

The Official Newsletter of the Ashdown Community

Message from the Editor

Hello Readers,

How are you all? I hope you enjoyed the long weekend we just had. The pollen has largely settled out of the air, which meant I could actually go outside and not be blind and/or wheezing. To celebrate my freedom to venture outdoors, I went bird watching with some friends. In one part of the forest, there was a set of trees that belonged to a whole flock of orioles. These birds were being bothered by squirrels, so the Mom-in-Chief began to peck all the squirrels on the head until they got dizzy and began to fall. The Mama Bird began to rally the others to attack the already retreating squirrels, but the park ranger appeared from nowhere and shouted, "Mom Oriole, they weakened!"

Big news! Newsletter Prizes are now TechCASH Gift Cards! For correctly solving a puzzle in Fall 2013-Spring 2014, you will win (or have won) \$5! For submitting an article, you will earn \$10! So get to solving and writing! Thanks!

In this issue, we have the nineteenth installment of the Puzzler Twins (eek theses!), another report on Floor activities (pho-nomenal!), a discussion on the science behind ant foraging (protect your picnic!), a peek into the Ashdown Photo Gallery (find the Editor!), an interview between cub reporter Ben Berinsky and our new AHEC Secretary Alin Tomescu (What is Scratch Club?), another set of questions for Ashdown's kids (rhinos and monkeys and dogs, oh my!), and the last chance to Choose Your Own Adventure (a fight scene!).

Wow, that last paragraph was one long sentence. TL;DR is below. If you have any questions, comments, concerns, complaints, or constructive suggestions, I'd love to hear them, so please e-mail me!

Happy reading!

Sakul Ratanalert, Ashdown Newsletter Officer, ashdown-newsletter@mit.edu

In This Issue

- ❖ Ash and Dawn, the Puzzler Twins – #19
- ❖ Ben's Corner (a.k.a. A Kid Asks Stuff!)
- ❖ Floored with Activities
- ❖ Choose Your Own Adventure, Part 7
- ❖ Citizen's Corner: Ants
- ❖ Kids' Corner (a.k.a. Ask the Kids Stuff)
- ❖ Ashdown Photo Gallery

Floored with Activities

On May 10, **Floor 2** went out to Le's Restaurant. From the floor officer Tuan LeMau:

We had a great time enjoying various type of Vietnamese noodles – including Pho, Bun Bo Hue, and Hu Tieu – learning the difference between Vietnamese Spring Roll and Summer Roll, and sympathizing with the Vietnam War.



Interestingly, the Vietnam war was also part of the cause why so Vietnamese Pho is so popular in the US nowadays (as many Vietnamese migrated to US under the refugee immigrant scheme and brought Pho here with them)

(Photos courtesy of Tuan LeMau)

Event Correspondents Wanted

Are you going to an event (for **FREE FOOD** or whatever)? Do you like to earn **AWARDS**? Try being an

EVENT CORRESPONDENT!

Before an **Ashdown event**, e-mail me saying you are interested in being a reporter for the event. Then, after the event (say, a week or two), e-mail me a small report of what happened at the event! **IT'S SO EASY!** And you'll be rewarded for your efforts (which just involves changing observations to words)!

They don't all even have to be your words! Feel free to get quotes from other attendees about what they think of the event! Take some pictures if you want to add 1000 words to your submission! (Though at least 100 non-picture words would be nice.)

So, if you were planning to attend an event anyway (or now you feel inspired to), spend a few minutes to write a summary and see it in the next issue of the **3AM!**

Citizen's Corner: Ants

Ants: Brain and Brawn

by Jane Chui

Author's Note: I wrote a paper for a class regarding this subject matter some time ago, and always thought it a shame that all the time I spent learning and carefully summarizing this knowledge will only ever be shared with the professor who graded it. Since I found it highly fascinating, and have a keen desire to share this information, I have adapted it (trust me, the original paper I wrote was much, much longer) here for you, so that you can legitimately use reading it as a "learning time" rather than admit to procrastination. Enjoy!

Now that spring is upon us and summer quickly approaching, life outside big and small are flourishing and taking advantage of the weather as much as we humans. Sometimes, it takes bird droppings streaking your dorm window or a fly crashing into your nostril as you ride your bike to remind you that alas, yes, winter is over. Another one of these rude reminders is ants. One of the inevitable elements of a picnic is the presence of ants. Ever wondered at the uncanny and efficient ability of ants to bring back their friends and family once a single ant finds that open Tupperware of sliced oranges? It seems like the moment you look the other way, the ants have annexed your fruit or any other sweet thing that is lying about. We typically expound on how amazing the strength of an ant is, and how they can carry 5-10 times their body weight and drag something that is 20-50 times their body weight [1]. However, have you ever wondered about their intelligence?

