this to be interactive.

“Also with the moon/earth system I use a 44mm Earth key chain globe (purchased through Oriental Trading or at science/nature stores) and a 12mm glass bead with a hole in it. I attach the ball to the Earth globe but I add knots to show apogee and perigee and the bead can slide in between the knots. Apogee is 993 earth circumferences and the perigee is 8.68 circumferences. This is a “handy” model because one person can hold it and show how much the moon varies in its orbit.

“A quick idea for constellations is to hold up a pattern of stars such as a square and make up a story about what you see. Have a variety of pictures that complete the pattern for them to see. I then show the stars of the Hyades with its V and let them tell me what they see. Follow this with stuffed animals used to demonstrate the constellations. A drinking gourd or some beanie babies also make great constellations.

“A blow-up model of a shuttle or other models can show what it takes to leave the Earth. The enemy is gravity. I then use balloons and use them as the combustion chamber and let them fly. Let one balloon go without tying the nozzle. I use the long balloon, a normal type. They are called 260’s. The second balloon I tie off with a little of the end not fully blown up. When you snip
this end, it will fly slower and straighter. It is more controlled and can be compared to a rocket with a nozzle. This can lead to a variety of dome programs such as space flight, satellites or the principles of rocketry.

"For ancient cultures, I make a Rice Crispy 'Stonehenge' and call it 'Ricehenge'. This is used to develop the reasons why people looked up. What did they look for and what was important? I use this with looking at ancient monuments and also noticing the movement of the sun on the horizon and the changing altitude.

"If you have a black board or easel with paper, draw a straight line. Talk about the Earth not being flat. It is round but not flat. Ask students to contribute ideas to make the world unflat (mountains, hills, valleys, chasms, etc.). From here I look at surfaces of other worlds such as Venus and Mars. For older groups I would also add the third most important thing learned about the earth - tectonic plates, and second are it is round and it moves.

"Carry an umbrella, hat, gloves and suntan lotion. What are they good for? Begin a discussion on the earth and its weather. Next get them to wonder about the weather 'out there'. As I go to the planets under the dome, we compare the weather to our earth.

"The reason for the season is our place in space. I use an earth globe and the sun. I show how no planet is tilted unless we compare it to its orbit in space. The tilt doesn't change as the weather people on TV often say. Our place changes. I like using rhymes no matter how silly.

"I found a great kit for making the planets to scale. The sun is a four foot diameter circle or use a weather balloon and papier-mâché it. I used a weather balloon alone but it went supernova. The effect was great but I don't want it to happen again. I have the planets in a box. I ask for the members of the solar system. As they are named, the student comes forward to hold their planet or moon. We then line up by size. It is great to see them notice there are moons bigger than Mercury and Pluto. The kit is called 'Our Amazing Solar System'. I've seen it in a lot of toy stores and in science/nature stores. It is about $29. I bought additional clay and made the other large moons. The small worlds (terrestrials and moons) are in either test tubes or small petri dishes. The test tube I use just holds the Earth and it is stuck in the middle. Venus is a little smaller and rolls. I let the Earth and Venus person try to figure who is larger. Most often they reason it out. These are a few ideas but I have props for all my lessons including many using paper plates. Enjoy!"

Just a Reminder

Keep those emails coming in to help make this your Gibbous Gazette. Also keep in mind that the Middle Atlantic Planetarium Society 2001 Conference will be hosted by yours truly in Pittsburgh, Pennsylvania, from May 9th through May 12th. We promise to have lots of surprises in store so send me a note if you'd like to have a conference package sent to you!

---

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Autumn/Spring greetings to one and all in
dome land.

With the increasing variety of equipment
to be found in many planetaria today, I won­
der sometimes where, in the eyes of each
planetarian, they lie on the totem pole of
strict need to present shows with true, last­
ing impact. That thought prompts the ques­
tion for this issue’s Forum subject, which is as
follows:

If you could keep only one piece of equip­
ment, inside or outside of the dome (apart
from your star projector) simply for its
proven educational and/or inspirational
impact among your audiences, which would
it be and why?

Roy Kaelin is on the hill to throw the first
pitch.

* * *

Of the sky shows I’ve been privileged to
view and hear, each planetarian uses his own
device of delivery to make the talk hold
interest for his audience. From some lectur­
ers I’ve heard that device in the inflection of
a voice, perhaps in the manner in which one
tells some tale, or in the way one infuses
delivery with genuine enthusiasm.

And when that lecturer has the added
attraction of a couple thousand watts of
light pumped through pinholes and filters,
most any lecture can seem interesting and
even enlivening. But, without the benefit of
a star projector under the darkened dome of
a planetarium theater, one might think the
planetarian beyond all means to keep an
audience in rapt attention about the won­
ders of the night sky. Without ten thousand
flecks of light, made to twinkle by some
mechanical craftsmanship, one may think the
star lecturer bereft of all imagination to con­
vey, say, the effects of the atmosphere on
starlight. True to tell, planetarians must of­
en use many devices, some literary and
others often mechanical, to make their star
lectures work for their audiences.

Besides a certain inflection of the voice, or
perhaps a knack for weaving a story, or the
genuine enthusiasm that often accompanies
the better talks about the night sky, there
remains one device in the star lecturer’s
delivery on which one can always rely.
Without this one device much of what the
planetarian has to say would seem only spec­
ulation, only so much talk to take merely on
faith. That one device, when properly
deployed, allows the star lecturer’s audience
to see for themselves often exactly what the
lector has to say.

By now every planetarian will be way
ahead to guess that the one device I find the
star lecturer could not do without is, indeed,
the telescope. If there were no star projector
to parade the constellations, no mechanical
wizardry to display any effects, no arrow
pointer to show the way, the telescope
remains ever ready to help the star lecturer
who can set one up and operate it. Since
astronomy is all about observation, the tele­
scope is a mainstay to inspire a view to the
heavens, and seems the one instrument audi­
ences most readily identify with any scient­
ic discipline.

Beneath the canopy of night itself, a tele­
scope in the hands of a competent lecturer
can present the familiar wonders of the near
sky and the elusive details found only in the
deep sky. Of course, a working knowledge of
the night sky is essential for the planetarian
to be successful not only in pointing out
those flecks of light, but what they have
most often inspired in the minds of others.
And with their own eyes, an audience of
a few or of dozens can then step up to view for
themselves.

Not only does the telescope bring to the
audience the true power of observation, but
also helps to dispel any popular myths of
what one may likely see in the night sky.
For example, in the course of a clear evening’s
viewing, the star lecturer can put to rest any
notion of seeing the surfaces of planets close­
up as a spacecraft can allow. More important,
though, the planetarian can show his audi­
ence a real close-up of the Moon’s surface, or
help his audience distinguish the stars from
the planets in the sky, or point out with ease
the effect of the atmosphere on starlight, or
enthrall those at the eyepiece with the find
of a faint nebula or distant galaxy.

Even if the telescope never leaves the
con­
fines of the planetarium theater, the lecturer
can regale his audiences with a history of its
development, a description of its manufac­
ture, and a demonstration of its light path.
While any of these topics alone could send
many audience members to instant slumber,
in the words of an able lecturer a talk about
the telescope can excite audience members

enough for them to dust off the family’s liv­
ing room refractor, perhaps purchase their
own telescope at the planetarium’s gift store,
or even to try their skill at crafting a modest
reflector of their own.

For those planetarians that seek to help
their audiences truly know the night sky, I
know of no better way to bring the night
sky to others’ eyes than to encourage or help
them to craft the very instrument with
which to observe that night sky. An avid
telescope maker who has built his own tele­
scope often is proud for others to enjoy its
use, for others to get their hands-on astro­
nomers in a very real way. If well made in its
optics, the home-built telescope, however
humble in appearance, becomes the best
instrument to bring the night sky within
reach of every person within reach of its
eye­
piece.

For the planetarian, I believe that the tele­
scope remains our best device apart from the
star projector, as it lets our audiences look
ever deeper into the night sky and be
bled by this vast realm, yet still lets them retain
a lofty confidence about the Universe
around us, since they can come to know it,
and can begin to comprehend it.

Roy A. Kaelin Jr.
Production Department
Adler Planetarium & Astronomy Museum
1300 South Lake Shore Road
Chicago, Illinois 60605

* * *

This may seem a bit prosaic, but if I could
have only one piece of equipment in the
planetarium beyond the star projector and a
pointer, the answer would be a slide projec­
tor with dimming controls. I think a slide
projector is definitely the second most valu­
able tool a planetarian can have. With it you
can open up an artificial sky in the same way
that telescopes and space probes have
opened up the real heavens. With a slide pro­
jector you can visit planets up close and in
detail; see the latest wonders that the Hubble
Space Telescope has uncovered; illustrate
complex concepts with Kodalith diagrams;
examine space ships, probes, and rockets; as
well as view historical figures, their instru­
mants, and their findings. A good slide image
cannot be beat for its visual impact; its col­
ors and resolution cannot be surpassed by
any computer or video graphics. If slide
images are chosen carefully, masked well,
and placed sensibly in the dome, they are
hard to beat. The dimmer control is also im­
portant as to not to overwhelm your audi­
ence with images that are too bright; it
makes transitions smoother; and it can also
help maintain dark adapted eyes.

Vol. 29, No. 3, September 2000
For the planetarian with monetary concerns (meaning most of us) when compared to video projection systems and computer projection systems, a good slide projector is inexpensive, relatively low tech, and easy to maintain. With simple basic care a slide projector can last years, and there is a huge wealth of inexpensive slide images waiting to be used.

A star projector and a slide projector are two very essential pieces of the planetarium puzzle for me. They compliment each other in very natural ways. The star projector illustrates the sky that everyone can see from their backyards, and the star projector unlocks the hidden mysteries of the myriad stars and planets.

John T. Meader
Northern Stars Planetarium
P.O. Box 302
Fairfield, Maine 04937

* * *

That's a question requiring a lot of thought for a retired person! When thinking of the computer-coordinated banks of projectors and special effects equipment in our planetarium, I would have found the question difficult to answer when I was teaching. But, looking at the sky from my vantage point here on the Outer Banks makes me think I could teach tremendous lessons with the star machine and the bank of carousels forming various panoramas. (May I count the "panorama makers" as one piece of equipment? I think so.) The panoramas provided atmosphere for the stories, furnished reference points for teaching locations and direction, and provided "ooh" and "aah" moments, inspiring both kids and teachers to remember the planetarium experience.

By the way, I'm assuming the laser pointer is another appendage of the planetarium teacher, not a piece of equipment. I could not teach without a pointer ... without a microphone, probably - without a pointer, never!

Marilyn Pickard (Retired)
Formerly with H.B. Owens Science Center
9601 Greenbelt Road
Lanham-Seabrook, Maryland 20706

* * *

Interesting that you ask this question, Steve. In the past, there was a time when I had only one piece of equipment in my domicile. Back in the sixties when I was a rookie Planetarium Dude, the basic Spitz installation was a dome, star projector, console and one slide projector. You could get a Hansen showkit for a hundred bucks and run the show with one or two slide projectors. We've all come a long way since then with our bells and whistles, diga-this and diga-that, but the ol' slide projector is still a key unit. After over thirty years and probably fifteen thousand planetarium shows, I still use the slide projector every day, especially for my astronomy labs and lectures. Even though we have over 40 recorded shows always available and maybe 50 projectors, I consider myself a science teacher in a teaching planetarium. So for its proven educational impact, my vote goes to the slide projector. For its inspirational impact among the audience, you could choose various items for different age levels. The kids love lasers.

Bob Reilly
Space Lab Planetarium
Williamsville Central Schools
1595 Hopkins Road
Williamsville, New York 14221

* * *

My colleague at the Ward Beecher Planetarium, Richard Pirko, has this homey cross-stitched sampler in his office that reads: "You can take my slide projector when you pry it from my cold dead fingers."

Personally, I'd not make the ultimate sacrifice for our Ektaragraphics and Elmos.

Which piece of equipment, among the many special effects, mechanical wonders, teaching aids, and tools that we have at our disposal? Sadly, the question specifies a piece of equipment with proven and/or inspirational impact among our audiences. This rules out the most valuable asset in our planetarium - it's the guy with the cross-stitched sampler.

Computers? The orrery? Laser disk players? The video? The audio? No, they just don't make the grade.

I think my cross-stitched sampler will have to read, "You can take my pointer when you pry it from my cold dead fingers."

There have been many times when an audience of excited third graders is all seated, quiet, and ready to be amazed by the stars and the star projector that I've had to come to a screeching halt because my pointer has once again walked off in someone's pocket. Two astronomy professors in particular are used to my forcing them up against the wall and putting them down for my black pointer.

When I don't have a pointer of some kind - either my much battered but reliable laser pointer or the old arrow flashlight - I feel as if I've lost a vital part of my body. My arms end in stumps, my hearing has gone, my vision is impaired, I can't walk, I'm mute. I'm literally handicapped without that little red dot.

The stars are the heart of any planetarium, but to a group of third graders (fourth graders, sixth graders, adults - you pick), stars have no meaning until we - the planetarium educators across the world - give them meaning. And we can't do that unless we can point out which star is which.

How many of us still hear echoes of the "Wow" and "Oh, there it is" from the last time we pointed out the Big Dipper? Or the excited, "I can see it!" when we traced out Ursa Major? Our pointers open up the skies and the imagination by simply pointing dot to dot with the stars. Trace out Orion. Point out Betelgeuse. You've got a doorway to stellar distances and color, size and lifestyle. Once a third grader knows which star is "beetle juice," he or she will remember it's the red giant so far away that the light we see now left the star when Columbus was discovering new lands across the ocean.

All we really need are the stars and a way to distinguish one point of light from the other. Words and imagination take over from there.

Sharon Shanks, Lecturer
Ward Beecher Planetarium
Youngstown State University
Youngstown, Ohio 44555

* * *

The choice here is easy and obvious. I would keep the simple and humble 35mm slide projector.

In recent years we have been hearing stories about how slide projectors are on their way out. All-sky projection video is "the wave of the future" apparently. While this may indeed be the case, I think we have many years to wait for the tide to carry that particular wave into shore.

When the compact disk was introduced, it very quickly replaced vinyl records and turntables. This was because the CD is cheap to make (cheaper than a vinyl disk, actually), and the equipment to play them not more expensive than a good turntable. Sound quality was greatly improved as a nice bonus.

Video, however, is still very expensive to produce and to project. Quality here still leaves very much to be desired as well.

Slides are cheap to buy and easy to produce yourself. Many millions of them already exist, giving one almost unlimited access to images about nearly any astronomical subject. If you have access to a scanner, Photoshop, and a film recorder, you can make whatever additional slides you may need. Slide projectors are portable and easy to set up on a moment's notice. They require no special calibration beyond simple focusing, and no electrical complexities beyond an extension cord. Slide programs are about as easy to modify as one can imagine. A
single slide can transport the viewer back in time, into the heart of a great nebula, or right next door to a supernova explosion.

