

**OOT 2016: “Waiting for Goldman”
Packet 5 (Ostentatious Hydromancy)**

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1. This man wrote about a toast made by King Mobad in a book on a celebration called “The Book of the New Year.” Translated lines from his poems including “Men talk of heaven - there is no heaven but here” and “If Allah be, he keeps his secret well” were used by Christopher Hitchens to suggest he was a religious skeptic. The poetry of this man was most famously translated into English by the translator of *Six Dramas by Calderon*, whose translation includes the lines “the moving finger writes, and, having writ, moves on”. For ten points, name this 11th century Persian poet, whose collected quatrains are referred to as his namesake *Rubáiyát*.

ANSWER: Omar **Khayyám**

2. This man’s early ideology was termed Marhaenism after a self-sufficient peasant he met. Mohammed Hatta, his ally, fell out with him in later life over this man’s increasing autocracy. This man founded the PNI and helped support it financially through his business as an architect. This man supported the Japanese invasion of his homeland, which released him from prison, in return for Japanese help in spreading nationalist ideals. The policy for which this man is best known was “Guided Democracy” and he led his country’s independence struggle against the Dutch. For ten points, name this first President of Indonesia.

ANSWER: **Sukarno**

3. One emperor of this name appointed Constantine VI as co-emperor, leading five of his half-brothers to rebel, and they were later exiled to Cherson. Another of this name was assassinated on Christmas Day, despite defending himself with a cross seized from the altar. Yet another emperor of this name issued an update in Greek of the *Code of Justinian*, titled the *Basilika*, and was attacked by Oleg of Novgorod in 907. Epithets of these men include the Isaurian, the Armenian and the Wise. For ten points, give this name used by six Byzantine Emperors, the third of whom instigated Iconoclasm.

ANSWER: **Leo** (ignore any regnal numbers)

4. The dimensionless curvature density can be defined as the speed of light squared multiplied by a curvature parameter divided by this quantity squared. This quantity is equal to the ratio of the time derivative of the scale factor, and the scale factor. This scalar quantity is squared on the left-hand side of the Friedmann equation. Tammann and Van Den Burgh debated the value of this quantity. This value is normally given in kilometres per second per megaparsec, and it is approximately equal to one divided by the age of the universe. The redshift of a galaxy and its distance from us are related by, for 10 points, what value named for an American astronomer?

ANSWER: **Hubble’s Constant** (accept **Hubble’s Law**)

5. An alkyne, an alkene and Carbon monoxide react in the presence of dicobalt octacarbonyl in the Pauson-Khand reaction of this type. Increasing the size of substituents can accelerate this type of reaction via the Thorpe-Ingold Effect. 3-exo-tet reactions of this type are allowed according to Baldwin’s rules. Examples of these reactions include macrolactonization. Dienes and Dienophiles react together in the Diels-Alder reaction of this type and these reactions are accompanied by a decrease in entropy. For ten points, name these reactions in which 2 ends of a chain come together.

ANSWER: **Ring synthesis** (accept clear knowledge equivalents like **cyclisation** or **ring-closing** reaction, accept **Ring closing metathesis** and **Olefin metathesis** before “3-exo-tet”)

6. This art movement's first publication called English humour "the great barbarous weapon of the genius among races" and its manifesto begins "Beyond Action and Reaction we would establish ourselves". This art movement railed against Futurism, calling it "superficial", but copied its technique of concrete poetry. TS Eliot and Ezra Pound were published in its magazine, which ran for only two issues and was named *BLAST*. Frederick Etchells was an artist in this movement, and works by this movement's most famous artist include *Slow Attack* and *Workshop*. For ten points, name this British pre-war modernist art movement spearheaded by Wyndham Lewis.

ANSWER: Vorticism

7. This man earned the sobriquet of "The Young Butcher" after executing Carbo and his supporters. He was the only equestrian to ever be awarded a triumph, receiving his first after his African victories, which also earned him his epithet, although he was unable to use elephants to draw his chariot at the procession. This man had two sons, Sextus, who later rebelled against Octavian in Sicily, and Gnaeus, named after his father. This man was defeated at Pharsalus by Caesar and fled to Egypt where he was killed; his head and seal later being presented to Caesar. For ten points, name this Roman general and statesman who was a member of the first Triumvirate with Caesar and Crassus.

