Mblem

Penguin Party
LG News, by Karen Tiede

Who: You!
When: Saturday, June 17, 2006, 6 pm
What: The 6th Annual Black and White Penguin Party!!

Wear black and white in honor of the birds and all things black and white, and come prepared for a good time! We'll have balloon hats. Bring an instrument if you play and a hoop if you have one of your own; I'll have borrow hoops for hoop dancing in the driveway and maybe even a fire hoop!

There will be food. I'll provide a main dish and soft drinks; If you would, please bring
Potluck dinner food
BYOB

Children are welcome. The backyard is fenced but the house is not child-proof. This is a dog / cat / no smoking inside house.

Need a head count so I'll know how much bird to buy.

For directions please see the back of the calendar page.

SPECIAL POINTS OF INTEREST:

- *It is as Black and White as a Penguin. — This page*
- *Well, Are you interested in DNA, kosher dill pickle, and energy, ——-Page 2*
- *Treasure, Streets? Page 3*
- *Mathematics of Love, a serious research, Page 4*
- *Non-mathematical Metric, —— Page 5*
- *Like your job? Check Page 6.*

GREENSBORO COORDINATOR'S CORNER
Ellen Muratori

As always, Greensboro's Games Night introduces members from various corners of our vast area.

We had a rollicking time last month (April). Brian Stumpfig (Whitsett), Melinda Kite (GSO), Janice Carter (transplant from Boston, now Kernersville), and Ellen Muratori(GSO) started out the evening with Quiddler, a spelling game!. Then came Hunters and Gatherers (Carcassonne) with Kay Bishop(Reidsville) looking on. A game of Loot engrossed Martha Covington (Kannapolis), Bonnie Haskins (Charlotte), Tom Zavist(GSO), Rick Tolley(Reidsville) and guest Ray Burton(GSO). The original version of Carcassonne came on, and the other table of players imitated a game of musical chairs while playing The Great Dalmuti. Such energy!!

The exotic and strange names of these games belie the fact that they are games for 8 year olds and up. Why, therefore, are Mensans dallying with such trivia? Because the object of all these games is to give us an evening to do three things at the same instance: play the game, banter with quick wit, and consume delicious vittles.

What better way to spend an evening?

Information Is Ammunition
by David Skaar

Well, Culture Quest has come and gone. The event I've been anticipating (and dreading, and incessantly talking about) is over. As usual, by the end of the test we all felt like we'd been put through the mental wringer. Overall, the team felt that it did well, but as usual, was annoyed with the questions we didn't answer, but should have been able to. Now we live with the agony until the results come back.

The test brought back a common experience that everyone should be familiar with (except those cursed few with perfect memory and recall) i.e. knowing something, knowing you know it, but being unable to dredge it up. Several people have told me this is why they would dread going on Jeopardy or other trivia challenges, knowing that they could get the correct answer - several seconds too late.

Considering these issues led me to think about information storage and recall, as storage without recall is not particularly useful. Trying to find the right piece of paper in a filing cabinet, or the right file from a stack of disks is particularly aggravating. I'd already considered this subject, when I saw in the newspaper (on May 4) that Henriette Avram died. Among other things, she studied mathematics, worked for the National Security Agency as a computer programmer, and in 1965, she went to work for the Library of Congress, where she was put in charge of the Marc project. Marc stands for Machine Readable Cataloging, an ambitious project to take the traditional library card catalog and its index cards, and convert it into an electronic database that can be searched quickly, by an amateur, on any criteria, and perhaps most importantly, be shared. When I was in school, we learned how to use the card catalog to find what we were looking for, and it was certainly a slow process. Without exactly the right author name, title or keyword, finding anything is impossible. The first working version of Marc was delivered to libraries on magnetic tape in 1969, it became the national standard in 1971 and the international standard in 1973; all current library electronic databases use this format. Perhaps most significantly, as communications capabilities increased, each library's holdings could be searched remotely, predating a larger network of interconnected computers and databases that you may have heard of.

Information storage and transfer leads me to another topic, one which I am much more involved in, DNA. DNA was first discovered as a component of living cells in the mid 19th century, and its composition was determined in 1929. Its function was a bit murkier, though. DNA is a polymer of four different bases (Adenine, Cytosine, Guanine, and Thymine – A, C, G, and T, for short), but its structure was a complete unknown, and any technology to "read" the order of the bases was still a long way away. Work done on heredity (and common sense) said that there had to be some "genetic" material that stored and passed on heritable information, and DNA was one contender. Protein was also a serious contender, and for some time, was considered the more likely mechanism.