It is difficult to imagine that another piece of equipment could ever exist that will be as flexible, easy to use, or as versatile as the ordinary slide projector.

Bob Martino  
Planetarium & Perkins Observatory  
3199 Columbus Pike  
Delaware, Ohio 43015

This is a very good question. The answer tells as much about ourselves as it does about our facility. Some planetaria have different equipment, and some planetarians have different skills and definitely different feelings about the whole operation.

I could say what I would very much like to have in my theater. I think an all laser system would be very nice to have, and after the IPS conference in Montreal, the new ZUP device would revolutionize my operation. But if I limit my thoughts to things I already have, the decision gets a little simpler. I have a video projector that I use daily, but I also use the slide projectors, all skies, sound system, house lights, and pointer among others.

The video projector certainly is not the only way to show moving images of comets, galaxies, and solar system formation. But the video projector saves me from needing several separate special effects projectors. It is a medium that everyone recognizes, and new video clips and resources are always being added.

The sound system would be pretty high up there on my list as well. Through music I am able to set a mood and change the mood as appropriate. The sound tracks allow me to save wear and tear on my voice. It also allows me to take advantage of a variety of professional narrators.

In my heart I would like to say the pointer is the instrument I would not like to do without. The star field is absolutely the most important, but without a way to point out objects and share my knowledge and love for the night sky, I don’t think the planetarium theater would be nearly as effective.

Then again, these days, I don’t think a pointer is enough by itself. Without a way to show the fascinating things astronomers are discovering each day, my attendance would probably drop.

Then again a slide projector can be used to show close up views from space. It can also be used as a pointer, circling objects as needed. This is not the best way to do this, but if I had to choose...

Hmmm, an all sky laser system could do some of that, too. Oh, sorry, I was going to limit myself to things I actually have.

This is harder than I thought. OK, let’s assume that anyone can have a pointer. In that case I would choose the video projector and a sound system. Darn. You said only one.

Oh, I just noticed that the Forum topic said “inside or outside of the dome.” In that case, the choice is easy. I would choose the telescope. Nothing can beat the real sky. The telescope has lead to nearly all we know about the Universe in modern times. With it I need no pointer and I can be my own sound system. “Gosh, just look at that nebula, the birthplace of new stars, planets, and maybe even life!” Still, it would be nice if I could play things in the telescope forward or reverse, in slow- or fast motion. Oh well, I tried.

David Maness  
Hampton Schools Planetarium  
1819 Nickerson Boulevard  
Hampton, Virginia 23663

The one piece of planetarium equipment that to me is the most useful is the one that stays in my purse at all times. It is my laser pointer. This one is a bit different from most that are sold today, because this was one of the earliest ones sold by Radio Shack.

Remember those really chunky pencils you used to print with in kindergarten? That’s what mine is like. I really like the solid feel of it. Unfortunately, so have a lot of others. The one I have now is about the fourth one I’ve had to buy. And now Radio Shack doesn’t make this model anymore. This one stays very close to me.

I know my pointer is very important because, well, let’s face it, try doing a star program without some kind of pointer. The “ooh’s” and “ahh’s” will quickly die down if you’re pointing out the Big Dipper with your finger. Also, if you don’t have a meteor projector, a fast flash across the dome can quickly become a quick and dirty falling star.

Francine Jackson  
University of Rhode Island Planetarium  
Physics Department  
Kingston, Rhode Island 02881

It’s interesting to note from the responses above that, in today’s high-tech planetarium world where we all seem to want more bells and whistles on our equipment, the humble, low-tech star pointer is near or at the top of the list of things planetarians wouldn’t do without. You may sometimes need convincing of this, but we’re still very much in touch with our profession’s roots...

Here is the topic for the next Forum:

This year the International Planetarium Society has been celebrating its 30th anniversary. The organization can be proud of the many services it has brought to the profession in that time, but planetarians today are facing the most difficult struggle in that 30-year period just to stay in business.

So, given the IPS’ clear strengths, how can it best serve you as an individual and the profession as a whole over the next three decades?

I will welcome your considered thoughts by the deadline of October 16.

Right, now where did I put that pointer...?

(Reviews, continued from page 21)
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What's New

Jim Manning
Taylor Planetarium
Museum of the Rockies
Montana State University
Bozeman, Montana USA

The universe gets curiouser and curiouser all the time. Mars seeps. Somebody found sugar in a nebula. And recently the presence of a half-dozen more Jupiters and Saturns have been divined from the gravitational nudges they give their parent stars.

Every day, it seems, we learn something new about just how lively is the cosmos in which we live. So it seems fitting that some of those who interpret that cosmos should have a lively international gathering of their own in Montreal, not a week past as I write.

The IPS conference, ably hosted by Pierre Lacombe and his excellent crew at the Planetarium de Montreal, once again revealed how much is going on in our lively, diverse profession. And it's always fertile ground for someone snooping around for what's new.

So read on, and sample a smorgasbord of new and evolving and interesting bits out of Montreal . . .

Laser Projection is Here

Carl Zeiss Jena, Schneider Laser Technologies, and Silicon Graphics, Inc. (SGI) announced a new "alliance" in which the three will collaborate to market laser-based, high-resolution, real-time 3D graphics in planetariums. A Zeiss-designed all-dome projection system based on Schneider laser technology will be able to project images generated by SGI Onyx2 and next-generation Onyx visualization systems on domes from 10 to 60 feet (3 to 18 meters) in diameter. In a press release, the trio of firms also announced the intention of the Denver Museum of Nature and Science to install the system in its new planetarium facility, currently under development.

Zeiss/Schneider/SGI demonstrated the new technology before an enthusiastic crowd at the Planetarium de Montreal during the conference (the first group to see this laser display technology outside of the Zeiss offices in Jena), running a single laser-based projector (called "Zeiss Universal Laser Image Projector," or ZULIP), through its paces on a tilt/pan head. The result was quite stunning. We saw zooming and sweling images of a 2001: A Space Odyssey-style space station, a lunar module, Hubble-style space imagery, the ISS, abstract forms, artwork from an Egyptian tomb, and a variety of other objects, all in crystal clarity and brilliant colors and all choreographed to a clever and self-effacing John Stoker script. In addition, the system displayed some very nice solar system and planetary imagery from the 3D animation library of a company called AVP.

Claims for the system included the ability to achieve a true black background, but I did see the gray frame format, mostly when images were zoomed to smaller size. Given the obvious capabilities of the system, I wonder if this was an adjustment issue rather than a technological one. The demonstration was quite remarkable, and it certainly smelled like the future of projection to me - at least when it becomes more affordable by more people. Stay tuned.

Zeiss distributed flyers on the system including basic technical information, as well as information on its planetarium product line from the Skymaster ZKP 3 for small planetariums and the Starmaster for medium-sized facilities to its fiber-optics Universarion Model IX for the big 'uns including the recently-opened Rose Center for Earth and Space in New York.

For more information on all of these Zeiss items, contact Volkmar Schorcht, Carl Zeiss Jena GmbH, Planetarium Division, D-07740 Jena, Germany, telephone 49-36-41-64-24-06, e-mail Schorcht@zeiss.de. To learn more about Schneider Laser Technologies AG, contact Katharina Klein, at 49-82-45-51-288, e-mail k.klein@schneider-ag.de.

SGI also had a wide-screen display (a "partial-pan" sort of screen format using three projectors) in the vendor area at the conference in which they presented a wide variety of real-time computer visualizations, including an ISS model, Vatican artwork, Earth imagery, and a rather grizzly slicing-up of a human being (but great for a medical convention). Especially interesting was a data base of satellite imagery which allowed zoom-ins from Earth orbit to almost ground-level, showing increasing levels of detail down to buildings and houses. It sounds as though soon, virtually any place on Earth will be able to be so imaged - so better start being careful about what you do in your backyard.

In addition to its partnership with Zeiss-Schneider, I gathered that SGI, 1600 Amphitheater Parkway, Mountain View, California 94043, telephone 1-650-960-1980, website www.sgi.com, is involved in a so-called "scientific visualization consortium" designed to bring together institutions such as museums (and planetariums), data providers (such as NASA), software developers (such as SGI), and show producers to create immersive experiences based on the gargantu-bytes of data we're collecting these days. For more information on this, its collaborations with planetarium vendors, and its "reality centers" for providing immersive visualization experiences, contact Jennifer Marples, The Weber Group, telephone 1-415-616-6258, e-mail jmarples@ca.webergroup.com, or Lisa Pistacchio, telephone 1-650-933-5683, e-mail pistacchio@sgi.com.

AVI Moebius GmbH, Industrial Estate Saalpark, Loebstedter Str. 93, 07749 Jena, Germany, telephone 49-36-41-408720, fax 49-36-41-408720, e-mail avp.moebiusgmbh@t-online.de, website www.avp-moebius.de, some of whose imagery figured in the laser projection demonstration, offers more than a 3D animation library (available on DVD, DV, or SVHS and supplied in PAL or NTSC formats, organized as "lessons" such as planet rotations, costing from 320 to 440 Euros - or a similar number of U.S. dollars, I believe - depending on medium). They also market a product called the Blackout Generator SBG 12 for smooth fade-in and fade-out of projections, and the model SNS 100 slew/tilt device for large screen projectors. For more information about these products, contact as given just above.

I Is for Immersion

We all know what the "I" is in IPS stands for, but after viewing the remarkable demonstrations in the Planetarium de Montreal, I think one could begin to make a case that it's beginning to stand for "Immersion," of which we had several experiences in addition to the ones above.

Sky-Skan, Inc., 51 Lake Street, Nashua, New Hampshire 03060 USA, telephone 1-800-880-8500 or 1-603-880-8500, fax 1-603-882-6522, website www.skyskan.com, presented another breath-catching performance of its SkyVision system, providing an all-dome playback experience for the those "immersed" below in the planetarium seats. It included mostly sequences demonstrated in London in 1998 or Phoenix in 1999, but it gave me an opportunity to enjoy once again some of my favorite bits: the galaxy fly-in, the dramatic collision of Earth and Pseudomars, the grinding, crashing asteroid belt, the worm hole plunge, the moon lander, the Tyrannosaurus rex roaring over our heads, and the stunning image of the International Space Station twirling above us.

Carolyn Summers and her crew from the Houston Museum of Natural Science gave the system another workout later in the conference when she presented imagery created for her facility's SkyVision system, including
impressive flyovers of alien landscapes. In addition, Minolta Planetarium Company, which now markets the system in Japan, showed a delightful presentation devised by students featuring flowers and butterflies and constellation figures drifting through a starry sky. And Jack White of Sky-Skan Australia demonstrated some abstract pieces. Sharper video projection continues to improve the imagery, and again, it's all quite amazing.

Sky-Skan also continues its other product lines - the video disks, the spicier control system, all-skies, special effect devices, its image-formating software package (Digidome) and so on. Check the 1999-2000 catalog, and contact the "Skanners" as given above for more information.

**Evans & Sutherland**, 600 Komas Drive, Salt Lake City, Utah 84108 USA, telephone 1-801-588-7405, fax 1-801-588-4520, web site www.es.com/dt, also presented a brand-new, full-dome, real-time visualization with its StarRider system, featuring a trip through a variety of celestial objects (barred and regular spiral galaxies, the Eagle Nebula with its gassy pillars, Eta Carinae) accompanied by a lively musical score. It all looked crisp and first-rate and quite dazzling on the Planetarium de Montreal dome.

E&S's second installed StarRider system has opened at Exploration Place in Wichita, Kansas USA, and the third and fourth installations for the Shenzhen Children's Palace and Shanghai Scienceland in China have been announced. E&S offers the system in a variety of forms to meet a variety of budgets, from a single video projection to full-dome.

E&S continues to sell its DigitalStar system, of course, and has recently converted the system's old "button box" (for initiating pre-programmed sequences) into a svelte palm-sized version based on Palm Pilot technology (if I've used the correct term). It will be a boon to Digistar facilities wanted more oper-ator mobility for their presentations. For more information on the full line of E&S digital products, contact Jeri Panek at the numbers above or through e-mail at jpanek@es.com.

**Trimension Systems**, with offices in the UK (Whittle House, Marchants Way, Burgess Hill, West Sussex RH11 8QY, UK, telephone 44-1444-250-777), Australia (P.O. Box 643, Burpengary, QLD 4505, Australia), and the U.S. (303 Potroto St., #50, Santa Cruz, CA 95060, USA), is another of the virtual reality-inducing firms who've found their way into planetariums. The company creates virtual environments ranging from workbench-size to "reality rooms" to domes. The company designed and integrated the projection display and show automation system for the Rose Center for Earth and Space in New York which opened earlier this year. To learn more, contact one of the three offices above, or Bruce Ricketts of the Canadian office at 203 Colonnade Road, Unit 4, Nepean, Ontario K2E 7K3, Canada, telephone 1-613-723-5199, fax 1-613-723-6048, e-mail bruce@trimension-inc.com, web site www.trimension-inc.com.

**Don't Forget the Planetariums**

Of course, we mustn't forget the first and long-standing immersive technology which we all use, and planetarium vendors not already mentioned above were also present with their diversifying product lines and interesting bits to relate during the conference.

**Goto Optical Manufacturing Company**, 4-16, Yazaki-Sho, Puchu-Shi, Tokyo, 183 Japan, telephone 81-0423-62-5311, fax 81-0423-66-8616, web site www.goto.co.jp, has a new Goto USA liaison in the person of Ken Miller, formerly of the Bishop Planetarium in Honolulu, Hawaii. He hasn't moved far, and can be reached at 1552 Bernice Street, Honolulu, Hawaii 96817 USA, telephone 1-888-847-5800, fax 1-808-847-5850, e-mail GotoUSA@earthlink.net, to answer your questions.

Goto continues its diverse product line including the Virtuarium, its own full- or partial-dome video projection technology nicely seen at IPS in Osaka in 1996, and E-5 for small domes, and the Super-Helios which probably still holds the record for putting the most stars on the dome. (Goto also has a marvelous artwork library from the shows it develops.)

I was intrigued with the little classroom model, the E-3, on display at the Goto vendor booth. This cute "desktop" model features 500 stars plus basic coordinates, the ability to add sun, moon, and planets, motorized diurnal motion and manual latitudinal change, and has a constellation picture pro-jector as an accessory. It comes with a 10-foot (3-meter) vinyl projection screen that can be hung from the ceiling. In the exciting world of full-dome immersion, it's still nice to see all needs and all sizes being accommodated.