ANSWER: Pompey the Great (or Gnaeus Pompeius Magnus)

8. One character in this film is thrown through the window of a bar named for the manner of death of its previous landlord. An aristocrat in this film throws a cardboard chicken at a sheet of metal to express his passion over a woman who gives up a job sitting naked in a tub of water. Another character in this film survives a duel instigated by a trio of playwrights. At the end of this film, Baptiste is lost in a carnival on the Boulevard du Crime [cream] as he runs after a woman he had acquitted of theft by performing a mime, Garence. Its title referring to the highest stalls of a theatre, for ten points, name this French drama written by Jacques Prevert and directed by Marcel Carné.

ANSWER: Les Enfants du Paradis OR Children of Paradise

9. The central figure of this book is spared execution for entering the king's court without being called upon when the king holds out a golden sceptre. One person in this book, when asked what should be done to the man whom the king wishes to honour, assumes this refers to himself and so suggests a horseback parade. That man, Haman, is later hanged on gallows intended for Mordecai, the cousin of this book's title figure, who replaced Vashti at court. Purim commemorates the title figure of this book's averting a massacre of the Jewish people. For ten points, name this book of the Hebrew Bible titled for a Persian queen.

ANSWER: Esther

10. Anti-mitochondrial antibodies are found in a disease affecting this organ. In humans, Glisson's capsule surrounds this organ and Budd-Chiari syndrome results from the blockage of veins draining this organ. The Cori cycle takes place between skeletal muscle and this organ. The falciform ligament divides this organ, whilst its caudate and quadrate lobes are visible only on its visceral surface. It is not the kidney, but gluconeogenesis takes place in this organ. This organ synthesises albumin and bile. For 10 points, name this organ which is diseased in cirrhosis and hepatitis.

ANSWER: Liver

11. In 2009, a team from the University of Colorado discovered four unusually low-altitude glaciers in the "Cursed" Mountains in the north of this country. This country's Boga Valley, in its western mountains, is one of the wettest places in Europe, due to convergence of Mediterranean airflow with the continental air mass. This country is the site of the three deepest tectonic lakes in the Balkans: Lakes Butrint, Shkodër and Ohrid. This country's national animal is the golden eagle. Major cities in this country include Elbasan and Durrës. For ten points, name this small Balkan country with capital Tirana.

ANSWER: Republic of Albania

12. In a 2015 West End production these figures are re-imagined as prosecution lawyers when the protagonist is put on trial. One name for them titles the ninth volume of a series in which the title character kills Orpheus at his own request. In T.S. Eliot's play *The Family Reunion* Harry is pursued by these figures, while the action of *Oedipus at Colonus* takes place in a grove dedicated to them. These figures represent Jealousy, Anger, and another trait with which they are usually identified as a group; that third trait is embodied by Tisiphone [Ti-si-phoney]. The third part of the *Oresteia* is titled for these entities, who traditionally punish kinslayers and who appear as the Kindly Ones in *Sandman*. For 10 points, name this trio of Greek goddesses of vengeance.

ANSWER: the **Furies** (or **Erinyes**; or **Eumenides**; accept the **Kindly Ones** before it is read)

13. On the death of his eldest son, this man said "He cost me much, but I wished he had lived to cost me more". The mention of a rival's name in a pleasant light is said to have thrown this man into spasms of rage, such that he started eating the straw from his mattress. That rival was William the Lion. This man was the first man to be crowned King of England rather than King of the English. His eldest son was the only heir to the English throne to be crowned in his father's lifetime. That son's cause was supported by this man's wife Eleanor of Aquitaine. For ten points, name this English king, the first of the Plantagenet dynasty to rule England who rid himself of the "turbulent priest", Thomas Becket.

ANSWER: **Henry II**

14. Jan Dismas Zelenka wrote 6 trio sonatas for two of these instruments, whose virtuosos include Antonio Pasculli and Marcel Tabuteau. In the second movement of *Scheherazade*, a bassoon solo is immediately followed by an identical solo for this instrument. Pablo de Sarasate refused to premiere Brahms' *Violin Concerto* because of the prominence given to this instrument. Handel's *Music for the Royal Fireworks* calls for 24 of these instruments. This instrument is pitched an octave higher than a Heckelphone and in Peter and the Wolf this instrument represents the duck. For ten points, name this double reed woodwind instrument to which orchestras usually tune.