Proteins can be made of twenty different amino acids, while DNA has only four nucleic acids. Therefore protein of length 'n' could have 20^n different sequences (20 possible amino acid identities for each position), while DNA of length 'n' would have 4^n possible sequences. For example, if n=20, then 1.05×10^{26} protein sequences vs. 1.10×10^{12} DNA sequences, a very big difference. Because not much was known about the structures or lengths of DNA and protein, the much greater data capability of a protein sequence made it a more viable candidate. This was revised when the structure of DNA was determined. James Watson and Francis Crick, who did much of the theory work and get all the credit, and Rosalind Franklin, who actually did the astoundingly difficult lab work, determined that DNA consists of two polymer strands that run in opposite directions and bind to each other.

This structure, combined with the findings that the sequences of the two strands were complementary to each other, and bonded together by the A, C, G, and T bases, clarified the picture. By complementary strands, it is meant that where one strand has a C, the other has a G binding to it, and when a A is present on one strand, a T on the other strand binds to it. Always. These facts immediately presented a mechanism for replication of the information encoded in DNA. When the two strands are separated, a new strand can be synthesized to each original by this specific matching of bases. Thus, two new complete double helices can be created, each identical to the first. Naturally, establishing this mechanism, and all the details required a tremendous amount of effort, and many very clever and elegant experiments. As it turned out, the information carried by DNA is translated to derive the sequences of proteins, which carry out just about all of the important functions for life. One relatively good analogy is that proteins are the machinery, and DNA is the blueprint to build and program the machines.

And just to throw a few more numbers around, there are about 6.4 billion base pairs in the human genome, and the energy consumed to replicate one copy of the genome is 7.87×10^{-11} calories (not Calories, as used in food labels, one Calorie is 1000 calories). There are about 10-100 trillion cells in the human body, which means that to replicate all the DNA in your body would require 787-7870 calories, or 0.787-7.87 food Calories. One Claussen kosher dill pickle half has about 5 Calories, so that's a lot of potential work done for one pickle. The 6.4 billion bases of DNA in one copy of your genome could be represented by approximately 1520 megabytes of information, about the amount on two CD-ROMs, replicated for the energy in an infinitesimal fraction of a pickle (assuming my original assumptions were right, and I didn't misplace any decimal points).

One assumption that I made was in referring to DNA replication as producing perfect copies, when in fact, errors occur; most are caught and fixed, but some can still slip through. Even though the bases pair up specifically, one mismatch in the midst of a string of perfect matches doesn't have much effect on the stability of the two strands binding to each other, so it can be force fit.

——-Conti. From P. 2 "Information"

If a base change occurs in a functionally significant region, there can be a large effect downstream. If the effect is useful, the carrier survives and can propagate the new sequence, if it is problematic, the mutation doesn't persist. Sickle cell anemia and cystic fibrosis are the results of such single base changes, which affect the functions of proteins, causing the very unpleasant conditions. However, these changes can also provide resistance to malaria and cholera, respectively, making them extremely useful if you happen to live where one of these diseases is endemic. This is the essence of natural selection – random molecular evolution having positive or negative consequences, and leading to change on a macro-level.

Finally, DNA is being examined as an information storage system for computers, computational methods, and like tinker toys for construction on a nano-scale. It may turn out in the long run that this biological system may replace electronic methods for a variety of functions involved in information storage, processing, and construction.

And sorry, no trivia questions this time, I'm about triviaed out. Well OK, just two, from questions on this year's Culture Quest.

1) Five elements from the Periodic Table are named for countries, name them.
2) Four elements are named for the one town of Ytterby in Sweden, name them.

King John's Treasure
by Ed Williams

Here is an interesting historical tidbit. I read about this many years ago, and tried to get updated through the internet, but didn't get very much. King John inherited the monarchy in 1199, when his brother, King Richard I, was killed in France while returning from a Crusade. King John was a very bad monarch, who did one good thing - he signed the Magna Carta (forced to do so by the Barons). King John had no fixed palace, like Windsor Castle or Buckingham Palace today. So he traveled around the country, with his whole retinue of soldiers, courtiers, servants, etc., inviting himself and his whole bunch to stay as "guests" at the castles of whatever barons were on his route. He had no safe place to leave the crown jewels and his personal wealth in gold and jewels, so he took all of it with him.

