



Harkness Autocrat Tribune-Messenger

THE TECHNOLOGY HOUSE PERIODICAL

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A Public Service Announcement

Samuel Angelo Crisanto

The Crisanto Committee for Public Health advises all readers to begin manually blinking and swallowing as soon as possible. However, we recommend that you retain autonomic con-

trol of breathing functions.

Unbiolievable

Mattea Berglund

Hold on to Your Hat! Fun Facts About Your Head

Your nose is not just for smell, it is also a humidifier! Many animals, including humans, have to constantly breathe to supply their bodies with sufficient oxygen. Inhaled air is often colder and drier than conditions inside your body, therefore constant ventilation poses the risk of heat and water loss. To solve this issue, air is warmed and moistened while passing through your nose to reduced water and heat loss in your lungs. This conditioning is accomplished by the mucus membrane in your nose. The surface area of the mucus membrane is increased by turbinates, scroll-shaped bones within your nose. This increased surface area allows for more effective conditioning of inhaled air.

There are two muscles respon-

sible for closing your jaw: the temporalis and the masseter. The temporalis is plays the primary role in snapping your jaw closed, while the masseter plays the primary role is chewing. You can test this for yourself! Open your mouth and place your fingers on your temples, then quickly close your mouth (like you are trying to catch something in your jaws). You can feel the temporalis flex. Now place your fingers on your jaw joint; keeping your mouth closed, clench and unclench your teeth (as if you are chewing). You can feel the masseter flexing. Both muscles are involved in both types of jaw closing, but each should flex more noticeably during it's primary action.

Sound is transmitted to your inner ear (where it is then relayed to your brain) by the vibrations of tiny bones in your middle ear. There are small muscles (the tensor tympani and the stapedius) attached to two of these bones that can contract and dampen vibrations. This protects your inner ear from excessively loud sounds, including the vibrations created by

¹Not real

your own voice! (Thanks ears, thears.)

You can breathe and chew at the same time! Breathing is only momentarily halted while swallowing. Many animals cannot do this. (You may have experienced the lack of this convenience while trying to eat when your nose is very stuffy.) The structure that makes simultaneous breathing and chewing possible is called the secondary palate, which separates the nasal cavity from the oral cavity. In mammals, the development of a secondary palate is likely related to the energetic demands of an endothermic lifestyle. Endotherms metabolically regulate their body temperature, which requires a large amount of energy and oxygen. This means that endotherms have to eat more food and breathe more than ectothermic animals. The secondary palate helps meet these requirements. The secondary palate also strengthens the upper jaw for chewing, which is the reason for its evolution in crocodilians (ectotherms).

Get Your Word's Worth

Ekaterina Kryuchkova

Hazard comes from the Arabic "al zahr" which means "the dice". The term came to be associated with dice during the Cru-

sades and eventually took on a negative connotation because games of dice were associated with gambling.

"Heresy" comes from an ancient Greek word meaning "choice." Ah, deliberation, the most blasphemous of activities.

"Noon" used to mean ninth hour from sunrise, i.e., approximately 3 p.m., originating from Latin *nona (hora)* "ninth hour." The shift to 12 p.m. occurred in the XII century, when the time of church prayers shifted.

"Tragedy" literally means "song of the male goat." No one knows why. If you know why, let us know. If you are a male goat, consider singing - for science.



tupšimātu

Matthew Petersen

The primary resource for the interpretation of Akkadian words in English is the monumental piece of work that is the *CAD*, the *Chicago Assyrian Dictionary*. Assembled over a period spanning the 1950s to the 2010s, the *CAD* is a massive 21-volume, 26-book reference work that gives extensive documentation of word usage and interpretation for Akkadian words. However, as it is such a large work, it has some peculiarities. For example, the earlier volumes, such as *H*, *G*, and others, do not benefit from the fifty-odd

years of scholarship that have occurred between their publication and the publication of the final volumes. To make matters worse, the scale of the project, and the length of time it took to complete it, dissuaded the editors from publishing corrections, errata, or updates. Martha Roth, the final editor of the *CAD*, wrote that "The idea that each volume should include additions and corrections to any and all previously published volumes was abandoned immediately"² All in all, the *CAD* is a massive work, a useful work, and a testament to scholarly achievement.