ANSWER: **Oboe**

15. A man from Connecticut mistakes "the shadow of his equipage" for the title figure in this poem. In another section of this poem, the speaker asks the "thin men of Haddam" why they "imagine golden birds", while in an earlier section he ponders whether to "prefer the beauty of inflections or the beauty of innuendoes". The eye of the title creature is the only moving thing "among twenty snowy mountains" in the first section of this poem, whose final section paradoxically states "it was evening all afternoon". "A man and a woman are one" with the title creature in this poem, which was heavily inspired by haiku. For 10 points, name this Wallace Stevens poem which offers a number of reflections on the title avian.

ANSWER: **Thirteen Ways of Looking at a Blackbird**

16. This philosopher threw an ashtray at his student, the documentarian Errol Morris, due to his disagreement with the philosophy of Saul Kripke. Larry Laudan criticised this philosopher's identification of rules with a certain technique and contrasted this thinker's most famous notion with his own traditionalist notions. Paul Feyerabend's notion of incommensurability was adopted by this thinker to describe the impossibility of assessing theories produced within different research paradigms. The title events of this philosopher's most famous work occur when normal science, or 'puzzle-solving', is no longer practicable due to an accumulation of highly troubling anomalies. For 10 points name this author of *The Structure of Scientific Revolutions*

ANSWER: Thomas **Kuhn**

17. This person has a sister called Dis, the only named woman of his kindred and this character's brother Frerin was killed in the Battle of Azanulbizar, where this character gained an epithet from his actions after his original shield was sundered. Upon this person's arrival at Esgaroth, it is prophesied that the rivers will run with gold. After a run-in with Bert, William and Tom, a group of trolls, this character wields the sword, Orcrist. This character is the Heir

of Durin and becomes King under the Mountain. Portrayed in film by Richard Armitage, for ten points, name this chief dwarf of *The Hobbit*.

ANSWER: **Thorin** II Oakenshield (accept Frerin before mention)

18. In a modern adaptation set in a Pennsylvania fast food restaurant, this character is a police investigator played by Christopher Walken. In the work in which he first appears, this man questions another character's decision to murder two drunk stewards, and later describes that character as a "hell-hound" before being told to "get thee back" because "my soul is too much charged with blood of thine already". The title character of the play this man appears in bemoans that his "better part of man" is cowed following the revelation that this man was "from his mother's womb untimely ripp'd". For 10 points, name this Shakespearean character who defeats Macbeth in single combat.

ANSWER: **Macduff** [accept **Macbeth** until "this character"]

19. One character in this novel saves the Commissioner of Supply from a lynch mob—that character is the Grand Chancellor Ferrer and that mob had earlier destroyed the Bakery of the Crutches. The historical character Federico Borromeo also features in this novel, in which he inspires the redemption of the criminal L'Innominato. The Farewell to the Mountains passage of this novel describes Lucia's feelings as she flees her hometown after her wedding had been forbidden by a local baron. That baron, Don Rodrigo, later dies in Milan, after he is forgiven by Renzo. For 10 points, name this nineteenth century Italian novel written by Alessandro Manzoni.

ANSWER: *The **Betrothed*** or ***I promessi sposi***

20. This phenomenon spent the years 1987 to 1996 in a strongly positive phase. The positive phase of this phenomenon has been linked to a boom in the population of Labrador Sea snow crabs, and this phenomenon is also a known factor in the population fluctuations of Soay sheep. Unlike the El-Niño, this phenomenon is primarily atmospheric and is defined by the pressure difference between the Azores High and Icelandic Low. For 10 points, name this climatic phenomenon that exerts a profound effect on the climates of Europe, the Arctic and Eastern North America.

ANSWER: **NAO** (or **North Atlantic Oscillation**)

Spare/Tiebreaker

21. This event was the culmination of Operation Skyhook, which was launched when a certain piece of intelligence was intercepted during an assault near Orron. The victorious side in this event later used it as the epoch of a new calendar era. Mauler Mithel was assigned the callsign Black Two during this battle and Keyan "Lucky" Farlander was one of three Allied survivors of the central event of this battle, which saw Jan Dodonna and Wilhuff Tarkin commanding opposing sides. The unexpected arrival of the *Millennium Falcon* caused Darth Vader to flee from this battle. For 10 points, name this battle in which Luke Skywalker exploited a key weakness to destroy the first Death Star.

ANSWER: **Battle of Yavin** (accept **destruction of the first Death Star** or similar before it is read; prompt on **destruction of the Death Star** or similar before it is read)

1. Akira Kurosawa and Alfred Hitchcock are often admired by proponents of this theory. For ten points each:

[10] Name this philosophy which holds that a film is primarily the product of its director's creative vision.