On one such trip in 1215, he was going from King's Lynn in Norfolk intending to go to Newark in Nottingham. He had to cross one of the rivers that fed into The Wash, a large bay in East Anglia. Different stories give different rivers.

Some say the Welland, some the Nene and others, the Great Ouse. But, in any case, in the late afternoon he was in a hurry to get across the river close to the point where it met The Wash. His courtiers advised camping overnight and crossing the next day, since the tide was rising and they felt the water would be too deep. However King John was a headstrong man. and he decided to push on. So they started across the river. The tide rose very rapidly just when the entire caravan, horses and wagons, were in the water. It was too much. The horses drowned and the wagons sank, carried out into the bay. Many of the soldiers were able to make it to land, along with King John. All the supplies and the treasure were lost. Every schoolboy in Britain knows the story, and many attempts have been made to find the treasure, so far without success. So, somewhere, buried at the bottom of The Wash, there is an immensely valuable treasure waiting to be found. Anybody want to mount an expedition? Maybe jointly with Mensa of Great Britain.

Street Bumps
by Shiangtai Tuan

There is a top secret Russian document created in the cold war period, which was recently declassified. It is of special significant to us because Durham, NC was mentioned in that document. It was documented that if and when the Soviet Union was to invade the United State, Durham must be avoided. Their armies were instructed to go around Durham if at all possible. The reason as listed was that Durham was well protected by an ingenious setup – the street bumps. They estimated that 25% of their tank will fall apart completely, 50% will be damaged beyond repair and as much as 75% of their tanks would lose the mobility. They rated that the Durham way of self defense to be most effective and humane because there would be no lost of life on both sides. In most of American cities, they documented, there were always some thoroughfare, some short cuts, or some small residential roads they could go around. No, not in Durham. They don't dare to lose their main strength, their tanks, by going through Durham.

The above paragraph was, of course, fictional because the phenomenon of building street bumps was just begun during the cold war period. However, if the cold war were still on, I am sure the Russians would produce some documents like that.

Independent from the above account, when I first came to this country, like

THE MATHEMATICS OF LOVE REVISITED
By Gene McMahon

Some 29 years ago, I first broached, in the Boston Mensa newsletter BEACON (Sep '77), those facets of my mathematical sociology researches that pinpointed our confusion concerning the true nature of "love."

That brief article (find it at www.lifecoms.com/love) was so misunderstood by my fellow Mensans as to be interpreted as a joke! Did I overestimate my group's intelligence? Or was I broaching an insight that was too far out for anyone else ever to grasp? You decide!

I quote from the original article in brief (minimal math here):

"Love affirms life." Let us then define a "lifeform." We can associate every lifeform with a surface boundary within which thermodynamical entropy, or random disorder, does not increase according to the universal trend, but decreases in opposition to the universal trend. So any and every lifeform amounts to a collection of information, and its further collection, that lifeform's most fundamental motivation.

The lifeform boundary (think, "skin," though the boundary actually includes possessions) transforms outer-objective possibilities (Q) to inner-subjective information (I) according to the relation, $I = k$ times $\log Q$. This definition is fundamental to Information theory. (See Shannon and Weaver, "The Mathematical Theory of Communication," Urbana, Ill., U. of Ill. Press, 1949.) Think of a "lifeform" as just a brain with nerves that connect to its sensory receptors. Then the "body" amounts to only a "spacesuit" – though still a priceless possession that protects our brain from a hostile environment.

Now ponder: $P = \#$ times $\log (Q - t)/\#$

Here, P denotes "evaluative response", # denotes the number of graduations any lifeform could distinguish on a given stimulus scale, such as loud/soft, left/right, bright/dark, now/then, good/bad, etc. Q denotes the information assessing "things" we traditionally measure by Quantity, but that we truly perceive as information, and t denotes the minimal threshold below which we experience no Q (starvation, death, etc.). The above equation is the expression proclaiming how we value, or respond to, absolutely anything.

Next we consider the consequence of summing four of the above equations (two summed per individual) to express two lifeforms trading their two Q's with the other's complementary Q's. It transpires that summing the prior equations, and partially differentiating them for the optimum, leads to the unique result where P, #, Q, t, all ADD directly, retaining precisely the same expression as for an individual lifeform,

so defining organic unity for all eternity! Thus has SHARING become chiseled in stone!

Those many years ago, I conceived of two individuals (lifeforms) who summed directly their appetites, assets and thresholds as ideally coupling (SHARING) so as to elevate their presence within their surroundings.

