

THE SOLAR FLARE

December 2008

Australia, Here We Come! *by Katie Farquhar*

The world of solar racing hasn't seen the last of Ra 7 yet. Instead, the Principia Solar Car Team will find out just how the solar conditions are "down under."

Just a couple of weeks ago, Principia College President Dr. Jonathan Palmer gave the team his approval to participate in the 2009 World Solar Challenge (WSC), a 4,000 km race across the Australian outback following the Stuart Highway from Darwin to Adelaide. This will be the team's second time in the race; in 2003, Ra V placed 6th.

Now that we know we'll actually be racing in Australia, it's time to get ready. Crikey! Ra 7 proved herself during NASC 2008. Now the team can't wait to see what she can do when we have time to actually finish the car! In the coming months, we will be fixing some mechanical subsystems, such as fine-tuning the steering. We'll also be working on the electrical systems and installing a less sensitive (yet still safe) battery protection system.

Right now, we're building a second upper body for Ra 7, for the purposes of testing and driver training. This second body will not have any solar cells attached, so we'll feel better about driving around on main roads for testing. (You might be wondering how a solar car can drive without solar

cells. We have 30 kg of lithium polymer batteries that store enough energy to drive for a few hours without being charged by the sun.) Besides testing, this body will serve several peripheral purposes.

First of all, it has been a great tool in training new team members how to do a layup; this is a skill that will certainly serve them well on solar car! Also, the new upper body will help us engineer a way to get into the car in under 15 seconds.

In addition to the modifications already mentioned, WSC has slightly different regulations from NASC. These will require the team to perform several minor modifications to the car,

but there is one glaring difference. The driver must be able to get into the car unassisted and be buckled in and ready to drive in under 15 seconds. This is known as ingress and has not been a consideration for our team before. Usually we lift the entire upper body off the car and let the driver crawl in through the middle. This way, there is no climbing over fragile cells. If we're in a hurry, the driver can climb in over the cells and into the car through the canopy hatch. However, this has always required many helping hands and takes well over 15 seconds. So in case you didn't think we had enough of an engineering problem to figure



Principia will compete in the 2009 World Solar Challenge next October.

Photo compliments of <http://www.wsc.org.au/welcome.html>.

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Principia places second in NASC

Reprinted from the September 26, 2008 edition of The Principia Pilot.

This summer, 14 students, 5 faculty, and 4 adults traveled from Plano, TX to Calgary, Alberta, CA — all on the energy from the sun. Principia College placed second in the 2008 North American Solar Challenge from July 13 to 22, alongside 15 other collegiate teams. As faculty advisor Steve Shedd likes to point out, we can drive 2400 miles on the energy it takes to run a hair dryer.

Finishing the race at 61 hours, 38 minutes, and 41 seconds, Principia placed second, behind the University of Michigan. Rounding out the top five were the German team from FH Bochum, Waterloo University, and University of Minnesota.

The week before the race began, the team headed to Texas for scrutineering and qualifying. During scrutineering, race officials ensure each car complies with all the regulations. Qualifying involves track driving to test how cars hold up to

road conditions. After many, many all-nighters during spring quarter and the month of June, the team left for Texas, even though it did not yet have a running car.

Perhaps the biggest demonstration was that even without a functioning car, we weren't worried. "We had had so many demonstrations already," said team member Karen Davis. "It wasn't our own power that got us to Texas. God had gotten us that far, so we knew He wouldn't abandon us." Senior Jasmine Linck added, "I was wondering how close we would cut it, but the possibility that we wouldn't make it never crossed my mind."

With some help from the University of Minnesota's team, the car ran under its own power for the first time the day qualifying began. Previously, the car didn't run because the motor controller settings were off. Our team was able to return the favor by lending Minnesota some spare parts after theirs malfunctioned the day before the race started.

Junior Justin Sinichko summed up the week:

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Crossing the finish line of the 2008 North American Solar Challenge in second place.

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out, don't worry! We have plenty to keep us busy for the next year.

In actuality, we have less than a year to prepare, since the car needs to be shipped to Australia by the end of July to ensure that it arrives in time for the race! Also, we're hoping to use Spring Quarter for testing the car. This means there's no shortage of work; in fact, the team stayed on campus the first week of winter break to get a jump start.