ANSWER: **Auteur** theory

[10] This film critic was an early proponent of auteur theory. He later became an auteur himself, directing films including *The 400 Blows* and *Fahrenheit 451*, his only English-language feature.

ANSWER: François **Truffaut**

[10] François Truffaut advanced auteur theory via his writings in this influential French film journal, many of whose contributors were leading lights in the French New Wave scene.

ANSWER: Cahiers du cinéma

2. Far-fetched plans for space elevators often rely on cables made from these substances. For 10 points each:

[10] Name these long, thin molecules which can be considered as rolled-up sheets of graphene.

ANSWER: Carbon Nanotubes (prompt on fullerenes, prompt on nanotubes, do not accept “buckminsterfullerene”)

[10] This quantity for a carbon nanotube is plotted against its diameter in a Kataura plot. This quantity is easily tuned for a quantum dot.

ANSWER: Band gap

[10] The defect concentration of carbon nanotubes can be assessed by measuring the G and D bands on spectra from this technique. This technique gives rise to Stokes and Anti-Stokes lines.

ANSWER: Raman Spectroscopy

3. This short story begins with a description of Trinity Place, the street on which the title event occurs. For 10 points each:

[10] Name this short story in which the perpetrator of that event poses as a plumber to gain access to a flat overlooking the back of a hospital.

ANSWER: “The Assassination of Margaret Thatcher - August 6th 1983”

[10] *The Assassination of Margaret Thatcher* is by this British writer who chronicled the life of Thomas Cromwell in *Wolf Hall* and *Bring up the Bodies*.

ANSWER: Hilary Mantel

[10] Hilary Mantel is the first British writer to win the Man Booker Prize twice. This forthcoming third book in her Cromwell trilogy could give her a shot at an unprecedented third win.

ANSWER: *The Mirror and the Light*

4. Oxygen’s a bit commonplace and boring as a chemical, right? Wrong. For ten points each, answer some questions on oxygen chemistry’s role in Earth’s climate.

[10] This triatomic form of oxygen is very important in stopping the entirety of surface life on Earth from being UVed to death.

ANSWER: Ozone

[10] The ratio of this isotope of oxygen to standard ^{16}O in various compounds is a handy way of dating glacial events and making sure we can work out exactly how stuffed we’d be if one happened soon.

ANSWER: ^{18}O (or oxygen-18 - accept any variant that includes 18 and oxygen)

[10] Oxygen can also be bad, however - 2.5 billion years ago, the Great Oxygenation Event wiped out a substantial amount of life on Earth, which had been largely anaerobic until then. It also initiated this 300-400 million-year-long glaciation, which almost finished off the rest.

ANSWER: Huronian glaciation

5. After the battle of Yamama this man decided to produce an authoritative record of the Qur’an and his daughter Aisha married the Prophet Muhammad. For 10 point each:

[10] Name this man who Sunnis consider to be the first Rashidun Caliph.

ANSWER: Abu Bakr

[10] Shia Muslims consider this man to be the true heir to Muhammad. He is the fourth Rashidun Caliph in Sunni Islam and was the nephew of the Prophet Muhammad.

Answer: Ali

[10] This sect opposed Ali's decision to enter into arbitration with Mu'awiya over the Caliphate. They later assassinated Ali on the grounds that he didn't have authority to make such a decision and they remain as a sect outside Sunni and Shia Islam

Answer **Khawarij** (accept **Khajrites**; accept **Shurah**)

6. These bonuses might serve as a wake-up call for those of you finding it harder and harder to breathe. For ten points each, answer some questions on an American rock band.

[10] *Wake Up Call* and *Harder to Breathe* were both hits for which American rock band?

ANSWER: **Maroon 5**

[10] This letter is the title of Maroon 5's most recent album.

ANSWER: **V**

[10] This song from V begins with the lines "You and me and all that wine/ Loosen my tie, lie down, let's fly"

ANSWER: **"Feelings"**

7. Lasers are cool. Bigger lasers are even cooler (or, realistically, hotter). For ten points each, answer some questions on a really big laser.

[10] This largest laser in the world is attached to Lawrence Livermore National Laboratory.

ANSWER: The **National Ignition Facility**

[10] The NIF uses 192 separate beams to achieve its 500 TW peak, each doped with this element, more frequently found in headphones.

ANSWER: **Neodymium**

[10] For the NIF to actually achieve fusion, its stated purpose, it must meet this set of conditions, normally only found at the heart of stars.

