

SCIENCE TEXTBOOK ACCURACY REVIEW FORM  
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ACCURACY REPORT

**Publisher Actions: For those cases where the Publisher concurs with the reviewer's comment, the Publisher will set up an Errata file on its web site, and direct teachers to that site by means of special instructions distributed with the teacher's materials for the text; in addition, changes will be made as appropriate in future printing of the text.**

Page 4: Figure 1.2 caption: the word "Micrograph" should read "Scanning electron photomicrograph"(typographical)

Response: We disagree. "Micrograph" is the more generic term. Electron micrograph is used in about 5 dictionaries to indicate micrographs made with an electron microscope.

Page 11: Beginning of last paragraph: "Sometimes, two atoms share electrons." should read "Sometimes, two atoms share OR DONATE/RECEIVE electrons" (serious)

Response: We concur. This change is correct in consideration of the sentence that follows.

Page 17: paragraph to right of premature baby: "Surfactant, a kind of "soapy" liquid, keeps droplets of water from forming in the tiny air sacs that make up the lung. Water droplets can make the fragile air sacs in a premature baby collapse, leading to suffocation". should read "Surfactant, a kind of "soapy" liquid, keeps LARGE droplets of water from forming in the tiny air sacs that make up the lungS. LARGE water droplets can make the fragile air sacs in a premature baby collapse, leading to suffocation". (serious)

Response: We concur, although we are unable to locate authoritative resources that refer to droplets or large droplets. For this reason, we intend to change the text to read, "Surfactant, a kind of "soapy" liquid, reduces the surface tension within the air sacs of the lungs, preventing a collapse of these air sacs and leading to suffocation.

Page 21: end of first paragraph in Steering the Life Cycle: "As it feeds, it sheds its "skin" every few days (an event called a molt) and grows larger in the short time before its new "skin" hardens." should read "As it feeds, it sheds its EXOSKELETON every few days (an event called a molt) and grows larger in the short time before its new EXOSKELETON hardens." (somewhat serious)

Response: We disagree. We do not believe this change is mandatory since "skin" is in quotes. Exoskeleton is the technical term. The authors have tried to avoid too much vocabulary to keep reading level down. On the other hand, exoskeletons are discussed in the book; page 392 shows a figure with a caption much like what reviewer requested.

Page 42: top sentence begun on 41: "this is evidence that all cells (and therefore all organisms) MAY have descended from a single ANCESTRAL cell." should read "this is evidence that all cells (and therefore all organisms) must have descended from a single ancestor cell." (serious)

Response: We agree since this change would avoid trouble with evolution controversy.

Page 52: top sentence: "A paramecium reserves endocytosis to ship out wastes. It encloses the wastes in a vesicle inside the cell (Figure 2.8B)" should read "AN AMOEBA reserves endocytosis to ship out wastes. It encloses the wastes in a vesicle inside the cell (Figure 2.8B)" (serious)

Response: We agree. Paramecium is not shown in Figure 2.8. The change to "amoeba" in the text is preferable to having the drawing redrawn with paramecium.

Page 69: third paragraph under Cell Division in Eukaryotes: "Each pair of chromatids is connected by their centromeres" should read "Each pair of chromatids is connected by their CENTROMERE" (typographical but could form a misconception)

Response: We concur.

Page 87: second complete paragraph: "When a molecule of glucose, the most commonly oxidized suger, breaks down completely to CO<sub>2</sub> and water, it releases enough energy to produce about 94 molecules of ATP." should read "When a molecule of glucose, the most commonly oxidized suger, breaks down completely to CO<sub>2</sub> and water, it releases enough energy to produce about 32 molecules of ATP." (serious)

Response: We concur. The actual production of ATP depends on the pathway. Pages 169-170 of Campbell's 6<sup>th</sup> edition says that ATP formation is only about 40% efficient. If the process were 100% efficient, 94 molecules of ATP would be generated. The

reviewer is correct that only about 32 molecules of ATP are produced through glycolysis, Krebs cycle, and electron transport chain. Other energy is consumed during these reactions. Maximum ATP produced according to Campbell, which we used as our deciding factor, was 36 to 38 molecules.