We will soon post on our website (www.principia.edu/solar) a list of parts, equipment, and resources that we hope might be donated. (Please don't hesitate to let us know if you have any ideas to support this opportunity.) We appreciate everyone who has supported and continues to support our project and our goals. More details about the race and our participation will appear in our upcoming newsletters, and as always, keep checking our website (www.principia.edu/solar) for regular updates!

continued from page 2 Principia places second in NASC

“Without them [Minnesota], we wouldn’t have raced, and [without us] they wouldn’t have raced. Having all that trouble really made us appreciate when the car really was running.” Linck added, “The best part of the race was the camaraderie and cooperation between all the teams. It wasn’t a distinct part, but it was something that flavored the entire experience.”

The first day of the race, no one was certain how the car would perform – after all, it hadn’t ever been road tested. When Principia’s team began passing other schools on the side of the road, we weren’t too sure of our strategy. At the end of the day, the car pulled into its first stop at Neosho, MO in second place behind the powerhouse University of

Michigan. Sinichko recalled, “I jumped out of the car so happy. That’s when it kind of hit us.” Principia could actually run with the University of Michigan.

The rest day in Neosho and the ensuing days exemplified the energy and support from Principia supporters that we received all along the race. At every stop, there were people cheering us on; even more than that, people were welcoming and willing to do whatever they could for the team. A particularly memorable stop was in Omaha, NE, where members from the local church brought us pizza and several different families offered to put all 22 of us up for the night.

The next stop was Sioux Falls, SD. We drove in with police escorts to be met by a very eager crowd. A definite highlight for many on the team was standing around for the end-of-day all-team meeting expecting to hear that Michigan had won the stage again. Then we heard the officials announce that the winner of stage two from Neosho to Sioux Falls was Principia College!

The team held its own over the next few days, racing into Canada still in second place. After various problems with the motor and battery pack, we still maintained our position. On our way into Medicine Hat, however, we were stopped on the side of the road for an hour and a half due to a problem with a DC-DC converter. Other teams were catching up, and we had to be at the stop for the end of the day by 6 pm.

Although things were not looking good from a material standpoint, no one panicked. Sinichko fondly recalled this as one of his favorite experiences, saying he was most aware during that moment of how everyone reacted and worked together. It was during this time on the side of the road that we found out that our Principia credit cards had all been cancelled due to various fraudulent charges.

In the end, it was a calm demonstration as everyone was directed, patient, and ready to do whatever needed to be done. We solved the problem and drove into Medicine Hat only an hour after the regulatory close of the race day. When we arrived, we saw yet another demonstration of camaraderie: all the teams were cheering and congratulating us, worried we wouldn’t make it.

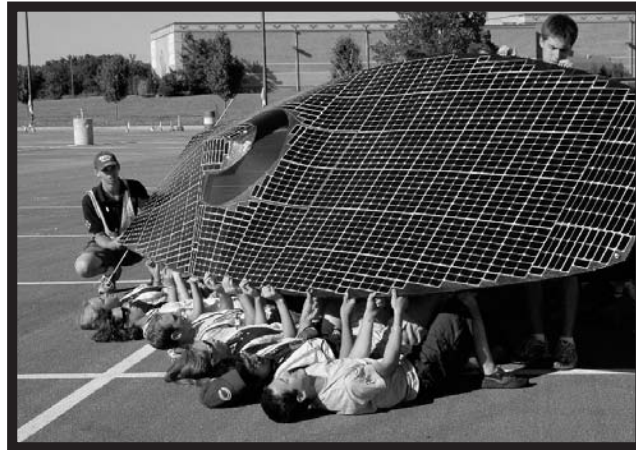
And finally, after 9 days and 61 hours of racing,

Principia crossed the finish line in Calgary in second place. Davis said the sensation of winning is “like you don’t know where to look – the car, your teammates, the Prin supporters, the other teams, the wide-eyed children, the cheering strangers. You’re just overwhelmed with so many things to be happy about!”

We had a very harmonious race, from the team to the car. As faculty advisor Joe Ritter said, “This team just made me so grateful for each and every one of them. It’s having everything come together and everyone pitching in. The calm trust was just pervasive on the team.”

Sinichko added, “I learned from this race that you can have a lot of fun working really hard and putting hours in. When you stop worrying about the end product, you get a pretty good one.”

Senior David Crabill summed up: “Realistically speaking, based on how far we had progressed building the car a week before the race, we shouldn’t have been able to compete. There was obviously something more going on. There was lots of guidance and prayerful work that was just as important as all the hours of material work we put in.” Team Leader Tom Brownell added, “When everyone works harmoniously in one accord towards the same goal, you can accomplish amazing feats.”