ANSWER: **Lawson Criterion**

8. This man wrote the novels *El Filibusterism*. For 10 points each:

[10] Name this Filipino nationalist and national hero who was executed by firing squad. He founded *La Liga Filipina*.

Answer: Jose **Rizal**

[10] Rizal supported this armed Catholic group which sought independence from Spain and formed the first real constitutional state in the Philippines. They were founded by Andres Bonifacio and wore robes which they believed protected them from bullets.

ANSWER: **Katipunan** (accept **KKK** but only if it is clearly not a random guess)

[10] The first Philippine republic was ended by military defeat against this nation of which it was a territory until 1946.

Answer: **The USA**

9. This object has lost all but one of the amber beads it once had, and it was once backed with Bronze plating. For 10 points each:

[10] Name this golden Bronze Age poncho currently stored in the British Museum.

Answer: **The Mold Cape**

[10] The Mold Cape was found in this country, where many of the stones from Stonehenge were quarried and where the Banc Ty'nddôl sun-disc was also found.

Answer: **Wales**

[10] The Mold Cape is one of the major pieces of gold sheet work in Britain. Much later gold-work is in the form of these objects which are often found in twisted ribbon form and their buffers are often fused to make a muff.

Answer: **Torcs**

10. This place takes its name from the Arabic for Island and is located north of the Syria-Turkey-Iraq triple point. For 10 points each:

[10] Name this town in Eastern Turkey which was recently blockaded by State Security forces in their ongoing conflict with the PKK.

ANSWER: Cizre

[10] Cizre is surrounded by this Mesopotamian river to the North, East and South.

ANSWER: Tigris

[10] This second-largest city in Southeastern Turkey is a centre for PKK activities and is home to the Dicle Bridge over the river Tigris.

ANSWER: Diyarbakır [Diyar-bak-ur] (accept Amed)

11. The subject of the painting-within-a-painting in this work is thought to be the artist's daughter. For 10 points each:

[10] Name this Johannes Vermeer painting which depicts an artist at work at an easel with his back to the viewer. It is usually regarded as a self-portrait.

ANSWER: *The Art of Painting* (or *The Allegory of Painting*; or *The Painter in his Studio*)

[10] *The Art of Painting* was the inspiration for *The Ghost of Vermeer of Delft Which Can Be Used As* this common piece of furniture.

ANSWER: a table

[10] That artist was also inspired by the discovery of DNA to paint *Galacidalacidesoxyribonucleicacid*. He depicted the cross as a tesseract in his *Crucifixion* and revisited his most famous work in the *Disintegration* of it.

ANSWER: Salvador Dali

12. This character buys a dog on a whim while out with her lover, and her husband later discovers its leash in a drawer, tipping him off to the affair. For ten points each:

[10] Name this character who is later killed in a hit-and-run.

ANSWER: Myrtle Wilson [prompt on "Wilson"]

[10] Myrtle's husband reacts to her death by murdering the title character of this novel of 1925, though the driver who killed her was actually Daisy Buchanan.

ANSWER: *The Great Gatsby*

[10] Gatsby and narrator Nick Carraway live on this outcrop into Long Island Sound, contrasted with its more fashionable East counterpart.

ANSWER: West Egg

13. This man's pen-name translates as "one cup of tea" and he remained a farmer. For 10 points each:

[10] Name this poet, one of the four great haiku masters and second only to Bashō in popularity. All three of his children died young, and after the death of his wife he penned this haiku: "outliving them / outliving them all / ah, the cold!"

ANSWER: Kobayashi Issa (accept names in either order)

[10] One tradition in Japanese poetry is the composition of a *jisei*, or this type of poem. Issa's poem of this type is about baths, whereas Bashō's reads "falling sick on a journey / my dream goes wandering / over a field of dried grass".

ANSWER: death poem

[10] Both Issa and Bashō wrote about these creatures. Issa's haiku goes "Skinny creature/ Don't give up!/ Issa is here" while Bashō's mentions a splash.

ANSWER: a frog

14. La Serenissima and the Sublime Porte fought 7 wars for control of the Mediterranean. Name, for 10 points each:

[10] This island, taken by the Ottomans in a namesake war, was captured only after the second longest siege in history, of the Venetian-controlled city of Candia.

Answer: **Crete**

[10] This battle in the Gulf of Corinth, at which half the galleys and the 6 vital galleasses contributed to the Holy League came from the Venetians, saw the Ottomans suffer a crushing defeat.