Dice Roles

Petersen and Crisanto

Today we present the second installment in a system- and setting-agnostic tabletop RPG column. Conventions for these columns will be as follows:

- Three basic "stats" will be used: **Physical**, **Mental**, and **Constitution**. Think of these as analogues and proxies for the stats used in almost any system, and through them, the skills.
- Checks against stats or skills will be noted as **Easy**, **Normal**, and **Hard**. These could be DCs, degrees of success, or any other sort of gradated result.

This time, we present not a plot hook, but a list of magical items

²Roth, Martha T. 2010. "How We Wrote the Chicago Assyrian Dictionary". *Journal of Near Eastern Studies* 69 (1). University of Chicago Press: 1–21. doi:10.1086/654936.

that you can use in your adventures. Often, adventurers find useful items, or at the very least, obviously useful items, as well as cursed items, although these occur with less frequency. An under-used category is the questionably useful magic item. These items may have specific uses. Uses so specific that they may never come in the course of ordinary adventuring. A set of these are listed below.

- *A rope that cannot be tied into a knot.* This rope (which some might drolly term a *not*) cannot be tied into a knot, no matter how carefully the user tries to go through the steps of doing so. Allow players to make **Mental** checks with little effect; they really do enjoy it.
- *A set of cups which allow a particular fluid to remain unmixed with the surrounding medium.* The considerations of aquatic species when it comes to the consumption of liquid comestibles are often overlooked. These cups might allow for sahuagin to drink coffee underwater, or fire elementals to get their daily fill of hot chocolate³.
- *A cloak of invisibility.* The cloak becomes invisible when you wear it. Most cloaks are visible. Most cloaks of invisibility render the user invisible. This

cloak renders itself invisible upon the event of the user donning it.

- *An ivory statuette of a dove.* When a command word is spoken, the statuette turns into a dove, never to be seen again. The bird might allow you to attach a message, or it might not. Either way, you're not seeing that one again.
- *A pair of goggles that only allow you to see invisible things.* Imagine this scenario. The party is pinned down, battling an invisible foe. A flying polyp, perhaps, or a sentient cloak of invisibility. One of them has the bright idea to use the goggles of visibility that they found a couple of sessions back. Suddenly, they can see one thing, and one thing only - the invisible foe. It is up to the GM as to whether a **Mental** check is necessary to deal with the visual confusion caused as a result.
- *A glass sphere that is perfectly spherical and weighs exactly one kilogram⁴.* Also, if it is left in contact with an object, that object slowly becomes more spherical, speed depending on size. The object's mass is also rounded to the nearest whole kilogram⁵. This can be seen as a corruption, or perhaps a rectification, of

the classic sphere of annihilation. Its danger should not be understated.

- *A helmet that recites words in a truly random sequence, loudly and without cease.* It also provides a **Constitution** benefit. This helmet could allow canny adventurers to corner the market in encryption in their local area. It could also require a **Hard Mental** check to stay balanced and focused while wearing the helmet to obtain the **Constitution** bonus.

Thinking, Poorly

Thought

AJ Whitman

Cognitive Schema:

They're basically what you expect for situations. Like what things you think are there, or not there, or how things should be, and then what kinds of things you notice because you expect them. In this one experiment, people had to wait in a room, that was like a professor's office, only they didn't know that that was part of the experiment yet, but they had to wait there for a while until the "professor" could come conduct the experiment. Later they had to remember what was in that room, and everyone listed things like a desk and chairs and BOOKS, even though there were

³very, very hot chocolate.

⁴or other unit of mass

⁵see above note.

actually NO BOOKS in the office! And people didn't say there was a skull in the office even though there was one! So basically people have these schemas that make them wrong when they're wrong, because usually they're right so they don't have to think about it.

Smash and Sundry

Samuel Angelo Crisanto

Several members of House, consisting of Paul Addonizio, Leo Cooper, and Dayton Wilson, are part of a Brown team competing in an Intercollegiate Smash Round-robin. Held in Natick, Mass., the tournament will pit competitors against each other in a battle of skill. Naturally, this team will be competing in the *Smash 4* round-robin, which has a 2-team 10-stock-per-team match format.

Intrepid Smash Ladder hackers have discovered a design flaw in the system that allows those bold and brave enough to exploit the glitch to challenge Paul Addonazzio (spelling?) an infinite number of times. We report it here for the benefit of the public, in order for them to take full advantage of this before the vulnerability is patched. It appears on the following page.