Charging the solar array at a staged stop in Neosho, MO



A Wednesday night testimony meeting conducted in our trailer by our Metaphysical Head, Mark Evans.

“The Seekers of the Light are One”

*The North American Solar Challenge from the perspective of team
Metaphysical Head Mark Evans*

“When the smoke of battle clears away, you will discern the good you have done, and receive according to your deserving. Love is not hasty to deliver us from temptation, for Love means that we shall be tried and purified” (Mary Baker Eddy, *Science and Health with Key to the Scriptures*, p. 22).

As the solar car team sets its sights on newer and higher goals, I can’t help but look back on our race from Plano, Texas to Calgary, Alberta and think about the tremendous demonstrations the team made through Christian Science. I had the honor of serving as the team’s Metaphysical Head (or Metahead) which essentially meant that I was designated to pray for the team; my duties, however, also entailed organizing daily readings of the Bible Lesson and occasional services, contacting our team practitioner, and encouraging prayerful thought amongst the team. This gave me a front row seat to watch how a group of Christian Scientists from a school with no engineering department could defy the limits of typical expectations.

I spoke with our team practitioner, Chris Snow, every evening (if not more often) during the race. Towards the beginning of our journey he shared a quote with me from *Miscellaneous Writings*

by Mary Baker Eddy that I often referred back to:

“The doors of animal magnetism open wide for the entrance of error, sometimes just at the moment when you are ready to enter on the fruition of your labors, and with laudable ambition are about to chant hymns of victory for triumphs.

The doors that this animal element flings open are those of rivalry, jealousy, envy, revenge. It is the self-asserting mortal will-power that you must guard against...” (pp. 280-281).

The idea that animal magnetism tries its hardest to convince us of failure right at the times when we are about to enjoy the fruits of our labors seemed to occur throughout the race. As a team, though, we stood tall against these claims.

Before leaving for qualifying in Texas, the team worked around the clock building, like the Israelites, with a tool in one hand and a weapon in the other to fight off suggestions of fatigue, ignorance, and general lack. One of our most trying evenings occurred during qualifying, in Cresson, TX. Everyone had been working tirelessly for weeks and some had not slept in days, but everything was coming together. The body

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of the car was complete, smooth, and polished; the solar array was wired and generating lots of power; the electrical and mechanical systems were finally complete and running just fine. All of these things had officially passed regulations, and we virtually had only the driving tests remaining. However, we soon discovered that our motor did not work. Even after hours of trials with our senior team members, the heavy little electromagnet designed to push our car would not budge. The approaching deadline to complete driving tests loomed over our heads like a vulture circling over a small animal with its foot tangled in a vine. It felt as though if we did not get the motor running, our months and years of labor would be in vain.

It certainly seemed that those doors of animal magnetism were flinging open just as we were ready to cash in on the fruits of our labor, but we had to realize that animal magnetism was indeed the only hindrance. The thought that such a vital aspect of our car's success could fail at the moment when it was most needed seemed to be a sharp turn in the path of the team's progress. One of the ideas that I worked with was that God is constant—He never changes. As you may know, the primary goal of our team is to glorify God. Up until this point, we had certainly been proving God's dominion over whatever limitations imposed themselves on our work. So, it seemed natural that our car continue down the path of progress without a sudden roadblock.

Every so often, a race official would stop by our pit area to tell us that the deadline was fast approaching. As team members continued to pray and work on the motor, a fellow from another team that had heard of our situation came over to lend a hand. As it turned out, he had studied this particular type of motor as part of his undergraduate work. Our motor was running in no time, and our first driver hopped into the car to pass the first in a series of dynamic driving tests.

Over the course of the whole race, I felt a warm encompassing sense of love from our supporters each day. It seemed that no matter where the team was, there was someone nearby who had been expecting us and was ready and ecstatic to help

us in any way he could. At the start of the race, the team enjoyed the hospitality of The Leaves, a Christian Science nursing facility near Plano, while spending several nights there. The local Principia Club met us for the opening events and donated water, food, shade, chairs, and more. During our half-hour planned "media stops" at various locations along the route, it seemed that there was always a representative from the local Christian Science church with a plate full of brownies or an alumnus with a cooler full of water. Beyond just providing some snacks or a friendly face, though, these people often met a specific need with their contributions. Even more, I was always aware of the prayerful support coming from Christian Scientists across the continent at all times. As we corresponded with Rick Dearborn over Principia Internet Radio, we got glimpses of how people were watching our progress and specifically asking what issues they could pray about. The victories that we enjoyed were certainly shared with all of our friends across the world, and we know that we have God to thank for them.