Page 105: 3<sup>rd</sup> sentence from bottom: "Remember that completely oxidizing a glucose molecule releases almost as much energy as breaking down 94 molecules of ATP" should read "Remember that completely oxidizing a glucose molecule releases almost as much energy as breaking down ABOUT 32 molecules of ATP" (serious)

Response: We concur. See comment above.

Page 129: last paragraph: "A cell that has pairs of chromosomes, and therefore has two genes at each location on a chromosome, is a diploid cell" should read: "A cell that has pairs of chromosomes, and therefore has AN ALLELE OF A GENE at each location on EACH chromosome, is a diploid cell" (serious)

Response: We concur.

Page 142: Figure 4:15 caption: "During meiosis I metaphase homologous chromosomes may exchange portions of their chromosomes in a process called crossing over" should read "During meiosis I PROPHASE homologous chromosomes may exchange portions AT THEIR TIPS in a process called crossing over" (serious)

Response: We concur.

Page 170: Activity 5-4 and Table 5.1: the "START" codon is not identified (Met in first column) as are the 3 "Stop" codons, even though the "Start" codon is referred to in the activity (serious)

Response: We disagree with the need to change the text. Both the reviewer and the text are correct: our table is correct as is, but as the reviewer pointed out we do mention Start codons in the activity. In eukaryotes, the Start codon is AUG, which also codes for the amino acid Methionine (MET). In bacteria the start codon can be AUG or GUG, which can also code for Valine (VAL). The Stop codons do not code for anything except STOP or terminate sequence. We probably need a footnote to the chart that provides the start codon information.

Page 195: top sentence: "More than two million species live on Earth". should read "More than two million OF EARTH'S SPECIES HAVE BEEN NAMED BY TAXONOMISTS OF THE 6-8 MILLION THAT ARE BELIEVED TO LIVE ON OUR PLANET." (serious)

Response: The statement in the book is true. The reviewer points out that we haven't discovered them all yet and is also true. The GBIF (Global Biodiversity Information Facility) says "Of the estimated \_\_\_8-10\_\_\_\_\_ million species living today, only\_\_\_1.8\_\_\_\_\_ million have been identified and named by taxonomists." Other estimates for the number of species living reach as high as 100 million species.

Page 198: second complete sentence: "An explanation of natural selection was first published in 1858 by Charles Darwin (Figure 6.3) and his cousin Alfred Wallace". should read "An explanation of natural selection was first published in 1858 by Charles Darwin (Figure 6.3) and ANOTHER BRITISH NATURALIST Alfred Wallace". (egregious???)  
DARWIN MARRIED HIS COUSIN, EMMA WEDGEWOOD BUT ALFRED WALLACE WAS DEFINITELY NOT HIS COUSIN!!)

Response: We agree.

Page 199: caption below dog photograph: "Variety among dogs, as shown here, helps the species to survive"

Response: We agree. Either the caption should be changed or the photo should be replaced with a different picture of wild animals.

Page 205: last paragraph: "He was surprised to discover more than a dozen types of finches (Figure 6.7)". should read "He was surprised to LATER discover THAT THERE WERE more than a dozen types of finches (Figure 6.7)". (serious?)

Response: We agree.

Page 208: last paragraph and corresponding Figure 6.10: (IT IS MY UNDERSTANDING THAT THIS HORSE SEQUENCE HAS BEEN DISCREDITED IN RECENT YEARS AND THAT MAJOR NATURAL HISTORY MUSEUMS HAVE EVEN REMOVED THEIR DISPLAYS OF IT) (serious)

Response: We disagree. We reference Campbell 6<sup>th</sup> edition, pages 480-481, which includes this horse sequence reference.

Page 226: third sentence: "The Kingdoms, in turn, are all descended from an original cell" should read "The Kingdoms, in turn, are believed to have descended from ONE TO SEVERAL ORIGINAL CELL LINES". (serious)

Response: We disagree. Most sources say from one ancestor. We have not found a source for multiple ancestors anywhere.