Goto was also demonstrating its lower end immersive technology called DigiCanvas, a multiple projector playback system that was Panaromic rather than full-dome; it looked good. To learn more about the latest from Goto, contact Ken if you're in the U.S., or Goto headquarters

**Minolta Company Ltd.**, Planetarium Operations, Esaka CTS Center, 2-3 Toyotsu-Chuo, Suita-Shi, Osaka, 564, Japan, telephone 81-06-386-2050, fax 81-06-386-2027, as mentioned earlier, has gotten into the full-dome business as a SkyVision representative for Japan. The company also continues its relationship with Evans & Sutherland by marketing the "Gemini" combination in Japan which includes a Minolta Infinium projector and an E&S Digistar II system. The Minolta U.S. Planetarium Office is at 101 Williams Drive, Ramsey, New Jersey 07446, telephone 1-201-934-5347, fax 1-201-818-0498.

**Spitz, Inc.**, P.O. Box 198, Route 1, Chadds Ford, Pennsylvania 19317 USA, telephone 1-610-459-5200, fax 1-610-459-3830, e-mail spitz@spitzinc.com, web site www.spitzinc.com, is also on the immersive bandwagon with its ElectricSky visualization environments and ImmersaVision - a panoramic digital video display system which can accommodate 2D and 3D video, computer graphics, still images, and other formats. Spitz also deals in domes, lighting, automation, products, production tools, programs, and of course, planetarium instruments. Its newest instrument is the fully automated System 1024, with the Space Voyager for larger domes.

Among its newer products are Polydome, a software package designed to custom-format panoramas, all-skies, and other imagery to one's dome, and a new program called "Oasis in Space" about the search for water in the cosmos; the "Oasis" trailer I've screened shows quite an impressive array of video sequences designed for Spitz's ImmersaVision format.

For additional information on the Spitz line of products and services, contact Joyce Towne Huggins using the contacts listed above.

**R.S. Automation Industrie**, Z.I. de la Vaure, B.P. 40, 42290 Sorbiers, France, telephone 33-04-77-53-30-48, fax 33-04-77-53-38-61, is one of the newer planetarium manufacturers, and already offers a wide range of star projectors from little to big.

I find especially clever its planetarium-on-a-trailer which includes a model SN 95 projector inside a dome which sits on a trailer and can be hitched up and driven to wherever it needs to be, and I was quite taken with the new Cosmodyssee II, another of the "desktop" planetariums that can fit in a trunk and works in an inflatable dome. The projector is black and attractive and includes a remarkable number of features you'd find in larger instruments, including grids and the Milky Way. The sun, moon, and planets are projector by separate projectors on the instruments which can be readily positioned just by aiming them. It has a nicely engineered control panel, and comes in mobile and fixed versions.

For additional information and prices, contact Christophe Bertier

**Learning Technologies, Inc.**, 40 Cameron Avenue, Somerville, Massachusetts 02144
the rights to build and market the device from spring and summer as the sun works off mag­
screen. The image quality is quite reasonable even show hints of faculae near the limbs to enter through a small window and let's it
netic entanglements with the resulting solar
sylvania. created by Daniel Janosik of Hawley,
exit back in 1989 (when Janosik was observing and following sunspots, and can
bright. I've been using mine faithfully this
see the famous story of Perseus and Andrromeda through cartoon animation. An
named Aesop is the storyteller, a mouse
ning ball on a stick – and it demonstrates how far laser technology has come since the early
ds of laser light shows. I've seen the
system, which works beautiful for
 besteht an arsenal of pro­
ject cylinders which not only include
standard starfields, deep sky objects, line con­
stellations, and coordinates, but a variety of
figure cylinders (including Greek, African, Native American, Egyptian, Chinese, Lapp or Sami, and Hindu), some of
which are new to me and quite welcome. LT now also has an “urban” starfield showing
600 rather than the standard 3,000 stars, an excellent idea for beginners and urban
dwellers.
The cylinder set also includes Earth sci­
ence and biology topics, ranging from a rep­
resentation of a cell to a terrestrial globe
depiction and cylinders on plate tectonics, ocean currents, and weather. The newest
cylinder of all shows a scaled representation of the sun and planets and a depiction of the
Milky Way Galaxy. And there's the ubiqui­
tous transparent cylinder with colored pens
to allow you to create your own uses for the
Starlab environment.
Learning Technologies has other products as well, among them the Precession of the
Equinoxes Historical Planisphere created by
Dr. Milton D. Heifetz, which allows you to
precess the planisphere to view the sky as it
would have appeared thousands of years in
the past or will appear thousands of years in
the future (and which was reviewed very favorably in a past “What's New” column and costs $12.95 U.S.), and a new and
improved version of the Sunspotter originally
created by Daniel Janosik of Hawley, Pennsyl­
vania.
I have one of the original Sunspotter,
obtained back in 1989 (when Janosik was
selling them for about $35 U. S. apiece), and
I'm quite fond of it, especially with the sun
at its sunspot peak this summer. The simple,
triangular device allows a beam of sunlight
to enter through a small window and let's it
bounce off of mirrors inside until the beam
passes through a simple lens to produce a
three-inch image of the sun on a white
screen. The image quality is quite reasonable
(if the focus a bit soft) for the basic nature and
simplicity of the device. It's great for
observing and following sunspots, and can
even show hints of faculae near the limbs
when they (the faculae) are particularly
bright. I've been using mine faithfully this
spring and summer as the sun works off mag­
netic entanglements with the resulting solar
“acne.”
Learning Technologies has obtained the
rights to build and market the device from
Janosik's widow, and its version preserves
the basic design in sturdier form. The tri­
gle shape is thicker and heavier and made of
attractive layers of solid wood, and my quick
once-over suggested the lens in the device is
of a more substantial quality, and may give
you a little bigger image. It also sits in a
curved wooden cradle which I really like; it
makes the Sunspotter easier to aim at the sun
and maintain altitude (while I must prop up
my original version as best I can). It's made of
sturdy, high-quality materials, which may
explain the eek factor in the price; it's my
understanding that LT will sell the Sun­
spotter for about $300 U.S..
Nonetheless, it's a clever device, an easy
and extremely portable way to view the sun,
and it's virtually impossible to get your eye
into the light path unless you have a very
small head - which makes it a pretty safe and
student-friendly tool, though it should still
require supervision for student/kid use, since
students/kids are enterpriseing at finding
“nontraditional” uses for traditional tools.
Through regular use, it's a great way to
demonstrate (just as Galileo found out) that
the sun rotates (and let the kids confirm the
rate), that sunspots change, and that the
number of sunspots changes over the solar
cycle.
I'm sold on them. But you may have to
save up your milk money for a while to
afford one.
For more data on these and other LT prod­
ucts, contact the company as above.

Laser Treats
No modern-day planetarium conference
would be complete without a few demonstra­
tions of those stimulated radiation emis­
sions, and two companies obliged with lasers
on the Montreal dome:

AudioVisual Imagineering, 10801 Cosmo­
naut Boulevard, Orlando, Florida 32824, tele­
phone 1-407-859-8166 extension 316, fax 1-
407-859-8254, using its Omniscan system,
presented a series of laser-drawn astronomical
images from its image library, from con­
stellation figures to wormholes and soft neb­
ula effects. That was followed by a bit of
laser show featuring laser animation, and
that was followed in turn by a preview of a
delightful new program series called
“Legends of the Night Sky.”

The four-part series features light-hearted
and clever retellings of classical myths asso­
ciated with constellations, one story for each
season. The first of the series is the fall instal­
ment, telling the famous story of Perseus and
Andromeda through cartoon animation. An
owl named Aesop is the storyteller, a mouse
named Socrates his faithful listener; I've seen
the script as well as the audiovisual “trailer”
and both are charming. Aesop sets some con­
text for the fall sky, then launches into a tell­
ing of the fabled fable – the “magical” (that's a euphemism to make the story suitable for
kids, if you remember the story) birth of
Perseus, his adventures (short-lived) with
Medusa, the addition of Pegasus, and the
whole vainglorious drama of Andromeda
and her foolish parents and the hungry
Cetus.

It's a clever and excellent use of the Omni­
scan technology, which works beautiful for
this sort of story and this sort of cartoon ani­
mation on the dome. The first installment is
due out this fall; keep an eye out.
I'm always amazed at what Joanne Young
and her people can get out of a black bowling
ball on a stick – and it demonstrates how
far laser technology has come since the early
days of laser light shows. I've seen the
Omniscan perform any number of times
now, and it seemed particularly bright and
richly hued. The Omniscan system was also
used to visualize the Big Bang in the Rose
Center's rendition of the event in their new
facility. For additional information, contact
AVI.

Laser Fantasy International, 8411 154th
avenue NE, Redmond, Washington 98052
USA, telephone 1-425-858-7161 or 1-800-847­
7525, fax 1-425-883-7169, web site www.laser
fantasy.com was the other laser company to
toss stimulated photons around the Montreal
dome really, really fast, in a demonstration
of their newest laser technology (shaped
more like a black coffee can on a stick, as I
recall) called Lumisphere. Its demo featured
constellation figures, underwater fishy
imagery, assorted abstract images, some in
soft and soft-edge form. Again, it's amazing
what lasers can be made to do these days;
contact Scott Huggins at the company for
further bits.

Vendor Assortment
Vendors were in particularly strong attend­
ance in Montreal, it seemed to me, and
these in addition come to mind as a sample of the
variety:

Astro-Tec Manufacturing, Inc., 550 Elm
Ridge Avenue, P.O. Box 608, Canal Fulton,
Ohio 44614-0608 USA, telephone 1-330-854-
2209, fax 1-330-854-5376, continues to build
quality domes for planetariums, simulators,
film theaters and special needs, and can
spruce them up if they've gone dingy on you.
Contact Clayton or Stephanie Hopper.

Commercial Electronics, 1335 Burrard
Street, Vancouver, British Columbia V6Z 1Z7,
telephone 1-604-669-5525, fax 1-604-669-6347,
web site www.comlectron.com, makes its Omni Q
SMART (Synchronized Modular Automation
Vol. 29, No. 3, September 2000
Response Technology) system to planetariums and other venues, and has video controllers, slide projector controllers, mini-show controllers and other items in its product line. Among its clients was our host planetarium in Montreal. Contact Gregg Gillis.

**Thorburn Associates**, with offices in Castro Valley, California (telephone 1-510-886-7826), Burbank, California (telephone 1-818-569-0234), and Raleigh-Durham, North Carolina (1-919-493-6027), is another of the firms making new initiatives with the planetarium industry. A full-service acoustical consulting and audiovisual design company, Thorburn has retained our profession's own Jim Horn, recently retired from Morehead Planetarium, on its staff to help spearhead a new planetarium design initiative to offer independent consulting and engineering services from planning through construction and training for planetarium building and renovation.

Thorburn doesn't manufacture or sell equipment, so it can offer unbiased advice to clients based on client needs and mission, and can serve a liaison role between engineering and design teams and equipment vendors. And for those of us who've been in the pressure-cooker situation of having to develop and open — or redo — planetariums, that's really nice. They're also expanding their consulting services to include nuts-and-bolts items such as electrical and HVAC systems, plumbing, and space allocation. If you need help, consider Thorburn; with Jim Horn, they know what they're doing when it comes to planetariums. Check the company out at its web site at www.TA-Inc.com.

**Kinoton GmbH**, Industriestrasse 20a, D-82110 Germering, Germany, telephone 49-(0)89/84-44-60, fax 49-(0)89/8-40-20-02, is a company specializing in cinema products — notably film projectors, rewind and non-rewind systems, amplifiers, and automation systems for several of the most common film formats. You can learn more about the company at its web site www.kinoton.com.

**MEGASystems**, Inc., 435 Devon Park Drive, The 500 Building, Wayne, Pennsylvania 19087, telephone 1-610-225-7200, fax 1-610-225-7258, web site www.megasystem.com, continues to install 8/70 projection systems in planetariums, one of the most recent at the Science Museum of Western Virginia in Roanoke. Browse its web site for more information.

**Helping Planetariums Succeed**, 619 Orange Street, Macon, Georgia 31201, telephone 1-912-750-7870, fax 1-912-750-7826, e-mail groce@mtomini.net is back up and consulting again now that Phil Groce, still a design consultant with MEGASystems, has brought it back from hiatus. Phil, like Jim Horn, has been around for a long time, knows what's going on, and isn't shy about telling you. If you need help, give him a ring.

**Product Pot Pourri**

IPS '00 was a rich melange (to use a French term) of sights, sounds, opinions (always) — and products. Here's soupcon of the delights to be sampled or anticipated...

**The Space Telescope Science Institute**, 3700 San Martin Drive, Baltimore, Maryland 21218 USA, has John Stowe in the Office of Public Outreach looking out for us planetarium types, and in Montreal he described a new product he prototyped last year for the Phoenix conference: an on-line free service called ViewSPACE which provides downloadable loops of "media modules" combining high-resolution images, digital movie clips, spare text, and space music. The modules require a multimedia PC (to the institution's specifications) with a live internet connection, a method of projection, sound, 3rd-party multimedia playback software, and an appropriate space. The modules John has created are wonderful little bits of cutting-edge astronomy and definitely worth accessing if you have or can get the setup needed. He's presently looking for partners for testing the concept; talk to him at 1-410-338-4394, fax 1-410-338-4579, or e-mail stoke@stsci.edu if you'd like to be involved.

John is also working on providing a means for planetariums to get early access to embargoed Hubble press releases so we're prepared when the press knocks on our doors when discoveries hit the news (write a letter of interest to John if you're interested in this), and many other potential services to informal educators such as we are. Good work, John.

**Apogee Books, an imprint of Collector's Guide Publishing, Inc.**, 2289 Fairview Street, Suite #318, Burlington, Ontario L7R 2E3, Canada, telephone 1-905-637-5737, fax 1-905-637-2631, e-mail cgp2@globalserv.net, web site www.cgpublishing.com, was present with a fascinating series of publications called NASA Missions Reports which reprint a variety of NASA archival material on the U.S. manned space program. Ultimately to include reports on every one of the Mercury, Gemini, Apollo, and Skylab missions, the volumes are a treasure trove of facts, figures, and nostalgia for space buffs, reprinting press kits, pre-flight mission operations reports, post-flight director's mission operation reports, post-flight crew press conferences, astronaut interviews, and the like replete with drawings, diagrams, charts, photos, and each volume with CD-ROM playable on Windows platforms which offer still pictures, Quicktime movies, and other visuals. I examined Volume One of the Apollo 11 report, and it's filled with esoterica of the sort we space buffs can appreciate, whether we're seeking reference information or just reliving those golden moments that we "older folks" still remember vividly. This CD-ROM included some 1,400 still pictures from the mission, two movies of the mission, and three panoramic images of Tranquility Base. Volume Two's CD-ROM includes an interview with Buzz Aldrin and - get this - the entire unedited television broadcast from Tranquility Base! Wow!

I also reviewed a just-released volume on Mars missions, and it includes all: press kits and mission reports from the Mariners, the Vikings, Mars Global Surveyor and Pathfinder, and unblinkinglly includes the ill-fated Mars Observer, Climate Orbiter, and Polar Lander press kits and post-mortems where available at publication time. The CD-ROM in this volume includes of variety of Mars images and movies.