One of the lessons I learned on this jaunt across the continent was that my prayers could always help improve a situation, but that I was not the one generating the assistance—God was the one revealing His preexisting provision. I recall one morning towards the beginning of the race when grey clouds stretched across the skies smothering the sunlight and preventing us from driving at our maximum potential. Faculty advisor Joe Ritter looked to me and said something like, "Why don't you pray about this?" As I worked with the idea that God was the one unveiling all good and that He was our source of life and energy (rather than the sun for the car or food and sleep for the team members), the grey veil in the sky gradually began to dissolve and reveal golden rays of light.

Thinking back to desperate moments on the side of the road chatting with our team practitioner and teammates and discussing the outcomes at evening testimony meetings inside the trailer, it is obvious to me that everyone on our team witnessed God's works and the power of Christian Science to resolve any problem.

New Leadership

By Jasmine Linck



Principia's NASC Race Team

Coming into the '08-'09 academic year, the solar car team was confronted

with a bittersweet occurrence: the realization that last year's seniors had actually graduated. It was hard to believe, after they had been part of the team for so long, inspired and involved, helping bring Ra 7 into its jubilant 2nd place finish in the 2008 NASC. Thankfully they trained the rest of us well, and our new leadership is now holding the reins and leading the team into the future!

The new team leader is Tom Brownell. He is a longtime member of the team and remains leader of the electrical team. A senior now, he has been on the team since his freshman year. His knowledge and understanding of the car is equaled by his ability to coordinate with the sub-team leaders. He is a leader in the best sense of the word, working with members returning and new, while he takes us down whatever path is before us.

Another new leader, both car leader and body team leader, is Peter Chaney. Also a longtime member of the team, he is working for the Chemistry Department while he finishes his degree in that field. Since one of our big projects for this quarter is constructing a new upper body, Peter has been heading the construction of what will be a solar-cell-less upper body for the car.

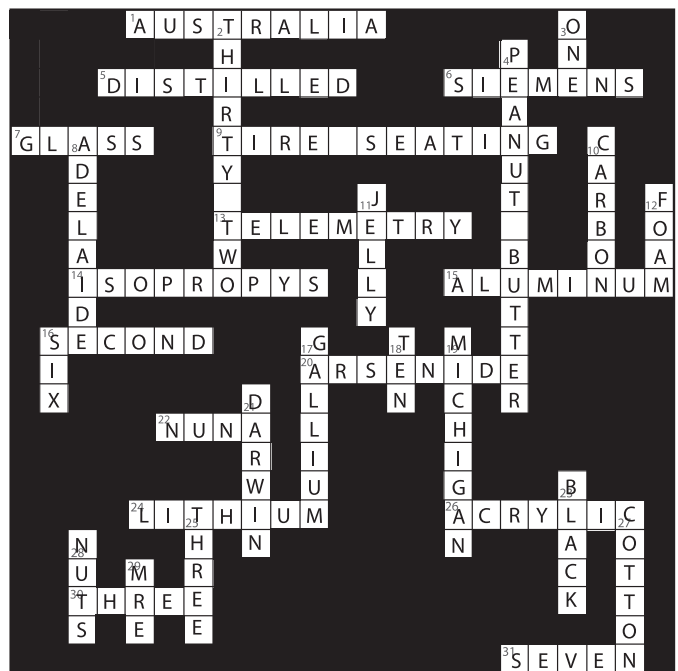
In addition to Tom's leadership of the electrical sub-team and Peter's of the body team, junior Justin Sinichko is leading the mechanical team. Although he is a biology major, Justin made Ra 7's steering wheel and has become the team brake

expert, as well as general mechanical pro.

Filling out the roster are junior Katie Farquhar,

who returns as the business team leader, contacting donors and sponsors (call her!) and managing logistics along the way; junior Mark Evans as the Metahead, in charge of reminding the team that its principal goal is to glorify God; and senior Jasmine Linck as Safety Head, making sure that everyone remains intact.

With such leadership, the team can hardly help continuing to fulfill our own expectations and those of our fans and our supporters!