⁶Not real

Real⁶ Facts About Real Numbers

Samuel Angelo Crisanto

1. Most real numbers begin with the letter 't' or the letter 'f'.
2. Mathematicians have long suspected that there is an integer between 3 and 4, and at last we have discovered a truly marvelous proof that this margin is too narrow to contain
3. Half the factors of every prime number is prime. (This is the Prime Number Theorem)
4. Half the factors of every composite number is composite, rounded down.
5. Many computers use binary numbers to represent decimal numbers because the fastest way to find a number on the number line is with a binary search. Luckily, the real numbers come pre-sorted.
5. Since both pi and e are transcendental, the first trillion digits of pi are repeated an infinite number of times in both pi and e, beginning and ending at the same indices ($i, i + 10^9$).
5. As a direct corollary of the previous real fact, we can find any arbitrarily long match between the digits of pi and e. Therefore, they must be the same number.

Overheard At Technology House

Tech House Quotes Page

"Oh MATLAB. You are donezo.
— A Tech Houser, in the throes of victory.

"Oh MATLAB, you f—king piece of s—t."
— A Tech Houser, snatching defeat from the jaws of victory.

A: "We don't have a German dictionary."

B: "We have a Vorsprung, would you like a Vorsprung?"

C: "I don't know, that sounds painful."

— German, the language of poetry.

Comparison of diffusion imaging reconstructions and software packages

Roan LaPlante

Identifying appropriate software packages for the reconstruction of diffusion MRI images is a perennial problem which continues to plague humanity. Naturally, computationally expensive probabilistic reconstructions which model tracts as probability distributions tend to outperform deterministic tractography reconstructions. Such tractography

Algorithm 1 Infinite Paul Glitch

```

1: while TRUE do
2:   Join the TH Smash Ladder
3:   Receive 3 provisional matches
4:   Challenge Paul 3 times
5:   Drop out of the Smash Ladder
6: end while

```

requires computationally expensive reconstruction techniques, and suffers from either model overfitting, or drastically reduced signal to noise.

In the deterministic world there are considerably more options, though note Bayesian approaches combining multiple reconstructions. We here review the software packages `dtk`, `dsistudio`, `mrtrix`, `camino`, and `dipy`. `dsistudio` is fairly well documented and quite featureful. `dipy` has many examples but requires extra programming and putting the pieces together often tends to be difficult. `dtk` is utter s—t, it has poor documentation, many undocumented quirks, and does reconstruction far slower than the previous two software packages discussed. `mrtrix` and `camino` are both software packages I have used very little, only enough to test them a little bit and I have no substantial recommendations regarding these packages.

It is also natural to compare different reconstruction techniques. Different reconstruction techniques have different properties, although the differences are sometimes nontrivial.

Reconstruction techniques are

broadly categorizable in 3 ways: tensor sampling, k-space sampling, and q-space sampling. k-space sampling is strictly less informative, with appropriate multi-shell reconstructions of q-space such as generalized q-space reconstruction.

How Dare You!

Nick Cunningham

Matthew Petersen, once more I am talking to you. In the last edition, I gave you some advice from the heart; you have spurned it, ignored my sagely advice and great wisdom. Quite simply, you continue to insist upon deadlines, and have not offered any sort of apology for your grave error in doing so. So now I must take you to task for another great flaw: your hypocrisy on the matter of the Doomba. On this most recent Friday, you insisted that the Doomba (which you incorrectly called “Roomba”) was not to be disturbed, meaning that it should not be caused to move; you insisted that members of Technology House should not be interacting with it. But

then I ask, Matthew, why do you demand the Doomba’s service in the mornings? Why do you force it to awaken you bright and early, when any well-mannered cleaning robot would be soundly in bed? This situation must be rectified; either release the Doomba from your smothering grasp or allow others to frolic with it.

Robots were meant to be free.

Literature Today

Kelvin Jackson

A first draft of an introduction, currently without name.