On the outside, these volumes have a look reminiscent of national Geographic, and sell quite reasonably for between $14 and $16 U.S., $21 and $24 Canadian, and 10 to 14 English pounds. A portion of the proceeds from any of the volumes goes to support a project called The Watch, which supports efforts related to the detection of near-Earth objects. This, in turn, is a project of the Space Frontier Foundation, 8391 Beverly Boulevard #493, Los Angeles, California USA telephone 1-800-78-SPACE or 1-630-637-6296, fax 1-630-637-8396, e-mail Watch@Space-frontier.org, web site www.Space-frontier.org.

The Space Frontier Foundation also uses proceeds from the sale of these books to support astronomers and their research around the world. The Foundation was also a catalyst in the agreement between MirCorp and the Russian space program to keep space station Mir "afloat," as it were, so its a busy little organization.

While these books may suit the space enthusiast more than the average lay person, you may find a market for them among your visitors; they'd make interesting items for your gift shop. You can even get a rotating book display in which to exhibit them.

For additional information, contact Ric Connors using the contact information provided, or talk to Richard Goodwin for Apogee Books at 955 Amberwood Circle, Naperville, Illinois 60563 USA, 1-630-953-8410, fax 1-630-953-8396, e-mail GRSC@aol.com.

**Hubbard Scientific**, along with Scott Resources and National Teaching Aids, a division of American Educational Products, Inc., 401 Hickory St., P.O. Box 2121, Fort Collins, Colorado 80522 USA, telephone 1-800-289-9299 or 1-970-484-7445, fax 1-970-484-1198, web site www.hubbardscientific.com, displayed several interesting items
from their catalog, including a motorized orrery selling for about $230 U.S., with Mercury taking 15 seconds to make an orbit, Pluto taking four hours. Others included a Seasonal Star Chart booklet with a plane-
sphere in the cover and more detailed seasonal charts inside with good information on each constellation, all compiled by our own Larry Ciupik of the Adler Planetarium. I also enjoyed Hubbard’s astronomy overhead transparencies, which illustrated and demonstrated such concepts as the seasons and moon phases. Hubbard also sells trans-
parent celestial globes, books, videos, posters, a $395 U.S. scale model of the International Space Station, and a host of science and lab items for all major science disciplines. Call or write for a catalog; good stuff, this.

The prolific Nessies also have a catalog of slides, a library of music, and lots of other useful products; check them out at their web site, or call.

MMI Corporation, P.O. Box 19907, Baltimore, Maryland 21211 USA, telephone 1-410-366-1222, fax 1-401-366-6311, e-mail mmicorp@aol.com, web site members.aol.com/mmicorp, also has a new 2000/2001 astronomy catalog out that is similarly chock-full of astronomy items - slide sets, videos, laser-disks, models, posters, computer software, and even small planetariums and observato-
domes. The company also has a useful cat-
alog for geology and Earth science with similar types of items. It’s another good resource; be sure to get the company catalog by contacting as given above.

David Chandler Company, P.O. Box 999, Springville, California 93265, telephone 1-559-539-0900, fax 1-559-539-7033, e-mail David@DavidChandler.com, web site www.DavidChandler.com, has long been known for its distinctive plastic planispheres which divide the sky to minimize constella-
tion pattern distortion (small 5-inch (13cm) versions sell for $6 U.S., $2.75 wholesale, larger 8-inch (20cm) versions for $10, $4.75 whole-
least latitudes of 20-30 degrees, 30-40 degrees, 40-50 degrees, and one for the south-
ern hemisphere). At the conference, I came upon yet another product of which I’d not previously been aware: the Sky Atlas for Small Telescopes and Binoculars. This publication is described as a beginners guide to suc-
ess deep sky observing, and focuses on those celestial objects reachable with binoculars or small telescopes, and includes star maps with the objects located, lists of the objects by constellation with brief descriptions, and good basic advice for observing. It’s an attractive and useful reference, and a good choice for your gift shop. Check it out.

Rob Walrech Productions, P.O. Box 1025, 3800 BA Amerfoort, The Netherlands, tele-
phone/fax 31-33-47-55-543, e-mail walrech@ globalxs.nl, web site www.walrech.nl, is another excellent source of attractive plastic planispheres, now available in English for latitudes 20, 30, 40, 50, and 60 degrees north, and 20, 30, and 40 degrees south. Rob has planispheres in French, German, Dutch, Danish, and Norwegian as well. He offers custom printing to personalize the item for your site, at a reasonable cost (about $4 U.S.) Contact Rob for more data.

Southern Skies Astronomy Center, P.O. Box 207 Surrey Hills 3127, Victoria, Australia, telephone 663-9898-1361, fax 663-9888-5662, e-mail bgrieg@telstra.easymail.com.au, web site www.planetariums.com, offered the marvelous recreations of master mechanic Brian Grieg, reproducing some of the pivotal mechanical astronomical models of past eras. The orreries and other devices on display were indeed works of art, all brass and varnished or painted wood, and when you turned the cranks, went the planets.

Southern Skies and Grieg offer reproductions of orreries, astrolabes, sundials, armil-
ary spheres, and a whole series of “iums” - lunarium/telluriums, and cometariums, which show how these objects move about their appropriate parent objects. The sundial costs $150 U.S.; other devices start at about $1,000 and go up from there. Not cheap, but wonderful. Contact Grieg as above for more details including methods of ordering and payment.

LM Images, P.O. Box 948, Narberth, Pennsyl-
vania 19072, telephone 1-610-664-0308, e-mail lmimages@aol.com, showed some new all-sky images from its catalog, which included also a series of photographic all-skies from NADA. Very nice – LM uses Gidigone and Polydome software to custom fit its images to your dome diameter and projector config-
uration, with the slides glass-mounted with built-in soft-edge masking. All-sky sets cost $250 U.S., $200 apiece when ordering more than one set, and 12-section panoramas range from $300 to $350 per set.

LM has also formed an association with Planet Earth Films to offer video and anima-
tion clips; current imagery is available on Dig Beta and SP Beta formats in NTSC and PAL, and include landscapes, clouds and weather, sun and moon rising and setting, and southern starfields in diurnal motion. Animation clips include the sun, comet and asteroid impacts, and so on, with the library to expand over time. The clips have a starting price of $25 U.S. per second for a minimum of ten seconds, with discounts for bulk orders. Contact Laura Misajet at LM to learn more.

Jon Bell at Hallstrom Planetarium, Indian River community college, 3209 Virginia Avenue, Fort Pierce, Florida 34981 USA, telephone 1-561-462-4888, e-mail jbell@rcc.cccfl .us, came to Montreal armed with “The Astronomer’s Songbook 2000,” a compila-
tion of ditties of a decidedly spacey bent which he and others have composed over the years, usually with new verses to familiar tunes. It’s a nice bit of archival work for the profession, and can come in handy for all sorts of situations – school classes, parties, long nights of observing, planetarium con-
ference hospitality suits – the mind boggles. If you’d like a copy, contact Jon. And keep humming!

Planetarium Shows
Our stock in trade was much in evidence in Montreal, from the host facility’s fine adaptation of the story of The Little Prince into an astronomical detective story, to a number of programs offered or soon to be offered for sale. Here are a sampling:

Loch Ness Productions, P. O. Box 1159, Groton, Massachusetts 01450 USA, telephone 1-978-448-3666 or 1-888-4 NESSIE, fax 1-978-448-3799, e-mail dome-art@lochness.com, web site www.lochness.com, came armed with news of the imminent release of three upcoming shows: 1) “Mars Quest,” a rework-
ing of their old Mars show with Patrick Stewart narrating once again, part of the Space Science Institute exhibit on Mars, due out in October or November of this year; 2) “Hubble Vision,” an all-new show on everyone’s favorite space telescope, primarily done as slides, focusing more on results (read pictures and interpretation) than instrumen-
tation, and narrated by half-Borg Jeri Ryan from Star Trek: Voyager, scheduled for release this November; and 3) “Oceans in Space,” a show on the search for where life is possible (watch for Earth’s deep ocean hot vents, Mars, Europa, Orion’s propylids), narrated by yet another Star Trek actor, Avery Brooks, Captain Sisko from the Deep Space Nine series, due to have it’s premier at the big Western Alliance conference in Dallas, Texas USA in October. Stay tuned for pricing and other ordering information.

Bishop Museum, 1525 Bernice Street, Honolulu Hawaii 96817 USA, telephone 1-808-847-3511, fax 1-808-841-8968 has announc-
ed that “Explorers of Mauna Kea,” the second program produced as part of the NASA-funded Explorer’s Project. This one features the observatories of Mauna Kea and some of the work and discoveries going on, and how these efforts complement the work of space-based observatories. The program includes a couple of live sections and artwork by Goto Optical Manufacturing com-
pany.

By the time you read this, the initial free
distribution of 100 show kits or so to U.S. planetariums will already have been determined, so contact Mike Shanahan at Bishop for information on any subsequent distribution possibilities.

The Science Museum of Virginia, as of this writing, still has some copies of its program “StarDate: Ancient Horizons,” available for free distribution to interested parties. The 20-minute program, fashioned after the popular format of the StarDate radio program, is a joint production of the museum and the McDonald Observatory of the University of Texas at Austin, where the StarDate program originates. It focuses on ancient Egyptian culture and astronomy, and features the writing of Damond Benningfield and the voices of Sandy Wood and Teresa de la Cruz, with English-language and Spanish-language versions. A slide set accompanies the package. If you’d like to check it out, contact Barry Hayes at the museum.

The Melbourne Planetarium distributed information packets on its children’s program “Tycho to the Moon,” an exploration of the characteristics and environments of the sun and moon through the antics of dog named Tycho. The program has solid educational goals and an extensive and good-looking series of astronomy-based activities to go along. Funny though; I didn’t notice any references to the fact that the moon is upside down from down there...

If you’re interested in what the Aussies are doing in astronomy education - and it looks good - contact Martin George and crew at the Melbourne Planetarium, Scienceworks Museum, 2 Booker Street, Spotswood Victoria 3015, Australia, telephone 61-03-9392-4800, fax 61-03-9391-0100, web site www.mov.vic.gov.au/planetarium/.

The Buhl Planetarium, Carnegie Science Center, One Allegheny Avenue, Pittsburgh, Pennsylvania 15212 USA also talked up two new programs coming soon, one featuring Arthur C. Clarke as narrator, the other featuring children’s television icon and Pittsburgh native Fred Rogers of “Mr. Rogers’ Neighborhood.” Keep on the lookout.

Finally...

Whew! That’s all – and enough – for now. Have a good fall/spring, and as always, “what’s new?”

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Infrared light streams over me from a radiator above the little ticket house at the entrance of Teknoland where I sit and alternatively sell entrance tickets and edit the International News column. I feel luckier than my visitors, since the weather is chilly and a constant drizzle makes outside unpleasant. At least up to now, the Swedish summer has been miserable. At the same time many colleagues and friends participate in IPS'2000 - I am sure you have a nice time in Montreal - and better weather than Falun!

The International News column depends entirely on contributions that I receive from IPS Affiliate Associations all over the world. Many thanks to Bart Benjamin, Ignacio Castro, Jean-Michel Faidit, John Hare, Don Knapp, Loris Ramponi, and Zinaida Sitkova for your contributions. You are welcome back with new reports, and I look forward to reports from other Associations as well. Upcoming deadlines are 1 October for Planetarian 4/00 and 1 January for 1/01.

Association of French-Speaking Planetariums

Among the latest news from France is the new address for web site for the French Speaking Planetariums Association at www.planetariums.fr.fr. A new show will be produced for 2001 with sponsoring from Centre National d'Études Spatiales and distributed to many French planetariums at national level.

Among the content of last Planetariums Magazine, edited at Montpellier, is the statistics for year 1999: 1.2 million people visited the sixteen large and medium size planetariums in France, and nearly 150,000 people visited small and itinerant planetariums. When we know that nearly half of the first number is for the two planetariums in Paris cumulated (Palais de la Découverte and Cité des Sciences), we can see the importance of the small planetaria.

With a hundred of small and itinerant planetaria, France is, together with Italy and the Scandinavian countries, leading in Europe. A network covers all the country, especially for scholars (around 3/4 from this first global study for small planetaria statistics).

Association of Mexican Planetariums

With renewed interest among AMPAC member planetarians and current President, José de la Herran (from the still in planning stage Universum Planetarium), it was decided to participate in Mexico's 7th National Science & Technology Week 23-29 October 2000. The Luis E. Erro Planetarium Director Miguel Gil Guzman has been officially appointed as host to the opening ceremony, in Mexico City this week. Many institutions will provide participatory exhibits, workshops and related activities in a nearby exhibition, with the purpose of awakening youth's interest in science & technology.

Among other topics, IPS 2002 Conference Chairman Gabriel Muñoz updated the IPS membership in Montreal about the program and pre/post outings, promising very interesting visits to pre-Columbian archeoastronomy sites in Mexico.

Since it was not possible to hold the annual AMPAC Conference this year during the summer at the previously designated site and with no time left to make a change of site for a later date, an invitation to gather in Dallas during the SWAP Conference has been sent out. Hopefully some members might show up in Dallas.

Great Lakes Planetarium Association

Illinois planetarians enjoyed a true planetary adventure as they searched for that "dastardly villain" Carmen Sandiego at their state meeting on Saturday 29 April at the Lakeview Museum in Peoria. The host, Sheldon Schafer, dazzled guests with his laser lights and treated them to a live showing of Where in the Universe is Carmen Sandiego? The Lakeview Museum Planetarium held its 6th Annual Interplanetary Bicycle Ride on 12-13 August. The Cernan Earth and Space Center at Triton College in River Grove recently presented three different laser light shows, including an all-new family laser show entitled Rainbow Rock.

The William M. Staerkel Planetarium at Parkland College in Champaign recently said good-bye to its veteran show producer and long-time friend, Chuck Greenwood. He is taking his talents to Cocoa, Florida, where, rumor has it, there's more room for sailing his boat. Greenwood has been an integral part of the Staerkel Planetarium for nearly a dozen years and he will be greatly missed. Because of his departure, Saturday evening public programming was suspended for the summer. A family show was added to the Friday line-up of programs. The planetarium also partnered with the local astronomical society to offer an evening family astronomy workshop series in September.

The Olivet Nazarene University Planetarium was closed this summer to have its star projector disassembled and painted. They also began the process of automating the planetarium, starting with the projection systems. All work is being done by Ash Enterprises. Staff at the Waubonsie Valley High School Planetarium spent the summer installing new special effects projectors and getting the new Focal Point Systems automation system working. They hope to be completely up and running by September.