*Answers to Crossword,
which may be found on page 8*

Mechanical Report

By Justin Sinichko

The mechanical team has been rooting up some fun projects for us to get our hands on. We will be focusing on two major aspects. The first of these involve repairing certain aspects of Ra 7 after our long trek across the country and into Canada. During the race, most of the components were used for the first time and experienced wear. We'll be looking to repair and replace components that no longer meet our standards. Some aspects of the car will need to be redesigned in order to meet our new and higher design requirements. In addition to repairing the car, we will focus on improving and replacing old components with new designs. A few of these projects are already in motion and many others will be added as we continue to evaluate Ra 7.

Early on we recognized a few aspects of the car we would like to improve. Because NASC was the proving ground and essentially the first test drive for our car, changes were done only on an "as needed" basis. Now with over 2500 miles under our belt, we've honed in on what changes must be and can be made. Steering has made the top of this list. Universal joints that route the steering column down and around the drivers knees will be replaced with higher tolerance ones. We noticed that the wheel had wiggle during the race. Once we remove this slosh, the driver will have a better feel for the road. As with all of these changes, safer components are the desired end result.

We will also be replacing the braking system on the front two wheels. Race regulations require a primary and redundant braking system to assist in stopping our car when regenerative braking is not

an option. During NASC our braking system needed constant attention for it to function at its highest potential. Because of this, we've decided to upgrade to go-kart brakes instead of hefty mountain bike brakes. This quarter we will be redesigning the hub and kingpin, on which the calipers and brake rotor are mounted. Implementing these changes will serve two goals. First, the system will be easier to maintain and will provide greater braking force. Calipers will need to be aligned only periodically

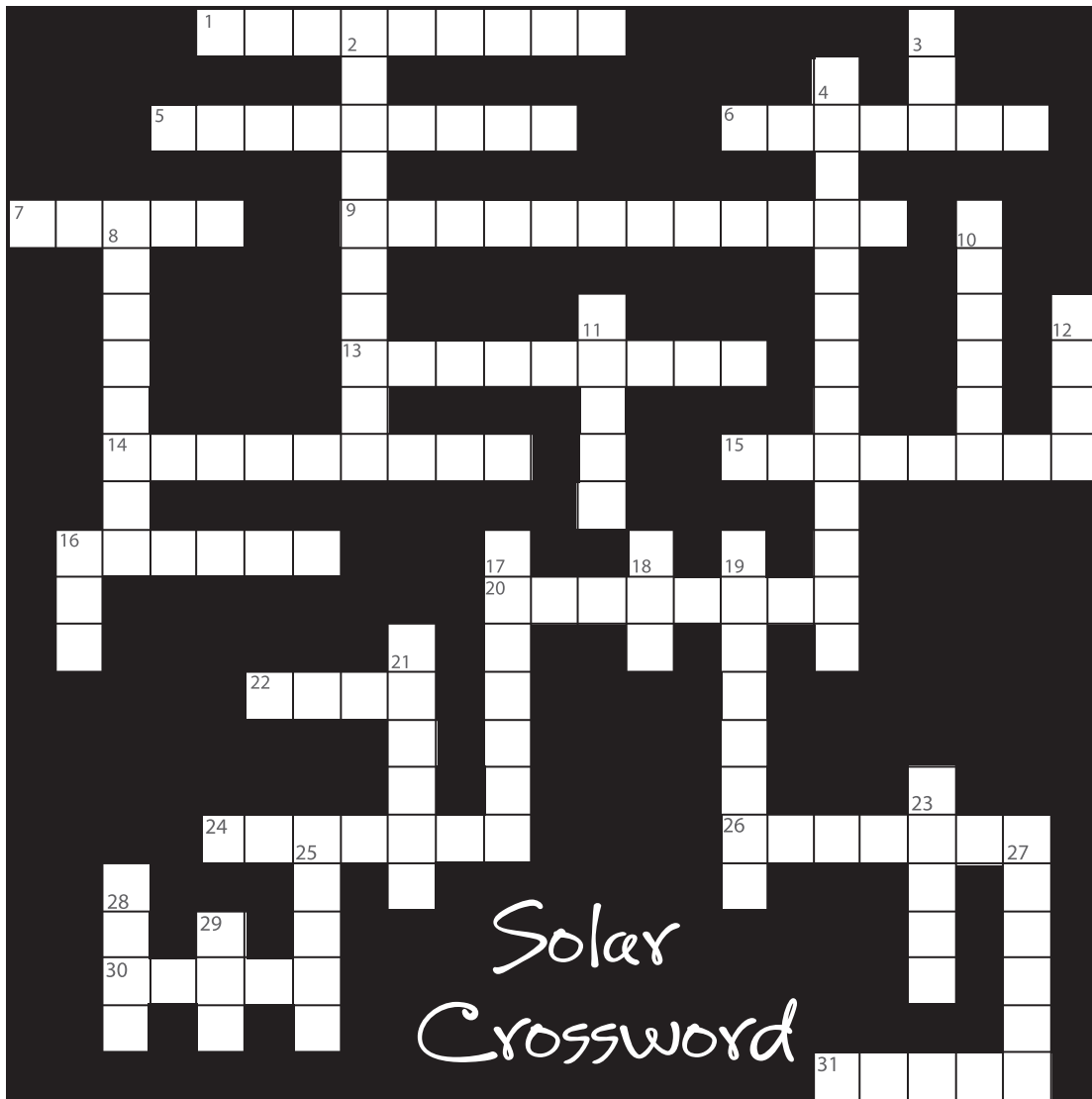
and rotors will hopefully never warp. This project also provides the opportunity for team members new and old to learn the basics of CAD, water-jetting, welding, outsourcing, and maintaining contacts. This multiweek project will go through all the stages of project development and will ultimately produce a tangible product to be installed on Ra 7.