Alone, each ant is unable to successfully forage as it simply does not have the capacity to remember or process the large amount of information in terms of all the twists and turns required to arrive at the food source and return to the nest [2]. However, in colony with others, ants are able to create a form of collective intelligence, which gives them their remarkable ability to find and follow the shortest path between the nest and a food source. This collective intelligence has been termed *stigmergy*, which refers to an indirect interaction between members of the colony through altering the shared environment [2]. Ants are known to secrete pheromones (chemicals) onto the ground as they move, and these pheromones are what attract other ants [3]. Higher concentrations of pheromones will attract ants to follow a particular path, and this enables ants to forage efficiently as a group (see Figure 1). An important feature of these secreted pheromones is that they evaporate over time, which decreases the probability of choosing less desirable paths, and a path that is not travelled regularly will eventually be lost.

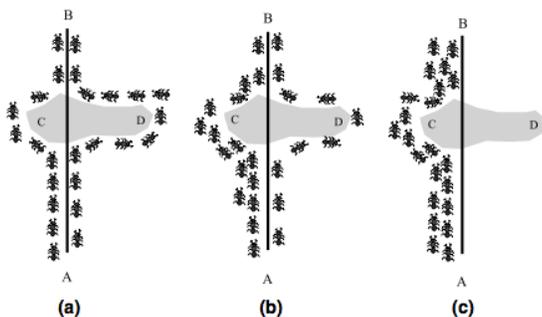


Figure 1: Ant foraging behaviour as observed in nature. Initially ants are unsure which path is better and so both are taken (a). Over time, the shorter path accumulates more pheromones simply by being shorter and so more trips can be made on that path in the same amount of time than the longer path (b). Eventually, path ACD becomes the sole path with the strongest pheromone concentration, and pheromones on path ADB dissipate from disuse (c).

Image Rights (Abbaspour, 2001)

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Citizen's Corner: Ants (cont.)

This amazing observation of ant colonies and their foraging strategies inspired an Italian researcher named Marco Dorigo, who formulated Ant Colony Optimization (ACO), which is based on the collective intelligence of a colony of ants in finding the shortest path from nest to food source [4]. Ant colony optimization is not a specific algorithm, but rather a metaheuristic approach that has given rise to many algorithms. The term metaheuristic stems from the Greek “*meta*” meaning “beyond, in a upper level” and “*heuriskin*,” meaning “to find.” Thus, a metaheuristic refers to a high level searching strategy that explores a given search, and is specifically an “iterative master process” that strives to efficiently improve a solution until it is optimal or near-optimal by satisfying a condition specified by the user [5].

Since this ant foraging behaviour requires ants to always return back to its nest, or its starting point, the Travelling Salesman Problem (TSP) is naturally its benchmark problem [5]. Ant system was the first algorithm formulated based on ACO, and it was applied successfully to the TSP in 1996 [6]. Since then, implementing the ACO metaheuristic has proved useful in many engineering and science applications other than the TSP, such as data clustering and image processing, natural gas pipeline transportation, vehicle routing, and estimating initial parameters for soil moisture numerical models [6].

All this to say, the next time an ant carries away your pineapple slice and you are both getting annoyed and admiring its audacity and strength at the same time, it might be a good idea to go ahead and move that picnic somewhere to buy you some time. If not, you can bet those pheromones that if you stay, the ant's friends are sure to come steal the rest of your fruit salad, showcasing the true brain and brawn of the mighty ant! It is truly amazing how nature continues to inspire and teach us new things even though we have been studying it since time immemorial, so keep your eyes open, and keep thinking!



References:

- [1] <http://www.howitworksdaily.com/environment/question-of-the-day-why-can-ants-lift-so-much/>
- [2] K. C. Abbaspour et al, “Estimating unsaturated soil hydraulic parameters using ant colony optimization,” *Advances in Water Resources*, vol. 24, pp. 827-841, 2001.
- [3] E. O. Wilson, “Pheromones,” *Scientific American*, vol. 208, no. 5, pp. 100-114, 1963.

Citizen's Corner: Ants (cont.)

[4] M. Dorigo and L. M. Gambardella, "Ant Colony System: A Cooperative Learning Approach to the Traveling Salesman Problem," *IEEE Transactions on Evolutionary Computation*, vol. 1, no. 1, pp. 53-66, 1997.

[5] Blum and A. Roli, "Metaheuristics in Combinatorial Optimization: Overview and Conceptual Comparison," *ACM Computing Surveys*, vol. 35, no. 3, pp. 268-308, 2003.

[6] K. C. Abbaspour et al, "Estimating unsaturated soil hydraulic parameters using ant colony optimization," *Advances in Water Resources*, vol. 24, pp. 827-841, 2001.