Page 265: Figure 7.26 caption: "(D) Bacterial arthritis, characterized by a rash that develops during Lyme disease" should read "ERYTHEMA MIGRANS RASH THAT OFTEN DEVELOPS DURING LYME DISEASE". (serious)

Response: The rash is properly called Erythema Migrans, but that adds a few syllables to the reading level calculation. The caption should probably not say Bacterial arthritis, characterized by... because the photograph only shows the rash and there is nothing to indicate that the person has arthritis. Also the rash usually appears before the arthritis symptoms. It would be most correct to say "Characteristic rash (or 'Characteristic Erythema Migrans rash') that develops during Lyme disease."

Page 285: Table 8.1, first column: the terms "Zoomastigophora" and "Rhizopoda" should both be replaced by "SARCOMASTIGOPHORA". (serious)

Response: Undecided. We will contact reviewer for further discussion, to ask what system he uses, and to evaluate the credibility of the source. Our book is correct according to 4<sup>th</sup> edition of Campbell. Campbell 6<sup>th</sup> edition further confuses the issue. It has moved to a 3 domain possible, 18 kingdom system, none of which includes sarcomastigophora; the rhizopoda are listed under the heading protists of less taxonomic

affinities. The proposed kingdom euglonozea includes a phylum kinetoplastida which uses as an example the trypanosomes that we had under xoopastigophora, a term that no longer appears under Campbell.

Page 288: last sentence: "Ocean-living phytoplankton capture more than 70% of all the carbon taken up by the Earth's phototrophs". should read "Ocean-living phytoplankton capture more than 70% of all the carbon taken up by the Earth's AUTOTROPHS". (serious)

Response: We disagree. Scott Foresman's Biology Web of Life, page 365, says "In addition to serving as a food source in aquatic environments, phytoplankton carry out more than 70% of Earth's photosynthesis. Photosynthesis is carried out by phototrophs."

Page 297: Figure 8.14 photo: WHILE THIS INSECT, THE WHEEL BUG (ARILUS CRISTATUS) IS IN THE KISSING/CONE-NOSED BUG FAMILY, IT DOES NOT CARRY THE CAUSATIVE AGENT OF CHAGAS' DISEASE; RECOMMEND THAT A PHOTO OF A SOUTH AMERICAN SPECIES LIKE RHODNIUS PROLIXUS BE SUBSTITUTED) (serious)

Response: We agree. The picture should be changed.

Page 297: last paragraph: "If amebas penetrate the intestinal wall, they can cause dysentery..." should read "AMEBAS IN THE GENUS ENTAMEBA can cause dysentery... IF ENOUGH AMEBAS PENETRATE THE INTESTINAL WALL, DEATH CAN RESULT". (serious)

Response: We disagree. From our sources, we don't find anything wrong with our statement. We have several websites bookmarked.

Page 299: Figure 8:17 (B) photo: (THE ORGANISM SHOWN IS ACTUALLY A NEMATODE, DEFINITELY NOT A MOTILE FORM OF PLASMODIUM!!) (egregious??)

Response: We concur.

Page 353: Figure 10.5 caption and sentence in paragraph to right of it: "EXIT COCOONS OF tiny parasitic wasps ON a crop-destroying caterpillar" should read "Tiny parasitic wasps attack a crop-destroying caterpillar". ALSO: "For example, studies have revealed that some tiny wasps lay their eggs on large caterpillars". should read "For example, studies have revealed that some tiny wasps lay their eggs INSIDE large caterpillars". (serious)

Response: We concur.

Page 370: Table 10.2: (SPIDER PHOTO IN ROW 7 IS UPSIDE DOWN) (typographical?)

Response: We disagree. We see no problem with showing the underside of the spider as seen through its web.

Page 373: second paragraph: "Pinworms and hookworms in soil burrow into the skin of people who go barefoot outdoors" should read " HOOKWORMS in soil burrow into the skin of people who go barefoot outdoors". (NO PINWORMS BURROW INTO HUMAN SKIN) (serious)

Response: We concur.