Finally, the tape is coming off. Certain aspects of the car literally made it to

Canada taped onto the car. In conjunction with the body team, the car's fairings (which provide an aerodynamic sleeve for the wheels) will be successfully designed and installed. The winged fairings move out of the way when the two front wheels turn outside of their skinny sleeve fairings. When successfully installed, the project will reduce drag by an estimated 10 percent. A few obstacles presented themselves during the race and prevented the team from risking implementation. Now, with some time to test-drive, who knows what we can come up with. Right now, all of the sub-teams are working towards finishing the car in time to race Ra 7 in Australia next fall, and the mechanical team is happy to report that things are rolling along smoothly.



The mechanics behind the wheel: The hub mounts to the kingpin, and the brake rotor and caliper mount to the hub.



Across

- 1.** Country and continent where the next race will take place; The eastern part of this country was claimed by the British in 1770 and initially settled through penal transportation to the colony of New South Wales, commencing on 26 January 1788.
- 5.** Type of water used to cool and clean the array; also used in ironing boxes such that it does not leave white residue on clothes.
- 6.** The main software contributor to the team; also Europe's largest engineering conglomerate based in Berlin, Germany.
- 7.** The other type of filler used to fill the edges of the car body; also developed by Romans, who used Tier, Germany as the manufacturing center.
- 9.** Process of putting the rims onto the rubber tires. You do not want to find yourself doing this to your car tire!
- 13.** How the car's electronics communicate with the chase vehicle. The word is derived from Greek roots tele (remote), and metron (measure).

- 14.** Alcohol used to clean the array; also a preservative for biological specimens.
- 15.** What the frame of the car is made from; also used extensively in the aerospace industry.
- 16.** Position we took during the 2008 NASC; also the base unit of time.
- 20.** Second name of the type of solar cells used on the car; also notoriously poisonous and has a smell comparable to almonds.
- 22.** The Dutch team that is the current World Solar Challenge champions; also in Star Wars. These game birds from Naboo can be seen living around the Lianorm Swamp.
- 24.** Type of cell chemistry used in the battery (just the metal); also the lightest metal and the least dense solid element. It floats on water but is very reactive.
- 26.** Material used to make the windscreen of the car; also used to make threads for fabric and is a type of paint.
- 30.** Number of wheels on a solar car; also known as Survival Island, a 2006 film set on a desert island starring

Billy Zane and Kelly Brook.

31. Our car is named Ra ___; also the title to the 123rd episode of the NBC sitcom *Seinfeld*.

Down

2. Principia's team number; also the freezing point of water at sea level in degrees Fahrenheit.

3. Just under this length of time in years until the next race; also a line of pet food products.

4. The team's main food staple during a race comes from US patent #306727 issued to Marcellus Gilmore Edison of Montreal, Quebec in 1884.

8. The finish line of the Australian race; also the consort of King William IV. The city was founded in 1836.

10. What the skin of the car is mainly made from; also what buckyballs and diamonds are made from.

11. Another main food staple during the race; also a colloidal system in which a porous network of interconnected nana particles spans the volume of a liquid medium.

12. What the back wheel of the car is filled with; also forms on top of a cappuccino.

16. The size in square meters of the total surface area of the car covered in solar cells; also the only number that is both the sum and the product of three consecutive positive numbers.