Citizen's Corner: Submission Guidelines

Do you have a flair for writing?

Do you have an experience you would love to share? A cause you want to speak out for? An event you would like publicized and reported?

The ears of Ashdown are thirsting to hear your story!

The "Citizen's Corner" is a section of "3am" aimed at reflecting the lives and perspectives of Ashdown residents. All Ashdown residents are invited to contribute, and all kinds of material are welcome. In the past, we have received everything from overseas exchange program stories to essays about environmentalism. We are especially keen on the views of international students comparing the way of life (in terms of culture, atmosphere, education system etc.) here to the ones they were used to.

If your contribution is selected, you will be rewarded with **Ashdown 3AM Merchandise**.

Guidelines in a nutshell:

- Submissions should be between 100 and 1500 words.
- No politically sensitive, religiously sensitive, or pornographic material.
- Pictures to accompany text are welcome.
- Email Sakul Ratanalert at ashdown-newsletter@mit.edu.



Ashdown Reviews

*This column, Ashdown Reviews, aims to provide 3AM readers a chance to read what other readers have thought about restaurants and other places around Cambridge and Boston. **You can contribute too!** Submit a review of a restaurant or other recommended locale you have been to recently (pictures would be nice, too), and if it is selected you will be rewarded with **Ashdown 3AM Merchandise**. Let Ashdown know where they should go when they have (gasp) free time!*

Ashdown Photo Gallery

Our Ashdown Photographer and History Officer, Jian Feng Kong, work tirelessly to capture Ashdown moments for future generations to cherish. See the full Photo Gallery on the Ashdown website!



Pakistani Coffee Hour, April 3



Puzzle Night Coffee Hour, April 10



Cheesecake Social, April 4



Officer Transition Dinner, April 17

Ben's Corner (a.k.a. A Kid Asks Stuff!)

Cub reporter Ben Berinsky interviews an Ashdown resident in his ongoing quest to figure out what it is these MIT grad students are all about... If you would like to volunteer to be interviewed, please email Ben at ben.berinsky@gmail.com or the Editor at ashdown-newsletter@mit.edu. Thank you!

This month, Ben interviewed our new AHEC Secretary, Alin Tomescu!

Ben: What do you study?

Alin: I study computers.

Ben: Is it fun?

Alin: Yes, it's a lot of fun. You get to build stuff.

Ben: Like, what do you build?

Alin: Well, you can build games, for instance. Have you ever used software for your computer?

Ben: Well, I belong to a club at my school called Scratch Club. And you can make games and stuff. I've made a lot of games. Have you ever made a game?

Alin: Yes.

Ben: What is your favorite?

Alin: Well, I made a game once like ping pong.

Ben: Oh, a kid in my club made a ping pong game. What do you like to do in your free time?

Alin: I play piano a lot. It's a good way to relax. What else... I go out with my friends. We go to musical concerts. We went to one last Saturday. We get food, we go dancing, we go do outdoors stuff.

Ben: What's your favorite sport?

Alin: Soccer. How about you?

Ben: I like baseball. What's your favorite food?

Alin: I like Chipotle. Do you know that restaurant?

Ben: You are on AHEC this coming year. What will you like to do to change Ashdown while you are on AHEC?

Alin: I want to make it prettier, have more stuff in the hallways like pictures and art. Maybe have people decorate their doors more.

Ben: Yeah, that would be cool! What floor do you live on?

Alin: The third floor.

Ben: Oh, we have our storage closet there. What's your favorite thing to do in Ashdown?

Alin: Going to the Thirsty Ear.

Ben: Yeah, I like to go there and watch sports. I am the only kid who gets to go there. Thanks for talking!



Choose Your Own Adventure, Part 7

In an effort to generate more feedback and hear from you readers, this new section will let you choose what happens to Annie Boddy, a graduate student at MIT living in Ashdown. After a little bit of story, there will be four options, one of which is "Other." E-mail the Editor to pick what happens next!

Annie woke up one Tuesday morning with the sun on her face, feeling extremely refreshed. She went to go brush her teeth and as she gargled, she nearly choked. She muttered aloud, "Sun on my face? I can't see the sun through my window until... the afternoon!" Annie dashed to her clock and realized she overslept by five hours! She madly ran about to get ready.

She couldn't be late for **the end of the experiment she had been running for days**. If this experiment worked, she could get published in *Nature* or *Science*! Her lungs burned and shrunk to the size of a flask as she scrambled up ten flights of stairs to her lab.

Annie finally reached the lab door only to discover a **weird smell emanating from the other side**. As she slid in the lab key, it heated up to high temperatures and she let go with a yelp. Using two pens to turn the red-hot key, the plastic melting over the key head, Annie unlocked the door and kicked it open.