The aliens arrived when we least expected them. Decades ago, humans had decided that our best chance for contacting extraterrestrial intelligences was through interstellar radio transmissions, sent and then forgotten, until a response might be heard, hundreds of years later. The stars were so far apart, they reasoned, that traveling between them was nigh on impossible, unless you had a really good reason to go. And checking out a random sun, a system

with an infinitesimal chance of even supporting life, let alone anyone you could talk to, just wasn't a good enough reason. So you looked first, and only after you had chatted back and forth across the millennia, you might consider going.

All that changed when they arrived on our doorstep, structured signals that could only possibly come from an intelligent source blaring across the EM spectrum for all to hear. There were no covert landings in cornfields or bug-eyed monsters wandering into the White House, no magical humanoids who already spoke English by the time they set foot on Ter-ran soil, no demands to be taken to our leaders. Just a couple of talkative transmitters — tin cans with antennas — out in the asteroid belt, who one day decided to let us know they were in the neighborhood.

It took a while before anyone figured out what to do in response. Obviously, we wanted to talk back, and let them know we wanted to join in the galactic community, and take our place among the denizens of the stars. Obviously, we should keep our mouths shut, as the incoming transmissions might be a test to determine whether we were advanced enough to pose a threat, and an intelligent response might lead to our immolation. Obviously, such concerns were the product of an immature, war-torn world barely out of its cradle; anyone who could cross interstel-

lar space must have solved those problems by now, and if we insisted on assuming the worst in our new visitors, we didn't deserve a place in their world. Leaders met in secret to hash out plans for diplomacy, and to prepare for war if those plans failed; the economy went wild as people stocked up on survival gear.

Of course, nobody actually knew what the aliens were *saying*. As far as we knew, they could be rickrolling us, and waiting for us to respond in kind. All the politicians eventually had to admit that they had no idea what they were doing, and start trying to find someone who did, but was willing — or could be coerced — to share first contact with their leaders, and to keep their findings quiet until they got the go-ahead to publish.

Ultimately, though, that decision was wrested from their hands by the only group of people truly qualified to talk to aliens: a self-organized group of genius field linguists looking for an adventure.



Literature Today

Julius Reiner

A poem from the anthology of Julius Reiner, most likely written whilst very bored and utterly distracted during AP Physics last spring:

Vicissitudes

The long and short of the situation

Is one that could trouble any nation

I could drone on and on, line after line,

I sure bet this poem would turn out just fine,

I could be short,

Retort after retort,

I could forget to hit enter, continue to the center, completely annoy my mentor,

Or I could write

One

Word

At

A

Time

Completely destroying each line's rhyme.

Why do you care how long my poem runs?

Short and sweet, or an epic for the best

My poem's just as good as all of the rest.

A Puzzling View

Gaurav Manek

Is what I say really going to go in the Autocrat? Unedited? Matthew, you are truly a wonderful human being. And I shall remember your number⁷ forever.

Diplomatic Immunity

Spring 1906. War has consumed the Continent. Austria-Hungary, Germany, and England have all fallen beneath the jackboots of invading forces, being Russia, Turkey, and France. Italy now sits in a precarious position. The grand cities of the peninsula have fallen beneath the forces of the Ottoman Empire. Only Venice, merchant city

of the lagoon, sits independent of the invading armies, along with Tunis, vestigial stronghold of the once-great Italian colonial empire.

Meanwhile, in the north, the forces of the great nations of Russia and France, together controlling the majority of the Continent, battle over the ancestral lands of the once-great Teutonic peoples. They hold the power, and it is within their grasp to decide the fate of the European continent.

Letters

SIR—

In regards to Mr. Cunningham's column within the March issue, I should like to say that I have no intention of resigning. Should he take issue with the deadlines I have proposed, I have only to point out that his article of

'protest' was submitted in time. Clearly, they are not too onerous of a requirement.

Best regards,

Matthew Petersen

Send us letters! Reach us at the return address, if you are a postal subscriber, or at *autocrat (at) techhouse (dot) org*. We look forward to hearing from you!

⁷Not a phone number.

Masthead

Editor-Autocrat: Matthew Petersen
President: Ekaterina Kryuchkova

Contributors

Paul Addonizio
Mattea Berglund
Samuel Angelo Crisanto
Robert "Nick" Cunningham
Kavi Duvvoori
Kelvin Jackson
Ekaterina Kryuchkova
Roan LaPlant
Gaurav Manek
Matthew Petersen
Julius Reiner
AJ Whitman



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