17. First name of the type of solar cells used on the car;

also used in the manufacturing of LEDs.

18. The length of time during which the driver, fully strapped in, has to be able to eject from the car; also the number of finger and toes and the number of commands given to Moses on Mt Sinai.

19. Team that won NASCAR; also the eighth most populous state in the United States and the state with the longest freshwater shoreline in the world.

21. The starting point of the Australian race; also the British biologist who wrote *Principia Botanica*.

23. Color of the race car; also absorbs all frequencies of light.

25. Number of wheels on our solar car; also the number of branches of the US Government.

27. One of the fillers used to fill in the edges of the body; also the main crop in the southern US during the 19th and 20th centuries.

28. The smell of the epoxy resins used to make the car; also what squirrels are known to consume copious amounts of or what you may find in muesli.

29. What the race team eats while camping; also bought by the United States military for its service members for use in combat or other field conditions where organized food facilities are not available.

Answers on Page 6

Website Update

By David Crabill

Check out our website (www.principia.edu/solar), as we are working hard to continuously update it and add more features. You may have already noticed the new blog on the homepage for weekly updates about the team. These updates include information about on-campus projects as well as off-campus outreach events in St. Louis and the surrounding area. Please feel free to leave your comments on any one of the updates by clicking the "Weekly Updates" box on the homepage and following the instructions. You may also notice a calendar icon on the sidebar of the homepage. By clicking on it, you can see a schedule of events on the team's Google Calendar.

There are a number of items that we will try to bring to the site as soon as possible. As for the "Donations" page, we will be signing up with PayPal so that anyone can donate to the team over the Internet. "The Car" page also will be completed, which will



show you everything that it takes to make Ra 7 run. Throughout the quarter, we will be uploading pictures to the "Photos" page, providing a visual update as we make progress on the car this year.

We are grateful for any insights you might have regarding the website. If you have any recommendations, please email the team at solar@principia.edu. We want to know what you want to see!

OUTREACH

by Katie Farquhar

Ra 7 has been making the rounds in the St. Louis area lately. Now that we finally have a car to show, we love sharing our experiences with the greater community.

The kick-off to this initiative took place right on campus. On Saturday, September 20th, the Trustees' Council met. We drove the car up to the pub patio and surprised the group when driver Tom Brownell jumped out right in front of them. It was great to meet even more of the Principia community, and it's always fun to show everyone what we've been up to.

Our next big event took our outreach even farther. On September 27th, St. Louis hosted a Green Homes and Renewable Energy Festival and invited our team to come. The festival was a blast, as the street was blocked off and only foot traffic was allowed to wander through the vendor area. It was great to be in such an eco-friendly place, and the team certainly learned about a lot of neat technology. Ra 7 certainly got her share of attention as well; it was fun to see that many people had heard about our team, especially after our performance in the 2008 NASC.

A few weekends later, we were happy to display Ra 7 for Homecoming. It couldn't have turned out to be a better day, and we enjoyed seeing Principia sup-



Ra 7 visited the Kemp Auto Museum as part of Principia's Coast-to-Coast kick-off.

porters/alumni walk by, especially those you could tell hadn't visited the campus in a while. Some had never seen a solar car before but had heard all about the project; others stood around and compared the new car to all of our previous cars. As a bonus, the team members got to pet Principia's goats on display right next to our table!

The next week was a particularly busy one. The Alton Rotary Club wanted a presentation, and we were more than happy to oblige. Unfortunately, Ra 7 had to stay home this time. A few team members and faculty advisors visited the club and gave a presentation on Monday, October 27th. The very next day, however, Ra 7 traveled down to the Kemp Auto Museum for the Principia Coast-to-Coast kick-off.

The Auto Museum was an exciting stage. The event, emceed by David Anable, Principia's Chief Executive, was a send-off for Dr. Jonathan Palmer, College President, and Marilyn Wallace, Head of School, as they head off to give talks around the country about Principia and what we stand for. The solar car team was honored to be invited, and people seemed to enjoy a