To her shock and horror, a **vandal was holding a Bunsen burner up against the door!** Using her vast knowledge of the nervous system, she poked the vandal in three locations and he slumped to the ground, unconscious. Before removing the vandal's mask, Annie saw something in the vandal's hand.

It was a **chicken club sandwich with extra mayo**. Now, this wasn't just a normal sandwich. This was a sandwich that Annie was going to use to bribe her lab mate to keep his side of the bench clean, so her experiments would no longer be contaminated. Annie grabbed the vandal by the collar and pulled him up to face her glare.

She asked, "**What is the square root of 1764?**" The vandal replied, scared, "42! 42!" Annie ripped his mask off and said, "Noah, I thought it was you! Only you know that square root off the top of your head. What are you doing here?" Noah picked himself up and said, "I was hired to sabotage the lab, and I got hungry." "Who hired you?"

"I'd tell you, but then I'd have to kill you, dear sister." Noah kicked Annie in the shin, causing her to drop him and yelp in pain. Noah ran around the lab, smashing things left and right, cackling gleefully. Annie, having recovered from the surprise attack, chased him around to stop him, her speed impeded by her desire to catch every piece of glassware before it hit the floor. Deciding to sacrifice one last bottle, she aimed true and struck her brother on the noggin as he turned to taunt her more. Sitting on his back with the experience of an older sister, she heard the lab door squeak open. Someone said,

- a) "Annie, are you okay? Annie, are you okay? Are you okay, Annie?"
- b) "You wanna stay alive, better do what you can. So beat it, just beat it."
- c) "A summer's disregard, a broken bottle top, and one man's soul."
- d) Something else! Suggest something!

Why did the graduate student read this at 3am?

Because she got tired of literature searching all night! Okay, that probably wasn't very funny, but hopefully the rest is more entertaining:

Q: Why didn't the boy tell his mom he ate glue?

A: His lips were sealed.

Kids' Corner (a.k.a. Ask the Kids Stuff)



**Got questions you want to ask Apolo, Ben, Dante, Lila, and Max?
E-mail the Editor!**

If you could be an animal for a day, which would you be and why?

Apolo: I would be a crocodile, because then if someone put their hand out, I could eat it.

Ben: I think we can eliminate farm animals because it doesn't end well for them. It would be cool to be a cheetah because you could go really fast. Also a dog, because you're like someone's pet, which would be fun.

Dante: I would be a rhino, because rhinos are a kind of creature that is strong because they have horns on their noses.

Lila: A dog, because I love dogs.

Max: I would be a monkey, because the first people that were alive were made from monkeys.

(...continued from previous page...)

What do you plan to do this summer?

Ben: I plan to go to my first year of sleepaway camp, and to some Red Sox games.

Dante: I will take care of our garden.

Lila: Go to the pool.

Max: I will do fun things with my Grandpa, like play with him and go to soccer with him.

Solution to Puzzle #18 (Feb/Mar 2014 Edition)

(See the Feb/Mar Edition for the Puzzle Statement, designed by Sakul Ratanalert.)

The grid has 12 total rows, which matches well with the 12 movies. The common thread of the movie titles is that each has an animal name, specifically one that corresponds with a member of the Chinese Zodiac. (Both “Tiger” and “Dragon” appear in “Crouching Tiger, Hidden Dragon”, but the Dragon slot has already been filled by “The Girl with the Dragon Tattoo,” so this movie must go in the Tiger slot. Also, some liberties were taken with “lamb”, “ape”, “chicken”, and “hog” in corresponding with the more traditional “sheep/goat”, “monkey”, “rooster”, and “pig”.) Filling the movies in order by Zodiac animal starting with the Dragon,

T	H	E		G	I	R	L		W	I	T	H		T	H	E		D	R	A	G	O	N		T	A	T	T	O	O	
S	N	A	K	E	S		O	N		A		P	L	A	N	E															
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W	H	O		F	R	A	M	E	D		R	O	G	E	R		R	A	B	B	I	T	?								

The blue boxed letters, including the (at-first confusing) spaces, spell “Where in the world __C__R__E__N__A__N__E__G__?” If this phrase was unfamiliar, a quick search of “Where in the world...” brings up “Where in the world is Carmen Sandiego?” (Carmen Sandiego is the titular thieving villain in a game/TV franchise based on finding her.) So, the eight blank letters are therefore “ISAMSDIO”. Mapping to the fortune cookie numbers 14532, we skip the 1st, 4th, and 7th letters and, using the other five in order of cookie number, spell “SODAS”. SECRET CODE WORD FOUND.

Contact the Editor

Please direct any comments or queries about “3am” to Sakul Ratanalert at
ashdown-newsletter@mit.edu