Answer: Battle of **Lepanto**

[10] The 6000 men of Venice under Marco Antonio Bragadin at this Cypriot town held out for almost a year against over 200,000 opposing forces, providing the Holy League time to organise.

Answer: **Famagusta** (accept **Ammochostos** and **Mağusa**)

15. Name some things about the traditional music of Turkey. For ten points each:

[10] Among the oldest such bands in the world, this is the Persian-derived name for Ottoman-style military bands who tend to produce a shrill percussive sound.

ANSWER: **Mehteran**

[10] Among the instruments used by mehteran are these instruments used in Ancient Greece and the modern drum kit. They are produced by the Turkish-founded, American-based firm, Zildjian.

ANSWER: **Cymbals**

[10] This long-bowed string instrument is found in Turkey as well as other Black Sea countries. It is played upright and usually has three strings.

ANSWER: **Kemenche**

16. The “fundamental theorem” of this mechanism was first proposed in 1930 and states that the rate of increase in fitness of an organism at a given point is equal to the genetic variance in fitness at that point. For 10 points each:

[10] Give this key mechanism of evolution.

ANSWER: **Natural selection**

[10] The fundamental theorem of natural selection was formulated by this evolutionary biologist and statistician, who published it in his 1930 work *The Genetical Theory of Natural Selection*.

ANSWER: Sir Ronald Aylmer **Fisher**

[10] Along with JBS Haldane, Sewall Wright, and Theodosius Dobzhansky, Fisher was a key figure in the development of this theory, which combined Mendelian genetics with Darwinian theory.

ANSWER: the **modern evolutionary synthesis** [or the **neo-Darwinian synthesis**; prompt on **modern synthesis**]

17. This man contrasts “the way of truth” with “the way of opinion” in his only surviving work, *On Nature*. For 10 points each:

[10] Name this early Ancient Greek philosopher, a key influence on Plato, probably best known for asserting that change is impossible.

ANSWER: **Parmenides**

[10] This other pre-Socratic philosopher, an early epistemologist, argued that mankind could not know the “truth of reality”. He also criticised Hesiod and Homer for their anthropomorphic representations of deities.

ANSWER: **Xenophanes** of Colophon

[10] This Ionian town has a claim to be the home of philosophy, and it was here that Anaximander, the first Greek cartographer, taught Pythagoras

ANSWER: **Miletus**

18. This play ends with the murder of a commander of the Order of Calatrava. For 10 points each:

[10] Name this play in which a rural community turns on that commander, who had been mistreating them. In order to save themselves from the magistrate, the villagers insist that the title village “did it”. This play ends successfully when they are all pardoned.

ANSWER: Fuenteovejuna

[10] *Fuenteovejuna* is by this prolific playwright who also wrote *The Dog in the Manger* among over a thousand other plays, as well as the novel *The Pilgrim in his Own Country*.

ANSWER: Félix Lope de Vega y Carpio

[10] Lope de Vega was active during the Golden Age of culture in this country. Other major literary figures from this country's Golden Age include the poets Góngora, Quevedo and Calderón de la Barca.

ANSWER: Spain

19. Before the Marian reforms, the Roman army was generally divided on social lines. For ten points each, answer some questions about the different classes of soldiery in the Camillian and Polybian armies.

[10] The increasing demands of Roman expansion for more cavalry through the Republic drove the expansion of this military and social class, which sat between the patricians and the plebs.

ANSWER: Equites (accept Equestrians)

[10] This third line of Polybian legions was made up of older, spear-armed veterans, who were the small elite reserve to be brought in if the *hastati* and *principes* had failed.

ANSWER: Triarii

[10] Replacing the Camillian *leves*, these lightest armed troops were developed in the 2nd Punic Wars on account of the manpower shortage, and some were attached to each manipule of the main three classes.

ANSWER: Velites

20. For ten points, answer some questions on nuclear power.

[10] This reactor technology is currently the main one in the UK fleet, using CO₂ to cool the reactor.

ANSWER: AGR (or Advanced Gas-cooled Reactor)

[10] New nuclear reactors in the UK are instead going to use the EPR technology. This UK site is planning to host the first of this new generation of reactors.

ANSWER: Hinkley Point (C)

[10] One alternative to conventional uranium fission reactors is to use this other, more abundant radioactive metal, which is named for a Norse god of thunder.

ANSWER: Thorium