There will soon be a full time assistant working at the ISU Planetarium. This person will work exclusively at the planetarium so that Carl Wenning will have more time for the many physics classes he teaches. Wenning will still be involved with the planetarium, but in a more administrative manner. He is working on a grant proposal to purchase a new star projector for the planetarium and having been named a "champion" to spearhead efforts to raise money to build a Challenger Learning Center in the area.

Indiana. Keith Turner of Marion High School Planetarium hosted a wonderful state meeting in April. It was a well run, relaxed meeting, with a good lunch at the nearby country club. Ron Kaitchuck, director at the Ball State Planetarium, was the keynote speaker. Ron captivated guests with his experiences and ideas from his years of experience as a planetarium director, planetarium skills educator, and professional research astronomer.

Art Klinger of the PFH Planetarium/Space Museum in Mishawaka has added over fifty new items to the Space Museum. The school year at Mishawaka ended with an attendance figure of over 30,000. If you've ever wondered how to better integrate your planetarium into the total program of your school system, Klinger is the person to talk with. Director Gregg Williams reports that the Merrillville Community Planetarium just completed the installation of a 7-foot satellite dish. The planetarium is using the dish to receive NASA-TV, which provides live coverage of shuttle flights and other NASA projects. Amea Platt of the Wayne High School Planetarium in Fort Wayne visited Pasadena to participate in Planetfest last
December. She participated in many events, and rubbed shoulders with Buzz Aldrin, Sally Ride, Bill Nye, and other astronauts.

The Muncie Community Schools Planetarium was selected to represent the state of Indiana this year in the student Signature in Space project. Funding for this is provided by Lockheed Martin. This is the first time on entire school district has been selected to represent a state. Each student in the twelve elementary schools may sign one of the posters, one poster per school. The signatures will be flown aboard the S3 shuttle (space station assembly mission STS-92) on 12 September 2000. After the signatures are flown in space, the poster is returned to the elementary school with an official certificate signed by the STS-92 crew. The poster and certificates will be framed and hung in each school.

Michigan planetarians have this summer been busy with a variety of projects that include theater renovations, projector upgrades, special events, and of course a multitude of interesting and educational programs.

The Delta College Planetarium in Bay City now has a library of over twenty-five shows and presented a variety of them this summer. Weekday public shows varied to accommodate summer camps and other groups. A hybrid of the video and slides from HST was presented as a pre-show for all of their weekend shows. A new solar telescope with a rear projection screen is now in operation on their rooftop observation deck. They also hosted a very successful 4th of July fundraiser. Ticket purchasers received a show, dinner, and a seat on their observation deck complete with popcorn and beverages for the best view of one of Michigan's best fireworks displays. In September, they will close for their annual maintenance.

The Roger B. Chaffee Planetarium in Grand Rapids is hoping for significant attendance at their Museum's Dinosaur Families: The Story of Egg Mountain exhibit. They also have a delightful family dinosaur program (with songs!) that they purchased from the Manitoba Museum of Man and Nature, which ran through the summer. For people who want a real planetarium show, they are running a current sky show. The major north-south freeway (the one that runs just a block from the Museum) has been closed since January and will remain closed until December 2000, making it difficult to travel through town. Staff members had visions of an empty museum, but they just had record attendance with their Egypt exhibit and hope to have record attendance again when they open the Star Trek exhibit. After the dinosaur show closes this fall, they will upgrade to Digistar II.

The Kalamazoo Valley Planetarium completed programs for 250 brownie scouts to get their Space Explorer badge, and they are designing a similar program for the Bear Cub Scout astronomy badge this fall. The Peter F. Hurst Planetarium in Jackson participated in free showings of JHE's Daughter of the Stars as part of an area event held in conjunction with the Jackson Convention & Tourist Bureau on 2 June. Other than that one event, the planetarium was on summer break and will resume its primary mission of working with school groups in the fall.

The Longway Planetarium in Flint continued construction on their new addition. Scheduled to be completed in October, the expansion will include a new classroom/exhibit area, new offices, new production area and new bathrooms. In addition, the planetarium was closed for four weeks in June and July to replace seats, install new carpeting and repaint the planetarium dome. The Cranbrook Institute of Science Planetarium in Bloomfield Hills continued during the summer months the work on their new in-house astronomy show on the subject of the solar maximum, entitled The Secrets of the Sun and Stars, which will debut in September. In addition, Cranbrook's observatory was open every clear Friday and Saturday night.

The new Wayne State University Planetarium in Detroit is three years old. The heart of the planetarium is a Spitz S12, supported by an ATM3 automation system, with video, slide and special effects projectors. The planetarium provides a variety of night sky and space science shows for K-12, college and community groups as well as specialized instructional programs in astronomy for these same groups. Also provided are cross-discipline programs in collaboration with other academic units at Wayne State University. Last but not least, the Abrams Planetarium in East Lansing was closed during the summer so that their lobby and main office could be remodeled.

Ohio. Greater Ohio planetarians convened for their annual spring meeting on 29 April at the Shaker Heights Planetarium. Gene Zajac was the meeting host, and was assisted by Kelly Jons and Joe Marencik. Nearly 40 people attended, making this one of the largest Ohio meetings in many years. The many interesting papers reflected the wide range of creative interests of the delegates as planetarians and astronomy educators. Joe Marencik and Gene Zajac described the construction and use of the wonderful new Shaker Space Bus and the many activities it offers. Kelly Jons demonstrated another in his continuing series of creative telescope designs. Bob Slezd treated the audience to a space adventure as told by his extensive collection of trading cards.

David Klapholtz talked about how a spacecraft's speed varies during an Earth-Moon flight. Clyde Simpson shed light on many aspects of sunspots. Jeff Bowen presented a helpful video editing workshop. Jay Ryan reported on recent efforts with his instructive astronomical cartoons. Betty Wasiuk described her new preschool and elementary programs. Chuck Bueter rounded out more uses of paper plates to teach astronomy. David Hud and colleagues set up and demonstrated an innovative dome, which "shows" the sky to the blind with tactile forms for the stars, their names, the ecliptic, and even the Milky Way. After lunch, several outside displays including a small radio telescope built by 8th grader Sarah Cannon were presented. Much good conversation and camaraderie rounded out a great meeting.

Wisconsin/Minnesota. The spring meeting of WIMPS in Stevens Point was a great success. Dr. Randy Olson showed off his new Spitz 1024 and presented some great shows. Marc Rouleau is the new director of the Paulucci Space Theatre in Hibbing, Minnesota. He comes from the Buehler Planetarium in Fort Lauderdale, Florida. The city of Minneapolis has received one million US$ in state money for planning a new facility after a tough wrestling match with the governor. However, a new Central Library has to clear major hurdles before the dream of a new planetarium is realized.

Other great news over in eastern Cheese-land includes Dave DeRemer's valiant efforts to keep the stars shining in Waukesha. Threatened by "administration" folks, Dave and friends let them know the value of the Horwitz Planetarium. Over on the west coast, Bob Allen in LaCrosse got the cool East Control lighting system installed this summer. He also taught some young scholars in a rocket class.

Italian Planetaria's Friends Association

On 15 October the Association celebrates its fifteenth meeting in Ravenna where its first yearly conference was held in 1985. The Meeting will be devoted particularly to the theme Astronomy and Poetry through the pages of Dante's well-known Divina Commedia, as well as Leonardo's and other famous Italians' masterpieces where astronomical concepts are described.

In Ravenna some new Italian projects will also be discussed, like the ones in Milan and Rome. The first one in Milan resumes all the necessary knowledge about the existing pro-
jector models and technical solutions from study tours made to different planetaria in the United States, Japan, and Europe. From that very experience they will take a decision about the star projector that will be installed under the 20 meters diameter dome. The Rome project will create a 15 meters diameter planetarium inside the building of historical Museum of Roman Civilization. One of the latest news concerns the possibility to include also a Museum of Planetary Sciences in the project with the collaboration of Italian researchers in this field.

In May 2001, Italy will host the yearly Meeting of the Association of French-Speaking Planetariums. The preliminary program includes a one-day visit to Milan organized by Hoepli Planetarium, and a two-day stay near the coasts of the beautiful landscapes of the Lake of Garda, with Artistic and astronomical visits to museums and monuments; one day will be spent in Lumezzane where participants will concentrate on astronomy experiences for schools. A post-conference tour is scheduled to Venice. By this occasion Serafino Zani Astronomical Observatory invites colleagues from other countries to join this special Planetarium Meeting.

Middle Atlantic Planetarium Society
Shawn Laatsch, Jenny Lawson, and all of the volunteers from the Arthur Storer Planetarium did a superb job of keeping the MAPS 2000 conference in Prince Frederick, Maryland running smoothly. The five speakers we had the privilege of hearing were exceptional. The variety of topics they explored, which ranged from basic astronomy and the latest news from the space program to speculations about the future of our profession, was also excellent. There was definitely something for everybody. Something new this year was the addition of mini-lessons that were presented in the planetarium. The format proved to be quite successful, and we anticipate such mini-lessons becoming a regular feature at future conferences.

The MAPS Executive Board has voted to accept an invitation from the Henry Buhl, Jr. Planetarium and Observatory to host our 2001 conference at the Carnegie Science Center in Pittsburgh, Pennsylvania 9-12 May 2001. Jim Hughes and his staff are already busy making plans for our arrival. The conference hotel will be the Pittsburgh Hilton and Towers in downtown Pittsburgh. Room rates will be $95 per night.

Nordic Planetarium Association
A few short notes: There will be no NPA Conference this year. The next meeting will instead be held in 2001 in Borlänge, Sweden at dates to be decided. Planetarians from Denmark, Finland, and Sweden participated in the IPS 2000 Conference in Montreal, Jan Alfred Anderson has replaced Dag Kjellidal as Director of Teknoteket in Oslo, Norway after Kjellidal left to become a pilot in Great Britain. Teknoland has made a potentially important application to the National Swedish Tax Board, asking for a decision to equalize planetariums and science centers with museums. This would mean that the VAT for such institutions would be set to 6% instead of 25%. A decision is not expected until next year.

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MARYLAND SCIENCE CENTER
At Baltimore's Inner Harbor
The Nizhny Novgorod Planetarium as the center of humanitarian astronomical education

Zinaida P. Sitkova, Irina A. Bakunina, and M. J. Chovrichev

(The edited version of a poster presented at The Joint European and National Astronomical Meeting JENAM-2000, 29 May to 3 June 2000 in Moscow, Russia.)

The aria from an orchestral suite of J. S. Bach sounds especially solemn when the sun is setting on the dome of the planetarium. Soon the first bright stars will appear. Only light clouds hide from us the depth of the dark night abyss. And just now it opens full of stars....

Our meetings here, in the planetarium, continue: with schoolchildren, students, teachers, scientists, artists, journalists, poets, bards, and wide sections of the population.

But a planetarium.... At first: what is it?

Planetariums are well known as the institutions simulating the night starry sky visible with the naked eye. This is achieved by using a complex opto-mechanical (or electronic) instrument, an apparatus called the planetarium projector. The first such apparatus in the world was invented in Jena, Germany in 1923. Very quickly it occupied a unique place in the sphere of education and culture and won the hearts and minds of variety of the population all over the world. Today there are about 3000 planetariums in the whole world, but there are only 30 of them in Russia.

The Nizhny Novgorod Planetarium was opened in 1948 in the former church of the Blagoveschensky monastery. It was the second planetarium in Russia after the Moscow planetarium. Now it keeps the key position among Russian planetariums since 1994 the board of Russian Planetarium Association and editorial staff of the Bulletin of Russia and Ukraine Planetariums Association work here.

The planetarium projector is the third generation of the Karl Zeiss' SKYMASTER ZKP-2 installed in the Starry Hall of the Planetarium. It projects the images of 5800 stars, planets, the Milky Way, star clusters, galaxies, and gas and dust nebulae on the 8 m diameter dome.

The planetarium projector shows the sky as it seen not only from the latitude of Nizhny Novgorod but from all over the Earth (from north to south pole) in any hour and at any date between a thousand years ago and a thousand years into the future. So the opportunity of trips even to the distant past or future, and to different places on the surface of the Earth gives an advantage over the real sky for study and understanding the science about our Universe. How do we try to use this advantage? Through using a humanity perspective of astronomy.

The lecture remains the main activity from a wide spectrum of planetarium. But it is not just a simple popular science lecture about life on planets, stars, galaxies and so on. Instead, it is a lecture under the starry dome with a variety of specific effects such as music, slides, the simulation of the flights of space-crafts, flying planets, meteors, bolides, northern lights, sunsets and sunrises, panoramas of cities and some other places of the Earth or other planets. In other words - it is a lecture in the starry theatre. And the lecturer is not only a well educated popularizer of astronomy, but he or she is also a little of an actor or actress.

Astronomy is the science with a specific structure that gives the opportunity to form an integral structure of the whole world in the minds of children. Astronomy turns out to be the role of leading science in the forming of the Earth's and is tightly connected with the development of culture. But now the situation in the Russian school education is such that astronomy practically has disappeared as a subject of study. So the planetarium does not only have to be in the lead of institutions providing additional astronomical education but also has to become a center of science and art synthesis. Mainly through such creative confluence is it possible to give children and adults notions about the surrounding world and the Universe where they live, and to make children interested in the learning of the exact sciences. Today, Russian planetariums have to be places where not only wide sections of the population can satisfy their curiosity about surrounding world, but also the main place where a new generation of future Russian scientists and educators is born and carefully grown.

There are four educational programs for schools and colleges in accordance with our work. Our planetarium is not only the place of holiday and evening leisure for the general public, but it is also the center of studying for schoolteachers, school pupils and students. Here, scientific and philosophical seminars and creative meetings with musicians, poets, actors, journalists, artists (with expositions of exhibitions in the Starry Hall) are carried out.

The educational programs have firstly been created for schoolchildren of three main ages: 1) for youngest (from 5 to 10), 2) for middle child's age (from 11 to 15), and 3) for senior (from 16 to 18 years old).

1) The program Fairy-Tale Universe gives to children the first knowledge about Earth, the starry sky, the nearest celestial bodies, the Sun and stars in the brightest pictures form, with using not only the special effects of planetarium, but also elements of theater performance, puppet-show, exhibitions of artists and children's drawings.

During last few years, several new shows for young children have been created: Space Trips of the Little Bear Vinni-Puch, The Trip to the Black Hole, Taking the Upper Part of Comet, and many others, authored by the Nizhny Novgorod Planetarium lecturer A. A. Belyanin.

2) The program Universe to Schoolchildren is meant to make the middle-aged children interested in natural sciences through the interest in astronomy by offering separate lecture shows and series of lectures on planned themes.

3) The program Universe - the Ocean of Knowledge offers senior pupils a series of lectures covering all sections of the course Astronomy. These lectures are continuously developed by the new demonstrative possibilities (for example - amazing images from HST) which are not available for school teachers.