Certainty, the foregoing sharing exchange between two lifeforms presents an optimum melding: they exchange just like two cells in an organism. So there was the assumption in the original article, that those who twined combined only their POSITIVE appetites. I assumed that lifeforms, or individuals, who had opposite appetites (one overwhelmingly negative) for the same thing, could never, ever successfully combine!

This assumption of positive appetites of the combined pair may have been an oversimplification, because it seems such pairs, overcome by transient pheromones, may couple however their combined total list of appetites may sum! Thus a subversive element lurks within many such couplings, capable of growing, and growing, and growing…

Yes! There were lacunae in my logic of thirty years ago, even if less than disastrously so. And given that all that positive logic was then conceptually watertight, how shall we proceed now to extend the former logic as the subsequent negatives come to light?

I maintain the answer is contained in the concept "organic unity,"

wherein the form of the evaluative response for the OPTIMUM two-lifeform combination is identical to the form for an individual lifeform. Components of individual lifeforms do not, ever, suffer kindly subcomponents inimical to the well being of that individual lifeform (witness cancer cells)! Yet such subcomponents may be accidentally instilled or introduced. Accordingly, to say that couples contain inimical appetites, even potentially, is tantamount to saying they shall never legitimately couple.

In love between individuals, we aspire to that unique relationship which optimizes organic unity. That the relationship equates to directly summing appetites, needs and stimuli provides us with an objective definition of ideal sharing, and so, a fresh insight into the character of love. Moreover we plumb unsuspected depths in the same relationship – that cells in an organism idealize it, as do bees, birds, fish in their swarms, and we may even begin to suspect love extends to bonding a lifeform with its physical environment. And it does. Love embraces the universe.

For love is no more, nor less, than sharing what each individual holds dear, but never totaling to a negative. Love is **+sharing**.

LocSecond Column
By Shiangtai Tuan

Good to have been MENC LocSec for the past year. I am looking forward to see a new group of ExComm members with new ideas, new activities, and new way of doing things. I would like to say thanks to all who helped to keep MENC going. From the assistant RVC, I heard that there were complains about the election being late. With all the effort of all ExComm members recruiting members to run, I did not see anyone coming forward either. I hope all members are for a friendly, fun group to be in. Togetherness, friendship, fun, and **+sharing** are my expectation of this group.

In the meanwhile, as I have said when I first assumed Mblem editorship, I am still waiting for the one who would volunteer to take over editing our news letter.

Me, Metric?
At Large Column
By Shiangtai

I remember when the British went from their old currency system (1pound = 20shillings = 240pence) to their current decimal one (1pound = 100 pennies), many of us in American were very happy for them. One friend even said: "Good, congratulations to the Brits, these people have finally become civilized." Don't you think we should, in turn, give our friends in UK a chance to congratulate us? What I am talking about is our long awaited and much delayed change from the so called Imperial system of measurements into metric system.

First of all, why should we make the change? Let me list a few reasons I can come up with off hand.

1   Metric system is easy to use. Like our dollars and cents, every unit goes to the next level at a factor of ten. There is, in essence, one unit for length and one for weight. For length, there is only "meter", no more inches, feet, yards, and miles with complicated conversions. For weight, there is only "gram", no more pounds, ounces, grains, etc. Units for other levels are simply multiples or factors of ten, for instance, centi (tenth) meter, kilo (thousand) meter, kilogram … etc. Even better, there is a relationship between length and weight. The weight of the water in one cubic centimeter is defined as a gram. So, a liter of water or water like liquid such as milk, OJ, etc. is approximately one kilogram.

2   When everybody uses the same standard, it saves time, money, and energy. The metric system is not just a foreign system to be sneered at. All students in engineering and science use it. The process of changing into metric system may be confusing or even painful for a while but the final result would make life much easier. Not just scientists and engineers, even the congress knows that. (I mean the members, of course.) They even proposed laws (I think) to set a schedule for the change

Did you see Mission Impossible III? This is the same TV Tower, the Diamond Needle, I took from the international Trade Bldg. — Shiangtai

over. We were supposed to change the measurement of temperature to centigrade first because it was relatively independent. Then, we would introduce KM road signs and then ... Well, that was where we had stopped, for more than half a century. I think the road blocks are:

1   People's fear of change for the sake of fear of change. I quite understand that. I hate to change my underwear too. Presumably some little old lady once said: "Those meters and centimeters are so complicated. They told me a meter is 1.094 yards or 3.281 feet. How can I remember that? Well, how many inches is a centimeter now? 0.3637 inches? Oh heavens, I rather die."