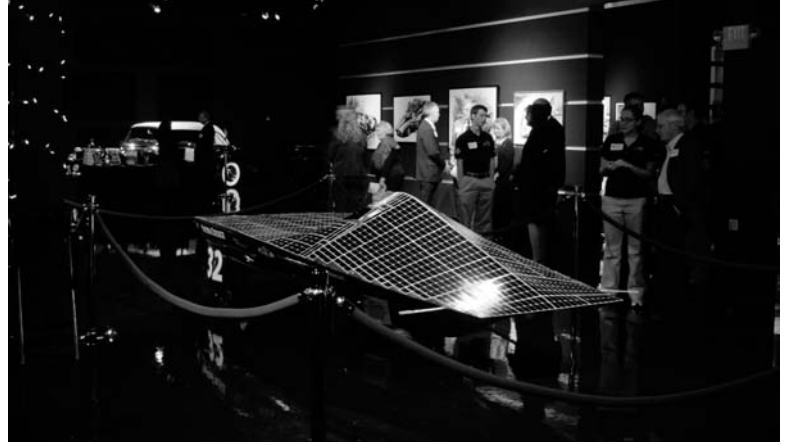
A good crowd showed up at Homecoming to cheer on the football team; they were able to sneak a peek at Ra 7 as well.

close-up view of the car. Ra 7 was certainly in good company, surrounded by many antique cars on the showroom floor.

A local news station also came to campus earlier this quarter to create a piece for their Green

Energy segment. They got shots of the car being driven around the Chapel Green and interviewed team members. You can view the final piece at <http://www.kmov.com/projectgreen/multimedia/?nvid=295999>

The week after school provided our final opportunity for outreach before departing for break. The team gave a Chapel talk on Principia's School campus, sharing spiritual ideas and experiences. We were then able to drive the car around to some of our area sponsors. It was great for them to see Ra 7 completed, especially since they provided valuable help to our team during construction. These experiences have been great fun, and we look forward to even more upcoming outreach opportunities.



Team members chatted with fellow Principians. Ra 7 was in good company as well, surrounded by classic cars.

Profile: Jasmine Linck

By Karen Davis



Senior Jasmine Linck has been a member of the solar car team for the past four years, and as a Global Perspectives major, she exemplifies the diversity of talents on our team. Originally, Jasmine thought she would major in Engineering Science, and in fact she came to Principia largely because of the solar car team. Though her academic interests shifted, Jasmine was hooked on solar car. She continues to work with the team each quarter because she likes “having an obligation to a hands-on project so [she doesn’t] get overwhelmed by schoolwork.” Jasmine (nicknamed “Jas” on the race this summer) also mentioned the team camaraderie as motivation for sticking with it. Jasmine’s handiwork benefits the body team, but her passion on the team is “to keep involving new people, to pass on knowledge, and to keep up the interest.” Her compassion and enthusiasm for welcoming new members and participating in outreach activities is inexhaustible. After graduation, Jasmine plans to join the Peace Corps, go to grad school, or travel around Europe.

Profile: Ross Vincent

By Karen Davis



According to a new team member Ross Vincent, the solar car team represents “all of the positive elements of Principia. It’s what Prin is known for.” A freshman from Fairfield, CT, Ross joined the team right away because of its outstanding reputation in both international competition and character building. He loves to work on the car, but Ross’s favorite thing about being on the team is “the incredible camaraderie.” So far, Ross has been contributing to the team wherever his help is needed, doing lay-ups, outreach, and research, but he hopes to find his niche either on the electrical team or the newly created web design team. Ross wants to major in Computer Science. Over the next four years, Ross’s ambition for the team is to perpetuate the project and to win first place in a race. He is also excited the team will participate in WSC 2009, and he wants to be a part of that special team to race in Australia. For the time being, Ross is happy learning all he can about the solar car while still finding time to foster his love of fencing.



Adopt-A Sun \$5,000 +	Crystal Club \$2,000 +	Ra 32 Club \$1,000	Adopt-A-Cell \$500	Adopt-A-Battery \$100
You receive:	You receive:	You receive:	You receive:	You receive:
Subscription to <i>The Solar Flare</i>	Subscription to <i>The Solar Flare</i>	Subscription to <i>The Solar Flare</i>	Subscription to <i>The Solar Flare</i>	Subscription to <i>The Solar Flare</i>
Name on Car	Name on Trailer	Name on Trailer	2 Race T-Shirts	1 Race T-shirt
2 Limited Edition Race Polos	2 Limited Edition Race Polos	1 Limited Edition Race Polo		
Ra 7 Commemorative Crystal	Ra 7 Commemorative Crystal			

Please address contributions to:

Fundraising Chairman
Principia Solar Car Project
Elsah, IL 62028

Checks payable to: Principia Solar Car Team

All contributions to our 501(c)(3) educational organization are gratefully accepted and are tax deductible. Please include a corporate matching form if your employer has such a program.



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