4) The program Gifted Children has as its main goal to reveal talent-ed school children who will fill up the scientific potential of Russian science. This program includes quizzes, olympiads, and work in astronomical study circles. There are three stages or three levels of the circles' work which are fulfilled by three teachers:

a) Junior section (lecturer: O. N. Podkovyryina)
Methods: from games, drawings and quizzes to the solving of simple astronomical tasks.

b) Humanitarian section (lecturer: M. L. Chovricheva)
Methods: learning myths of ancient Greek, Egypt, India, etc. In keeping the names of constellations, lecture dialogs (while two lecturers are disputing about some subject, the pupils have to take position of one or another and have to substantiate their choice). This is the first steps towards the methods (development of logical thinking) of scientific work.

c) Senior section - scientific astronomical laboratory (lecturer: graduate student of Pulkovo observatory M. J. Chovrichev)
Methods: visual and photometric astronomical observations, solving the astronomical tasks by using computer programming.
Russian Planetarium Association

In Nizhny Novgorod, the conference of veterans of the Cosmodrom Baikonur was held on 2 June (there are about 100 veterans in Nizhny Novgorod). This day was a double holiday: Both the 45-year jubilee of the Cosmodrom Baikonur and laying the foundation stone of the city's new planetarium. The path in the park (50 birches) where the planetarium will be built was founded (this path as its planned has to lead to the planetarium). The foundation stone and the capsule with earth were taken from first cosmonaut Gagarin's start, and passed to veterans by the Mayor of Baikonur. The Mayor presented to the planetarium the pennant and badge of Baikonur (which will be the displays of the future planetarium cosmic museum). Memory badges devoted to the Baikonur Cosmodrom jubilee, the Nizhny Novgorod veterans of Cosmodrom, and the beginning of the building of the new planetarium have been made.

The first foundation stone was laid by the chairman of the Nizhny Novgorod Soviet of Baikonur veterans Roman Syglobov and Valery Andronov. Syglobov is the engineer-tester of Baikonur; he worked under the program Proton. Andronov was the participant of the launching of Yuri Gagarin and many other projects. Now the correction of the project of the new planetarium is coming to the finish. We plan to have, besides Starry Hall with the dome of 15 m, museum and observatory, an astro class with using the old apparatus "STARMASTER ZKP-2" for projection on the dome of 8 m. The building perhaps will be started 1 September - in the Day of Knowledge.

On 22-28 June the Conference of RPA was held in Barnaul devoted to 50-year jubilee of the Barnaul planetarium. Former cosmonaut Gregory Grechko participated of this meeting. The Joint European and National Astronomical Meeting JENAM-2000 took place on 29 May to 3 June in Moscow. Irina Bakunina, Zinaida Sitkova's deputy on scientific work, participated in this very large conference and presented a poster, The Nizhny Novgorod Planetarium as the center of humanitarian astronomical education [printed on the previous page].

Southeastern Planetarium Association

The 2000 SEPA conference concluded 24 June. As always it was a tremendously worthwhile gathering. Almost 100 planetarians from the southeastern United States as well as guests from other regions were in attendance along with IPS President Dale Smith. The banquet speaker was Nagin Cox of JPL. Ms. Cox gave a passionate talk on her involvement with the Galileo mission to Jupiter and her transition into the Mars missions. It was one of the best talks ever experienced by John Hare in over 35 years of planetarium conferences. He strongly recommends her as a speaker!

Elected or reelected officers include Mike Sandras, President-elect; Duncan Teague, Secretary/Treasurer; and John Hare, IPS Representative. Dave Maness will assume the office of President and George Fleenor will become Past-president effective with the new year.

The 2001 SEPA Conference will be a joint conference with GLPA. The site is the Hummel Planetarium in Richmond, Kentucky. Conference dates are 26-30 June. Baton Rouge, Louisiana was chosen as the site of the 2002 Conference. The conference will be in June with specific dates yet to be determined.
Creating a new planetarium for the next century was easy. It only took the best of the world's most advanced multimedia technology.

Whether it is the drama of space exploration, the mysteries of quasars and black holes or the magic of the night sky, Minolta planetariums have the greatest audience impact. Long recognized for its advanced optical and mechanical craftsmanship, Minolta is now the world leader in integrating the latest imaging and presentation technologies. Today, Minolta offers full-dome laser projected graphics, all-sky computer imagery, giant-screen motion pictures, and the most accurate and realistic recreation of the night sky. By pioneering the integration of these "cyber-dome" technologies, Minolta has redefined the planetarium for the 21st Century. If you are planning a new space theatre or updating an existing facility, please contact your nearest Minolta representative today.
elements, needed to power plate tectonics and the ensuing environmental variety that diversifies life, are made only in rare supernovae. Planets near enough their star to be temperate are deep in the star's gravity well and thus vulnerable to bombardment by space rocks and the mass extinctions that follow; while our Jupiter acts as a shield, the Jupiters found to date around other stars would act as slingshots instead. Moreover, without a large moon — and ours is an accident — could a planet maintain a stable tilt and thus a stable climate?

Now I must admit that I don't particularly like this line of reasoning because it challenges the life-optimistic assumptions I want to adopt, and critics of *Rare Earth* assert that the authors have not given due credit to life's ability to adapt to changing circumstances and to fill new ecological niches as they arise. On the other hand, I've known co-author Don Brownlee since my Seattle graduate school days in the 1970s and respect him as a thoughtful and articulate scientist. And it is true that we've seen no sign of the galactic engineering that our more advanced counterparts should have constructed by now.

So what awaits our SETI endeavors — is it microbes or macrobes or silence? Are we one among many, are we really alone, or do we carry the weight of intelligence in a universe filled with otherwise unaware life? As we explore and explain the universe, are we alone atop our earthbound mountain-peak, or do we share the vista with colleagues as yet unseen? Are our planetaryms the only ones, or are they the least among many?

**Conferences Now and to Come**

**Atop the Royal Mountain**

Wherever we may stand in the ranks of interstellar planetary societies, in July we stood atop the Earth's Royal Mountain when IPS convened its 15th biennial conference in Montréal, Québec, Canada. The name Montréal, by the way, means royal mountain, and Mont-Royal could be seen a few blocks north of the conference hotel. Within the hotel, more than 300 delegates hailing from 27 nations on six continents assembled for four outstanding days of conference sessions and interchange.

As the paper sessions, panel discussions, workshops, invited speakers, vendor exhibits, and meals unfolded with clockwork precision, the superb organizational work by conference host Pierre Lacombe and his team yielded its dividends. We presented, we shared, we discussed, we learned, we discovered, we networked, and we returned home inspired and enriched. Immersed in the richness of what we are doing today, we also gained an exciting glimpse of the future. If you were fortunate enough to be there, you will remember all this first-hand.

If you weren't able to attend, don't despair! You will be able to read all about it when your copy of the Montréal *Conference Proceedings* arrives. As I reported in my March message, the IPS Council, upon recommendation of the officers, voted at its Flagstaff meeting last October to provide conference proceedings to all IPS members as a benefit of membership. As our conference sites and membership become increasingly global, not all members are able to attend every conference, and with the multitude of parallel sessions, even those who do attend can't hear everything. With the institution of conference proceedings distributed to all members, we will be creating a permanent record of the conference and will be making its benefits more widely available. The *Proceedings* will include texts for all contributed oral papers, abstracts of poster papers, summaries of discussion panels, and more. As I write this in mid-July we don't yet have a definite publication date for the *Proceedings*, but I think you can expect it before the end of the calendar year.

We also saw an evening of dazzling vendor demonstrations in the planetarium, and many delegates left the planetarium feeling that we had glimpsed the future of immersive video. While the vendor demos don't lend themselves to a printed summary in proceedings, be sure to read Jim Manning's report on them in the "What's New" column in this issue.

A meeting that runs as smoothly as the Montréal conference did is a tribute to the organizational skill of the conference host and support team and to the incredible amount of behind-the-scenes work they did in preparing for the conference. Those attending, and indeed all of us in IPS, owe an enormous debt of thanks to Pierre Lacombe and his workers, and the verbal or written thanks we can offer are but a small payment. The true thanks to our hosts lie first in the collective experience we shared in Montréal, but even more they lie in the enhancements that are now diffusing to our networking and to our planetarium operations around the world. As with each conference in the past, we have emerged a stronger and better profession, and we move to the future with fresh vigor and confidence.

**Looking ahead: 2001**

We met in Montréal at the dawn of the third millennium, and the first years of that new era have much to offer us in the way of international conferences, both regular IPS conferences and special occasions.

First up among these international events...
is the special conference “Sri Lankan Skies and Sir Arthur: a 2001 Odyssey” that will meet in Sri Lanka next March 19-24 under the theme “Teaching the Universe in the 21st century.” You’ll recall that I introduced this conference in some detail in my June president’s message and the article in this issue by conference host T. C. Samaranayaka provides further information. The conference will open in Colombo with a keynote address by Sir Arthur C. Clarke and two days of paper sessions, panel discussions, and planetarium shows and lessons, followed by three days in Sri Lanka’s interior featuring school visits, night sky observing, historical excursions, and an introduction to the nation’s landscape and culture. Most of all, the conference will provide a unique opportunity for planetarians from diverse circumstances to meet in a developing country and share their ideas and insights.

You should already have received the formal announcement and registration package by the time you read this message. In case they haven’t arrived, you can check the IPS web site www.ips-planetarium.org which will contain a clear link to the Sri Lanka conference web site, where you can find detailed conference information, costs, and registration and paper forms. If you need conference materials, but do not have web access, you can contact either me or conference host T. C. Samaranayaka (email planetsam2000_1999@yahoo.co.uk, fax +94 1 864198). The conference language is English.

Final local costs are being determined as I write this in mid-July, but are expected to be about US$550 inclusive of all major costs in Sri Lanka (including six nights’ accommodation, all meals, transportation and guiding, and registration fees). Anticipated round-trip airfare on Air Lanka from European gateways (Frankfurt, Paris, Stockholm, and Zurich, among others) to Colombo is about US$750. Check the web site or registration materials for the final figures.

Looking ahead: 2004
Looking even farther ahead, we have also have three excellent proposals to host the IPS 2004 conference. In alphabetical order by country, they are from the Melbourne Planetarium, Melbourne, Australia; L’Hemisferic, Valencia, Spain; and the Chabot Planetarium, Oakland, California, USA. All three sites have submitted formal written proposals to the IPS Council as required; these documents include a description of the proposed conference, dates (all in July), estimated costs, associated tours, and other information. Representatives from all three sites attended the Montréal conference to answer questions from Council and to make presentations to the general membership at the Business Meeting. I have also asked the proposers to place the visuals from their business meeting presentations on-line, and we will install links

Looking ahead: 2002
Even as we arrive back home from IPS 2000 in Montréal, we can begin looking forward to the IPS 2002 conference in Morelia, Mexico. Host Gabriel Muñoz has already prepared a preliminary agenda that includes an exciting mix of professional sessions, a taste of modern Mexico, and post-tours to historic and archaeological sites. Conference dates are July 14 to 18, 2002. Now I must say that I don’t envy Gabriel having to follow the outstanding conference in Montréal, but all of us who know Gabriel know that he will be up to the challenge. So reserve those dates, start saving those pesos, and get ready for another great conference.
to them from the IPS web site. Finally, all three sites are preparing Planetarian articles describing their proposals; look for these articles in the December issue.

The 2004 conference site will be selected by the IPS Council at its 2001 meeting. Council is composed of the elected IPS officers and of representatives from each of the regional affiliates. If you are member of a regional affiliate, please contact your affiliate representative to express any preferences you may have among the sites.

**Planetarians and Planetaria**

**Planeta at the -pode and antipode**

Yes, there is a suffix -pode, which is a variation of -pod, which in turn means "foot" (that is, the appendage we walk on, not the archaic unit of measurement that Americans can't seem to abandon to history and to successful spacecraft navigation).

### 2004 hopefuls

During recent months, I have had the privilege of visiting all three sites proposing to host the 2004 IPS conference and can assure you that they are three very excellent facilities indeed. I encourage you to visit their respective web sites and see what each facility has to offer its community. You can find them as follows: Chabot at [www.cosc.org](http://www.cosc.org), Melbourne at [www.mov.vic.gov.au/planetarium](http://www.mov.vic.gov.au/planetarium), and Valencia at [www.cac.es](http://www.cac.es).

In my June message, I reported on my visit to Valencia and the annual meeting of Spanish planetarians. Valencia’s L’Hemisferic planetarium has now been joined by a massive new science museum which was still under construction when I visited in April.

In May, the break between my spring and summer semester classes gave me time to make a transpacific hop (the third in four months) almost to the antipode, to Melbourne, to trade spring for fall, and to visit at the Planetarium at Scienceworks. The public show that I saw played to a full house on a Thursday evening and combined innovative video sequences with Digistar graphics and a variety of still and moving images. An outdoor telescope session preceded the program, and after the show, a live star talk treated the seven-score austral and the lone visiting boreal to an indoor look at the best of the southern sky. Nearby, an exhibit hall still under construction served up a variety of engaging and interactive displays, some featuring the impressive work of Australian school students, and across town, the new Museum of Victoria parent institution was still under construction.

In early June, I made the somewhat shorter trip to the US west coast to take a look at the new Chabot Space and Science Center in Oakland, California. Still, under construction when I visited, the facility is set on a rural hillside high above Oakland and the San Francisco Bay area. It is anchored at one end by a 21-m planetarium with a Zeiss Universarium VIII star projector with its awesome starfield and Milky Way. A trio of observatory domes anchors the other end, and one of those domes houses a 20-inch (half-meter) refracting telescope. A galaxy of exhibit areas and learning rooms, including a Challenger Center and amphitheatre, leads between the anchors to explain the universe to inquiring minds.

Whatever site should win the competition to host the conference, we shall have much to see both on-site and in the various pre- and post-conference tours and activities that you can read about in the December articles. So start saving those Oz dollars or greenbacks or pesetas and get ready for 2004.
En route to Oz, I decided to take the long way around and spent a couple very pleasant days in Kuala Lumpur, Malaysia, time highlighted by a pair of visits to the National Planetarium. This fine facility is now under the able direction of Dr. Mustafa Din Subari, following Dr. Mazlan Othman, who moved to Vienna last October to head the Office of Outer Space Affairs at the United Nations’ Vienna International Centre. Among the astronomers on board in KL is Dr. Mohd Zamri Mastor, whose ready smile has represented KL’s planetarium at the Osaka and Montréal IPS conferences.

Set on a hill west of downtown KL, Malaysia’s National Planetarium is a stunning sight. When you visit it, and you must, go in the late afternoon and stand at the foot of the grand stairway that climbs up to the entrance. The ascending steps span a gentle cascade of water rippling down a central channel. But the steps and the waterway focus your eye to the top, and there, with the low sun behind you, the planetarium sits before you, bathed as it were in Allah’s own light, for this planetarium is designed to resemble a mosque. Indeed, the central white structure is square, and above it floats the dark blue dome. To the left, a veritable minaret towers above the trees, but here the mullah’s voice calls the faithful to the stars, for this minaret is crowned with an observatory dome whose telescope brings the light of the stars to earthly eyes. Elsewhere on the planetarium grounds, a set of sundials displays the solar time and an eclectic set of replicas (Stonehenge, a Jai Singh sundial, and a Chinese star temple) show how ancient cultures kept track of the sky.