2   Politics. During non-election years, nothing is done. In an election year, would you think any candidate dares to upset the voters by bringing up the unpopular issue of changing measurements? Would you elect some one who dares to nit-pick our national pride, our feet?

3   A monumental difficult task in industry. The switch over is not as easy as simply going out to buy a new thermometer and remember the number 37 C instead of 98.6 F for the criterion for fever. All machines, big or small, will have to be made in a different size from what they are now. All bolts and nuts would have to be changed. Even little screws you buy in the grocery stores will have to be all re-supplied. Replacement parts will have to be kept in both "old" (say, a 3/8 inch nuts for the 3/8 inch bolt) and "new" sizes

(say, 5mm nuts) for a long time -- until the old gadgets eventually rust away and fall apart! Well, actually, it is not as bad as it sounds. It is actually half done. Because of the popularity of European and Japanese cars, people are used to keep both sets of tools and replacement parts. Not only for cars, when you go buy a replacement pedal for your bike, there are sets ready for your Italian or your American bike. What do you think American cars or machines do in Europe or any where else? People there have to keep two set of tools and spare parts to have the privilege of driving American cars, which are, by the way, less durable and more expensive! Well, even before the introduction of foreign cars and such, there have been different screw threads already. Changing into metric will help to eliminate the multiple standards eventually. It will only make things simpler, not more complicated. Unfortunately, we regular people, we voters, we consumers buy cars by their look, not knowing whether they are metric or inch sized. We drive our cars to garages to be serviced without knowing that they have to keep two sets of tools and the people work there have to be specially trained to cope with that.

In short, the longer we put off the change, the longer we will have to endure the pain. Maybe we Mensans should be at the forefront to remind the rest of the population that this switch is long overdue.
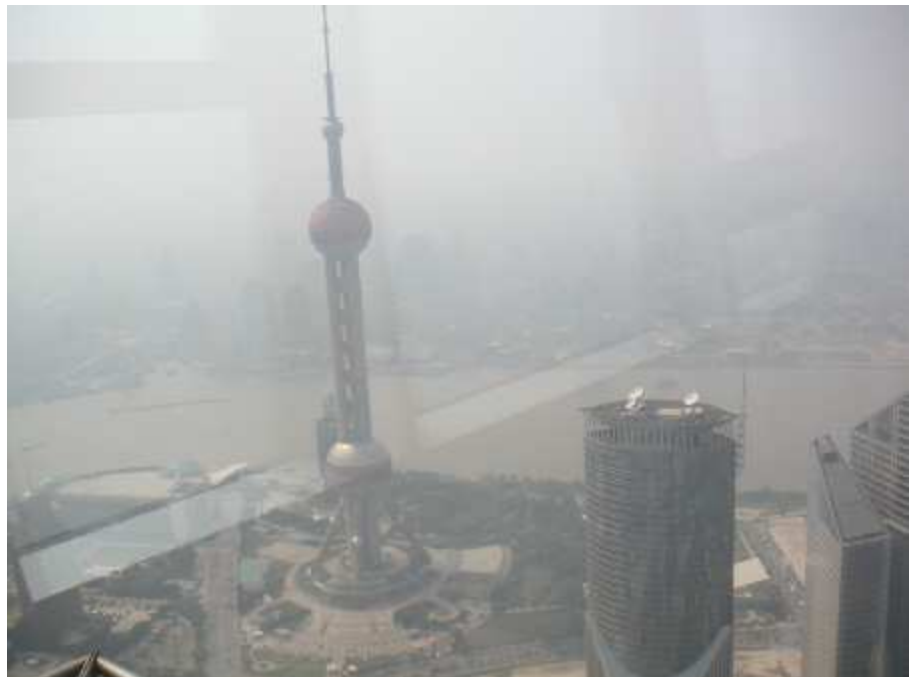
Fun on the job
by Ed Williams

I have written about some of my assignments as a State Department contract escort interpreter. Some of them were more work than fun, and some were vice versa. I try to write about the more interesting ones. I have taken Spanish-speaking groups through all of the 2 or 3 week courses under the Anti-Terrorism Assistance Program, some repeatedly. But only once did I go through the Counter-Surveillance Program. In 1990, I escorted a group of 16 middle-grade Paraguayan police officers, who were being trained for higher command positions. I always enjoyed working with Paraguayans. They are good-humored,

easy-going, all-round good people. Paraguay is the only Latin American country in which almost everybody is bilingual -- in Spanish and Guarani.

I met them at the airport at Dallas and took them down to San Antonio. The State Dept. had contracted with a private firm to provide this 2-week course. Here, we worked in an urban environment - the kind of place where terrorist surveillance most often takes place - to make it realistic for them, rather than sitting in a classroom and looking at pictures. After a day of briefing, they were split into 4 groups of 4, and each group was provided a rental car. They had to navigate with a map through the city, identify indications of enemy surveillance, organize

a plan to detect specific locations, use still and video photography to detect individuals involved in surveillance activities, analyze and assess terrorist tactics in deploying their surveillance teams, etc. The contract firm had made arrangements with individuals and companies at certain locations throughout the city to help, both as objects of terrorist surveillance and as the terrorists doing the surveillance. These people had been given instruction on how not to make it obvious what they were doing. I accompanied the instructors, who drove around keeping tabs on each team and answering the questions which had arisen in the course of their work. I was a bit worried about the possibility of accidents, since none of them spoke English. How-

ever, Law Enforcement in San Antonio was aware of their presence and activities. They did quite well, and I am sure were able to pass on what they had learned to many other police officers back in Paraguay.

On the weekend, we went to visit many of the old Spanish missions in and near San Antonio, as well as stroll along that beautiful Riverwalk. I had been to San Antonio before, but there is always something "new" to see. It was a great experience, and I got paid for it. When I took them back to the DFW airport, all of them gave me their home addresses and invited me to come and stay anytime I might be in Paraguay. Unfortunately, I haven't been back to Paraguay since then.

most Foreigners, was very impressed with how smooth the roads were and how easy it was to glide down from streets to streets. Of course, there were potholes but they were quickly repaired. Well, that was before I moved to Durham. In Durham, there were more potholes than smooth road at the time.

After my Graduate School years and years of working at Duke, I am excited to see that Durham has become more and more prosperous. Unfortunately, growing pain came with it. There are more and more Cary-resident wannabees moved to Durham. They wanted the Durham house price but the Cary luxury. Well, Cary is tucked away. No working class fast drivers zoom through the streets between multimillion dollar houses. While in Durham, having more people means more traffic. Guess what ingenious way people think up to reduce traffic? They build inverse potholes – instead of dipping down, they stick up. The effect is the same, only double the effort and double the cost. These upside down potholes do not reduce traffic, only slow it down. The effect on cars and tanks is the same – reduce them to rubbles in no time. Only there are no enemy tanks, just our own cars to ruin.

An added advantage of traffic

bumps is to keep those noisy ambulances and fire trucks out of the neighborhood. One thing drivers of those vehicles hate is to drive over hundreds of bumps for a house fire or a sick and aged lady, or, even if it is just to rescue a cat from a tree.

I remember in the 70's or 80's, some "clever" drives found out that if they took residential streets, they could avoid the major traffic jam and get home faster during rush hour traffic. It was a big item in the news that somewhere in Maryland, the annoyed residents in the area combated this by putting traffic barriers in the middle of the streets during rush hours so cars had to drive around them. In a sense, I guess, the idea of having such upside down potholes in residential streets is to accomplish the same thing. So, build a couple of bumps in front of your house and you only have to suffer a few bumps before getting to a thoroughfare. But now, more and more often, even larger Roads like Trinity Avenue are studded with bumps, and big ones too. It wasn't called an Avenue for nothing! To avoid bumps, "clever" drivers have started to learn to use side streets like Green street which has smaller tolerable bumps (like the good old days again). So, bumps need to be

added to Green streets and eventually to all streets and all blocks. We might as well called our beloved city Bumpham, the City of Bumdicine - to fulfill the scenario of the first paragraph above.

As Good and Evil combat forever, we will expect the competition between drivers and bump building escalate. Motorcyclist will discover this Bumpham and all converge here to race - see how fast they can navigate Durham streets. By then we will have to build walls at one end of each street block so they cannot go through and residents will have to go in and out from one end. Then those Motor cyclists will invent the game of going in and out of a "dead-block" to see how fast they can do it. By then we will have to build walls at both end of each block. By then, the goal of those Cary-residents wannabees will be finally achieved because, like Cary, the fancy SUVs, BMWs, Mercedes will be purely for driveway decorations but will not be able to go any where.

Answers for "Information" on P.4
1) Francium, polonium, germanium, americium, and gallium
2) Ytterbium, yttrium, terbium, and erbium. Somebody was a very big fan of Ytterby.