Inside, a very modern exhibit area surrounds the planetarium itself. Captioned in both English and Malay, the displays tell the story of spaceflight, of light, of starlife, and of the tools we use to study the cosmos. Two exhibits in particular caught my eye. One was the tilted gravity room, where all the verticals were slanted, and where to exit — abandon hope all ye who enter here, abandon your dignity and slide feet first and blind down the spiral gravity tube that dumps you back to the real world where verticals do stand upright, even if you cannot. The other eye-catching exhibit takes you to a black hole — an innovative set of gridlines shows how you are funneled and compressed as you fall sideways toward the event horizon, not that I ever want to test that model first-hand.

Both planetarium programs and Omnimax films are on the public show schedule, some in English and some in Malay, and it was a nice touch to see a Kuala Lumpur panorama opening a US-bought show that had been adapted to a Malaysian setting. Mustafa, Zamri, their colleagues, and I spent part of the day talking about educational trends in planetariums, a topic important to us all and to our dedicated colleagues in Kuala Lumpur. If you are ever in town, call or email ahead and arrange a visit—you will find gracious hosts and a facility well worth seeing.

En route to KL, you are likely, as I did, to pass through Singapore, whose airport (barely ahead of KL which checks in at #3) is ranked #1 in the world and features a small but very nice science museum next to the supermarket in terminal two. In town, the Singapore Science Centre has some nice outdoor exhibits for those who can take the equatorial heat and a busy indoor schedule shows science films in air-conditioned comfort.
Jane's best

Speaking of #1, have you seen “the best planetarium in the world”? You may recall that in her March 2000 edition of Jane's Corner, long-time Planetarian columnist Jane Hastings bestowed this unique honor on the small Holt planetarium directed by Alan Gould at the Lawrence Hall of Science in Berkeley, California. So I took advantage of my June visit to Chabot to slip over to LHS and see for myself.

In the basement level, I found a gem that has little to do with the point of this section, but it bears a mention anyway. The map area features a replica of the globe produced in 1492 by one Martin Behaim. As you would expect, this globe is America-less, and if you turn it just right, so that Asia is on the far side, you confront the Ocean Sea before you, bounded on the east by Spain and on the west by Japan. We all know about a passionate idea-driven mariner who may have studied this globe, or at least the world-view it encoded, and though we all know this mariner had the numbers wrong, very wrong, the globe does make it easy to see how he thought he could sail safely across those well-bounded waters.

Upstairs, the LHS planetarium is a small facility tucked away on the far side of the Hall from the entrance. It is surrounded by a variety of hands-on discovery stations where I saw adults and children learning together. The planetarium program too was highly interactive, and an engaging series of modules showed us how astronomers can decode colors and spectra to ferret out secrets from starlight. Which filters we used to study the starfield are long gone from my mind, but what remains in their place is the delight in the voice of a child who had discovered and understood that color tells temperature in stars. Participation, and then discovery. If you attended Alan's engaging presentation at the Montréal conference, you too were part of this LHS style of involving the audience.

So what led Jane to call this small, low-tech, modestly equipped planetarium “the best in the world”? It was the power of an idea, the idea of engaging the audience in hands-on discovery, an ideal that Alan and his colleagues at LHS have themselves followed consistently and have shared with the rest of us through the renowned PASS series and other presentations. It is the same idea
that we saw brought to life in Dr. Julita Fierro’s memorable opening address at the Montréal conference in July.

So what gives our planetariums their power? It is not really the equipment they possess, whether modest or state-of-the-art, for we operate in such a diversity of circumstances. Rather, the power of our planetariums lies in our ideas, in the unique vision each of us brings to our own facility, in how we use our resources, in all the diverse ways we seek to touch and to engage our audiences and classes and indeed ourselves. Driven by ideas, we can each be “the best in the world.”

Two of the best in IPS

IPS is a society of volunteers. In all of the three decades since IPS was founded, the steadfast work of volunteers has the basis for our objective accomplishments and our human self-image. IPS offers few prizes to its members for their service to the Society and the profession, for the true reward lies in the satisfaction of having contributed to our work as one among many. But among the few prizes we do offer, the highest one carries the modest and fitting title of “Service Award.” This award has been given sparingly, only about a dozen times in the history of the Society, for the criteria require that the recipient shall have been “through the years, an inspiration to the profession and its members” and shall have had a “a broad, deep, and concrete effect in the profession and its development.”

At its Flagstaff meeting last October, the IPS Council accepted the recommendation of the Awards Committee to recognize the three decades of such contributions by two of our charter members, John Hare and Jane Hastings, who have been with IPS since Day One. Officers and other editors have come and gone, but every issue of the Planetarian since Volume 1, Number 1 has been graced with Jane’s Corner, that quiet column that keeps us firmly anchored to the human side of our profession. And three pages before the inaugural Jane’s Corner on page 14 of 1-1, there is a picture of John Hare at work, then as a technician at Abrams Planetarium. Since then, we’ve known him as a director, vendor, veteran member of Council, IPS Historian, advisor, and friend.

Jane and John, this award is but a small expression of our gratitude for your faithful service that stands as a model to us all. The rest of us can perhaps get a feel for what three decades of service means by looking elsewhere in Planetarian 1-1, and noting the prospective costs for the then upcoming 1972 ISPE conference: registration fee of $30 and hotel room rates of $14-20. Of two things we can be sure, prices will continue to rise, and the two newest recipients of the Service Award, like the peers they join, will continue in their faithful service to IPS.

Council also elevated eighteen more members to the rank of Fellow of IPS in recognition of their own contributions to our Society. The new Fellows include Rosy Canter, Pierre Chastenay, John Dickerson, Tony Fairall, Steve Fentress, Teresa Grafton, James Hughes, Jim Manning, Tony Morris, Marie Rådbo, Timo Rahunen, Gary Sampson, Asunción Sánchez, Kevin Scott, Zina Sitkova, Piet Smolders, Joyce Towne-Huggins, and Bob Victor. Well-earned congratulations to all.

Our favorite Martian

As part of the well-publicized Mars Millennium Project to design a Martian village for the year 2030, IPS conducted a contest for IPS members to reward the entry whose students designed the best such village with an international aspect. As you’ll recall, the contest was first announced in June 1999 and entries were due on the date Mars crossed its ascending node in March 2000.

I am delighted to report here that the winning entry was submitted by the students of Lee Ann Hennig, Planetarium Director at the Jefferson High School in Alexandria, Virginia. What Lee Ann’s students wrote in their preface can serve as an inspiration to us all:

“The village colony of Shambala is founded on the principles of humanism and exploration. ... Justice and compassion become more than mere catch-phrases in Shambala. They become the foundation of society. Shambala is also founded on the principle of unceasing inquiry into the workings of the Universe and the workings of the human mind. ... Both the unchanging solidarity of Mars and the dynamic nature of humanity are revered in Shambala. Science takes on a spiritual aspect ... As John Winthrop intended the Massachusetts Bay Colony to do, Shambala is intended to serve as a “City upon a Hill”. It is intended to serve as a beacon of hope for all humanity — a place where societal experiment and progress are encouraged, for the benefit of all humanity. With this mission and this mandate, Shambala is a place where the hopes and dreams of all humanity may see fruit. Shambala is a testament to the indomitable resilience and profound genius of the human species.”

Might the same be said of us and our work?

Thanks to Jeanne Bishop (MMP Contest Chair) for her efforts in organizing this competition.

Global vision (or IPS in triplicate)

Since it was founded, IPS has become an increasingly global society. Over the years, it has grown from its original US base to become North American, then transatlantic, and now at the millennium’s dawn, much more truly global than ever before. This global reach is well illustrated by the imminent acceptance of our twentieth and twenty-first regional affiliates. (You may note below that both of these soon-to-be-affiliates could probably call themselves IPS 1, though we expect to use distinctive abbreviations to avoid confusion.)

India is home to about thirty large and midsize fixed planetaria and many portables. This robust planetarium community serves the world’s largest democracy with a distinctive educational style. For some time now, I have been in contact with Prof. R. Subramanian, Director of Calcutta’s Birla Planetarium and president of IPDC, to urge affiliation of India’s planetarium community with IPS. I am delighted to report that the formal papers of application were presented to me at Montréal; they request that IPS accept the Indian Planetarium Society (which we shall call PSI) as an affiliate association. All is in order, and I expect that by the time you read this message, Council will have approved the application. We shall welcome India as the twentieth IPS regional affiliate and the second in Asia.

Spain too is home to a growing planetarium community. As I reported last time, Spanish planetarians have been meeting regularly now for four years and are in the process of creating a formal association. Some technical problems surfaced during our discussions in Valencia in April, but these have now been resolved, and we expect to receive the formal application papers shortly. The primary geographic area will be Spain, but membership will also be open to planetarians in Portugal (though I am assured that, to avoid confusion, Iberian Planetarium Society is not a likely choice of name).

I am also pursuing contacts with other geographic regions not currently affiliated with IPS and will report on these efforts in my December message.

Election of officers

It’s election time again, the biennial opportunity when the IPS membership selects its officer corps for the coming years. Election ballots will be mailed in September; yours may already have arrived, or if it has
not, look for it soon. You will be choosing people to fill three offices.

First, President-elect. The winner will serve as an officer for six years as president-elect in 2001-2002, as president in 2003-2004, and as past-president in 2005-2006. In alphabetical order, the three candidates are Jon Elvert, Director of the Lane ESD Planetarium in Eugene, Oregon, USA; Martin George, Director of the Launceston Planetarium, in Launceston, Tasmania, Australia; and Patrick McQuillan, Director of the Alexander Brest Planetarium in Jacksonville, Florida, USA. All three candidates have made a major commitment in agreeing to stand for office. Please read their statements and biographical materials carefully and cast a thoughtful vote.

Second and third, Executive Secretary and Treasurer/Membership Chair. Incumbents Lee Ann Hennig and Shawn Laatsch have agreed to run again and are unopposed. If re-elected, they will continue their service in 2001-2002.

Thanks to Steve Mitch (Chair) and his coworkers on the Elections Committee for their fine efforts in the nominations process.

By-Laws, by the way ...

The IPS By-Laws are our Society's constitution, and like most such documents, they need occasional attention, though most people don't consider them very exciting reading. Most likely you've never read them, and that's okay. But during the past few months, your Officers and Council have been reading them, and we have identified a number of areas in which they need some common-sense fine-tuning. By-Laws changes require approval by both Council and the membership. At its Montreal meeting, Council unanimously adopted these proposed changes, and now we are submitting them to you the members as they join and can be available to continuing members as well.

Corporate membership. In reviewing the By-Laws, we discovered two dormant categories of membership. One is patron, which we are proposing to eliminate. The other is corporate membership, which we have decided to retain and activate. I've asked Thomas Kraupe (Past-president) and Martin Ratcliffe (President-elect) to draft proposed benefits and dues of a corporate membership. We expect that the Officers and Council will consider this proposal and will implement a corporate membership in due course.

Translation of conferences. Council discussed the need for translation services to make IPS conferences more accessible to planetarians who are not fluent in English. Marc Moutin (Toulouse, France) agreed to lead a small group that will examine translation practices and costs at other conferences and will report back by January 1 with recommendations for future IPS conferences.

Publication of affiliate reports in conference proceedings. Council adopted a recommendation by Loris Ramponi (Lumezzane, Italy) that reports of the regional affiliates be published in the conference proceedings. This will complement the material published in the International News column so ably edited by Lars Broman (Falun, Sweden) and will keep us all better informed of the activities of IPS regional affiliates around the world.

Asian repository. A third repository of IPS back publications is being set up in Japan under the care of Shoichi Itoh KHFl056@nifty.ne.jp at the Suginami Science Center near Tokyo. The European repository is currently at the Artis Planetarium in Amsterdam, Netherlands will be returned to the Europlanetarium in Genk, Belgium under the care of Chris Janssen planet@skeynet.be; thanks to Johan Gilsenbergs (now with Sky-Skan) who handled this repository while he was at Artis. The central repository remains at the Strasenburgh Planetarium in Rochester, New York, USA under the watchful eye of Charlene Oukes. A list of publications available from the repositories can be found on the IPS web site.

IPS is also served by a robust slate of committees that carry out many aspects of the Society's work. Several of these committees (Education, Web, Lasers, Technology, Portables) met during the Montreal conference and charted future work and projects. I will report on some of these committees here and on others in my December message.

Publications

Publishing activities are a core function of IPS and include both directories and special publications.

You have already received your copy of the 1999/2000 IPS Directory of the World's Planetariums. This edition represents a considerable enhancement from the 1997/1998 edition. We have expanded the number of facilities listed, made large improvements in the number of email addresses and web sites listed, updated hundreds of phone/fax numbers and US area codes, and listed many more personnel, among other enhancements and verifications. Of course, these fields are in a constant state of flux as contact information changes and people move. Please check your facility's entry and let us know of any changes it needs now, and also be sure to inform us of other changes as they occur in the future. You can use the update form provided in the Directory or the on-line update form which you can access directly at www.ips-planetarium.org/IPSSURV2.PDF or by clicking the link found on the IPS web site's welcome page. Thanks for attending to this—it helps keep your entry accurate and saves your editors a lot of time in the future.

Preparation of the year 2000 edition of the IPS Resource Directory is now underway and our target date is to publish it by the end of the calendar year. This publication will be distributed to all IPS members as a benefit of membership.

Plans for future editions, beginning in 2001 or 2002, call for these directories to be issued in a single volume with both "white" and "yellow" pages and to be available electronically as well as in print. I will report more on these steps in my December message.
April.Whitt@fernbank.edu is hard at work coordinating two special publications now in progress and both slated for release by the end of the calendar year. One, being prepared in cooperation with Jon Bell, is a book of songs appropriate for our young visitors. The other is a multilingual booklet of celestial mythology and poetry.

Ken Wilson kwilson@smv.org and his team of authors and reviewers are hard at work on the forthcoming book *IPS Guide to Building or Renovating a Planetarium*. Target date for release is sometime in 2001.

**Education**

Education lies at the heart of all we do and it is with pleasure that I announce the formation of the new IPS Education Committee. I have especially charged the committee to help serve the needs of members who use the planetarium to present live lessons.

Gary Sampson ges@execpc.com has accepted my request to serve as chair of this important committee. Gary is the veteran director of the planetarium at the Wauwatosa West High School in Wauwatosa, Wisconsin, USA and is a recent recipient of the Brennan Award given by the Astronomical Society of the Pacific to recognize major contributions to the teaching of astronomy at the high school level. Committee membership includes US volunteers (among them two IPS officers) from small, midsize, and large planetariums and international volunteers from Sweden, Germany, Russia, India, Sri Lanka, and Japan.

I have charged the committee with three immediate tasks. First is to locate a new Focus on Education associate editor for the *Planetarian*, a position that has been vacant since 1997. The committee has already accomplished this task, and Ian McGregor (Royal Ontario Museum, Toronto, Canada) has agreed to become the new Focus on Education editor. He will be assisted by Francine Jackson and Kathy Michaels from the US and Marie Räiko in Europe.

Second is to create an on-line lesson bank. Brock Schroeder (Strickler Planetarium, Olivet Nazarene Univ., Illinois, USA) bschroed@olivet.edu has agreed to coordinate this effort with the assistance of other committee members. So many of us have developed live lessons or pre- or post-visit activities for use with our visiting school classes, and if we each contribute one or two of them, IPS will have a marvelous resource bank for its members to use. Watch future issues of the *Planetarian* for details on how to contribute, or check on the soon-to-be-created Education page on the IPS web site, or simply contact Brock for instructions. Please contribute to this site. It can be a great resource, but only if a lot of us ship in with our favorite lesson plans. The committee's initial target is to have a dozen lessons online by the end of December.

Third is to expand the annotated list of educational web sites begun a few months ago by Jon Elvert. We have all seen extensive lists of links, but often with little clue as to the content of each link. This annotated list can help us sort through the myriad of links to find the one we want. Like the lesson bank, this list can become a robust resource, but only if many hands contribute to it. Please help by sending your favorite link to Jon at jelvert@lane.k12.or.us.

**Language**

I am pleased to announce that Chris Janssen of Europaleternarium in Genk, Belgium is the new Chair of the Language Committee. This committee is responsible for making IPS materials more accessible across the various languages we speak.

First, it helps maintain the IPS membership brochure in languages beyond English. Currently the brochure is available in Spanish, French, German, Japanese, Chinese, and Russian, and we expect Italian, Portuguese, and Arabic versions to be produced in the future.

Second, the committee is evaluating a software translator program to see whether its results are good enough to provide more widespread and perhaps on-line translation of IPS materials.

Third, the committee will oversee the exchange of abstracts and possibly articles between the *Planetarian* and regional publications in other languages. As you’ve seen, this exchange is already in place with the French-language annual *Planetariums* published by the APLF, and it will be expanded to include other publications such as *Twilight*, issued by the Japan Planetarium Society.

This committee consists of several pairs of IPS members who can provide or arrange occasional translation between English and other languages. For each language pair, there are two people, a native speaker of English and a native speaker of the other language. Languages currently represented are French, German, Spanish, Portuguese, Italian, Arabic, Russian, Chinese, and Japanese.

But there are a couple of posts left to fill. If you are a native speaker of English and can read Italian or Chinese and are willing to do an occasional short translation into English, please contact Chris Janssen planetar@skynet.be to volunteer for this committee.

**Web**

To recognize the increasing importance of the IPS web site, I have elevated the web group to a full committee from its former status as subcommittee of Publications. Chaired by Tom Callen tom.callen@nrm.se of the Cosmonova in Stockholm, Sweden, the Web Committee met in Montreal and is at work on a number of enhancements to the IPS web site. I will report on these efforts more fully in my December message.

**Media**

With the IPS slide service and laserdisk distribution now in operation as ongoing programs, we have formed the Media Committee to oversee these efforts. IPS past-president Thomas Kraupe twk@artofsky.com, whose efforts led to the creation of the first laserdisk, is chair.

Slide service program #1 is still in progress, following the first distribution of both JPL and HST slides in May.

Laserdisk #1 is still available, though supplies are limited. It features 72 minutes of superb video sequences released by the European Space Agency, including a variety of launches, several Cassini-Huygens clips, timelapse scenes of terrestrial weather and solar flares, animations of a dozen spacecraft (such as Meteosat, Soho, Ulysses, & Hipparcos), and much more. You can see a table of contents and preview samples on the IPS web site. The price remains only $95; the order form is available on the IPS web site, in the December 1999 *Planetarian*, or by contacting IPS Treasurer Shawn Laatsch.

Further disks are in planning.

**Portables**

The portable planetarium group chaired by Susan Reynolds Button sreynold@cnyric.org is one of the most active committees and you can read its news in Susan’s Mobile News Network column in each issue of the *Planetarian*.

One long-standing project of this group is the publication of an *IPS Portable Planetarium Handbook*. A firm deadline of December 2000 has been set for accepting contributions to this publication, and distribution is slated to follow in 2001. This handbook will be distributed as a CD-ROM so that: images, audio, and video can be included as well as text. See Susan’s final appeal for contributions elsewhere in this issue and please contribute if you can.

**Eugenides Script Contest**

Led by Alan Davenport and endorsed by Dennis Simopoulos, a script task force at work for the past several months has produced a revised set of guidelines and rules for the Script contest funded by the Eugenides Foundation of Athens, Greece. The revisions were adopted by the IPS Council at its Montréal meeting. The competition is designed to encourage the creation of inno-
The contest will be resumed in the 2001-2002 biennium following a hiatus in 1999-2000 while the rules were revised. The period for entering scripts will run from June through December of 2001, with judging to follow and prizes to be awarded at the IPS 2002 conference in Morelia, Mexico. Look for the formal announcement in the March 2001 Planetarian.

Saving the Night - a planetarium program to promote dark skies

We all understand the threat of light pollution and the precious heritage of truly dark skies. We all want to educate our audiences about this topic, and now there is a planetarium program designed to do just that. The Southeastern Planetarium Association (SEPA), led by George Fleener, has produced Saving the Night for distribution to its own members, and has now generously made the program available to IPS for wider distribution.

Saving the Night is an 11-minute program that educates the general public on the topic of light pollution, and is designed to be added to the beginning or the end of any star show. It was written and narrated by astronomer/author David Levy. Recording artist Jonn Serrie produced the soundtrack. The show features 29 original pieces of artwork, including 5 pans, provided by Edwin William Faughn of Memphis, Tennessee, and further visuals were provided by the International Dark Sky Association (IDA).

The show kit includes an annotated script, 64 pin-registered color slides with masks, a stereo soundtrack on CD-ROM, a digital image folder containing all of the images used in the show, and 2 versions of the show as a QuickTime movie, one at 12 frames a second and one at 24 frames a second.

Funding for creation of the show was provided by Magnaray International, a lighting company based in Sarasota, Florida (IDA member) and Meade Instruments Corporation (IDA member), a manufacturer of astronomical telescopes.

IPS members can now order this showkit, which is priced (for members) at only the cost of reproduction. These costs are being determined as I write this message, but are expected to be about $60.

An order form will be available on the IPS web site and will also be included in your election ballot mailing, or can be obtained by contacting IPS Treasurer Shawn Laatsch. Note the ordering deadline on the form (tentatively, November 1). Orders will be collected until that date, and then the ordered number of showkits will be duplicated and distributed.

I have seen this show and can assure you that it is a quality product and encourage you to take advantage of this opportunity.

Star Partners

Nearly all of us dream of having more money for our planetariums (and for ourselves). Even if we live in developed countries, as most readers of these words do, we feel the pressure of limited operating budgets and the demands of professional societies like IPS asking for our membership dues. We also know that planetarians around the world labor under a variety of challenging circumstances, and that these circumstances can be especially severe for our colleagues in developing countries and in countries with non-convertible currencies (NCC).

In recognition of these challenges, the IPS Council, at its Flagstaff meeting last October, charged the President (and officers) to develop mechanisms by which IPS membership and services could be made more available to our colleagues for whom hard currency is simply unavailable. This is an immense challenge for which there is no simple or single answer, but we have taken some first steps.

One step is the creation of a partners group. Led by Carole Helper CaroleHEL@ aol.com of the Mark Smith Planetarium in Macon, Georgia, USA, this group met at the Montréal conference and considered various ways in which planetariums could exchange materials in one-on-one partnership and in clearinghouse arrangements. A full report from this group will appear in the December Planetarian. When you read it, please consider getting involved.

A second step is the creation of a Star Partners fund to help provide IPS memberships and services to planetarians in the most challenging circumstances. We have obtained some initial contributions to this fund and it has already brought year 2000 IPS membership to several planetarians in NCC countries. When you next receive your membership renewal form, you will find a new line where you can make donations to the Star Partners fund. We are still creating the mechanisms to manage this fund, but please join those who have already given and contribute if you can.

Other steps are in progress and I hope to report more on them in my December message.

Looking up

And now I'll close with a familiar quip paraphrased from the first Jane's Corner — "you can always spot a planetarium because he/she may seem to stumble upon leaving a building at night and checking whether the real sky is set right." Let's hope that real sky stays dark enough to see. Let's hope too that we, and those we serve, will always take the time to look aloft and find inspiration in this sky we teach and share around the world, on this planet and perhaps someday on others.

Till next time...
NEW!
Images of the Infinite
Since its deployment from the space shuttle Discovery on April 25, 1990, the Hubble Space Telescope (HST) has provided us with spectacular awe-inspiring images and has enriched our understanding of the Universe. This sky show highlights the history and top science findings of the telescope, as well as taking audiences on an unforgettable tour through the Solar System, Milky Way Galaxy, and to the limits of the visible Universe!
30 minutes / 200 slides / $895 for show kit with video on laser disc / $795 for show kit without laser disc

NEW!
Spirits from the Sky: Thunder on the Land
Providing a never-before-seen journey into the culture of the Skidi Pawnee Native American Nation, this sky show produced in cooperation with the Tribal Elders, will explore the Skidi Band’s cultural philosophy of patterning their lives from the observations they made of the Earth and celestial phenomena. This show is funded in part by a grant from the National Science Foundation.
30 minutes / 200 slides / $475 for show kit

Clouds of Fire: The Origin of Stars
Exploring the interconnection of all matter in the Universe, this sky show presents an overview of star formation and the modern instruments which help us gain a clearer picture of stellar life cycles.
33 minutes / 266 slides / $795 with laser disc / $695 without laser disc

In Search of New Worlds
Posing the age-old question of “Are we alone in the Universe?” this show utilizes special effects, computer animations and interviews with planet hunter Geoff Marcy to offer a comprehensive look at the search for planets beyond our own solar system.
33 minutes / 217 slides / $595 with laser disc / $495 without laser disc

Seeing the Invisible Universe
Narrated by Bill Kurtis, host of the successful PBS series “The New Explorers,” this sky show explores the amazing discoveries in wavelengths beyond the range of human perception. Highlighting the Gamma Ray Observatory, the show features interviews and computer animations.
33 minutes / 232 slides / $295 with laser disc / $250 without laser disc

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Overheard at Southeastern Planetarium Association conference:

- George also admitted that at his planetarium in Bradenton, Florida, they changed the light flooding the dome from a green color to fluorescent. "But that's not because of light pollution. Because of the wet and humid conditions here, people thought there was algae growing on the dome!"

- Jack Dunn, planetarian in Lincoln, University of Nebraska, adding to the discussion of inappropriate arrangements for night sky viewing, said, "Well, how about this? Someone at our university donated a student observatory. It's right next to the football field, where they keep the lights on every night, even when there's no game. And, you can imagine how useful the observatory is if I tell you that it's on the top of a parking garage, next to a railroad track and interstate highway!"

- Jack also admitted that he was having a hard time coming up with a name of a show-in-progress about black holes and quasars. They have eliminated such titles as "Quasars Are Your Friends" and "Black Holes Suck!"

- Allen Wells, representative of Spitz, Inc., said, of one of their products, an audience response system: "Many people have installed them and are trying to figure out how to use them. We're trying to figure out how to use them!"

- Several SEPA speakers told of a popular service offered at their facility: "Rent-A-Space" or "What To Do With Telescopes That People Donate to the Museum Because The Owner Can't Figure Out How To Use Them". A question was asked of planetarian Paul Trembly of the Orlando Science Center in Florida. Q: "Do you rent them by the day, weekend, or what?" Paul's answer: "No, we rent them by the night. We charge $5.00 a night, and we're not sure what sort of heavenly bodies they're looking at!"

- Carole Helper and Jeff Greenhouse of the Mark Smith Planetarium in Macon, Georgia, have experimented with live pre-kindergarten shows. They discovered that they needed to address four concerns: 1) Are the children afraid of the dark? 2) Can they sit for thirty minutes?, 3) Will they understand what we are saying?, and 4) Are they potty-trained?

- Carole and Jeff were surprised at the answer given by pre-Kers to this question: "What color is the sky?" They always almost answered, "Yellow!"

- Carole also reports on a remedy that she devised to solve a problem. Volunteers and part-time staff often sit in on planetarium shows. They lean back in the comfortable high-backed chairs and almost always fall asleep! So Carole just walks up to them and says: "We haven't sprayed those chairs for lice yet! Heads pop up, away from the chairs, and they hardly ever doze off!"

- Arny Nelson, planetarian at Wausau West High School in Wisconsin, reported on a project at his Spitz A4 facility. The star projector was safely down in the elevator. The company hired to do asbestos removal behind the dome cut the chains that held the dome to the ceiling. The dome dropped 7 feet to the floor! After realizing that the drop had warped the dome, the removal company sent the dome to an automobile body shop to remove the dents. "When it came back from the body shop, it still looked like an accordion", Arny said. "The removal company had to buy a new dome for the planetarium!"

- Mike Sandras, planetarian from Kenner, Louisiana, (near New Orleans), asked this question in his planetarium: "Who was the first man on the moon?" A: "Louis Armstrong!"

- Edwin Faughn, planetarian at Sharpe Planetarium in Memphis, Tennessee, while giving his talk at SEPA, asked for assistance concerning the room lights: "Dim them up", he said.

- On the question of how the SEPA Board of Directors selects hosts for future conferences, George Fleenor, in his role as SEPA President, said, "We don't go out and solicit people to host a conference. We don't want to push them off the edge. We want them to go over on their own!"

- Patrick McQuillen, at Brest Planetarium in Jacksonville, Florida remembers how it was when he first started out in the planetarium business. He was the one who stayed at home and ran the shows while the director and assistant director went to the conferences!

- Duncan Teague, planetarian at Craigmont Planetarium in Memphis, Tennessee, understands why many participants at regional conferences like SEPA don't make it to IPS (International Planetarium Society) conferences: "There is a limit to how many planetarium meetings my spouse can take!"

- At Sudekum Planetarium in Nashville, Tennessee, planetarian Kris McCall was told that a promotional group from the movie Men in Black (which has a science fiction comedy theme) was in the lobby of the museum. She was not involved with this project and was not particularly interested until someone mentioned that one of the group was astronomer Frank Drake. Suddenly everyone on the planetarium staff was falling all over themselves to meet the renowned gentleman. They wanted his auto-

(See page 52)
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