Page 377: characteristic 2: "The central nervous system (brain and spinal cord) is tubular". should read "The central nervous system (brain and spinal cord) is DORSAL AND tubular". (serious)

Response: According to our sources, the position does seem to be part of the defining characteristic.

Page 378: Table 10.3: (SECOND COLUMN BLANK SHOULD BE REPLACED BY "CARTILAGENOUS FISH". (serious)

Response: We concur.

Page 385: last summary bullet: (THE MOLLUSCA ARE WITHOUT DOUBT THE SECOND LARGEST PHYLUM WHILE THE CHORDATA IS ONE OF THE SMALLEST IN SPECIES DIVERSITY; THEIR POINT ABOUT ARTHROPODA AND CHORDATA BEING SUCCESSFUL ON LAND IS VALID BUT SHOULD BE STATED DIFFERENTLY (egregious?)

Response: We concur. This will also call for a change on page 377's second sentence that says "The vertebrates and the arthropods together make up the majority of all animals."

Page 393: first paragraph under How Muscles work: "A muscle fiber is a highly specialized cell filled with filaments of protein". should read "A muscle fiber is a highly specialized STRUCTURE FORMED BY A FUSION OF SEVERAL EMBRYONIC CELLS AND filled with filaments of protein". (serious)

Response: We disagree. We do not believe that what the book states is wrong. While it is true that muscle cells are formed from the fusion of several embryonic cells, our book just doesn't go into how muscle fibre is formed.

Page 412: Musculoskeletal Injury and Disease title: change to "SKELETAL Injury and Disease" since no muscle injuries are discussed. (typographical)

Response: We concur.

Page 433: Figure 12.6A illustration and accompanying text: "In a fish, (Figure 12.6A) the heart has two chambers: an atrium (plural atria) that collects the oxygen-poor blood and a ventricle that pumps this blood to the gills." should read "In a fish, (Figure 12.6A) the heart has four inline chambers: a SINUS VENOSUS and an atrium (plural atria) that collect the oxygen-poor blood and a ventricle and TRUNCUS ARTERIOSUS that pump this blood to the gills." (serious)

Response: We disagree. Campbell 6<sup>th</sup> Edition p 874 says fishes have a two-chambered heart. Elsewhere on the page it says a fish has a heart with two main chambers. No mention is made of the Sinus Venosus or the Truncus Arteriosus.

Page 437: last sentence and lack of lower arrows in Figure 12.9: "The electrical impulse then flows to the ventricles..." should read "The electrical impulse then flows THROUGH THE INTERVENTRICULAR SEPTUM to the ventricles..." (serious)

Response: We disagree. The text simply did not specify a route for the impulse flow.

Page 438: First paragraph: "The most popular one was developed by the Greek physician Claudius Galen." should read "The most popular one was developed by the Greek

physician GALEN."(NO HISTORY OF BIOLOGY TEXT REFERS TO HIM AS CLAUDIUS) (serious)

Response: We disagree. Most texts only call him Galen in the same way that texts call Aristotle or Plato only by one name. We do not see the problem with giving him his full name.

Page 439: third paragraph: (SEMILUNAR VALVES ARE MENTIONED HERE BUT NOT DESCRIBED OR ILLUSTRATED ANYWHERE ELSE) (serious)

Response: We disagree. In the Teacher's Resource Book Blackline master 12.2 the semilunar valve is illustrated. We will need to do further checking, but we think the valves have another name and in medical texts there may be other terminology. We are unsure which is more current.

Page 451: first paragraph: "Like a washing machine, a kidney receives "dirty" blood, cleans it, pumps out the waste water, and sends the clean blood on its way." should read "Like a washing machine, a kidney receives "dirty" blood, cleans it AS BEST IT CAN, pumps out the waste water, and sends the CLEANER blood on its way." (serious)

Response: We disagree. We are using the washing machine as an analogy. Washing machines do not get things perfectly clean either.

Page 478: first paragraph and top of page 494: (CHANGE "gallbladder" to "GALL BLADDER") (typographical)

Response: We disagree. Campbell spells it as one word as does Webster's Collegiate dictionary.

Page 522: second paragraph: (CHANGE "hormonelike" to "HORMONE-LIKE") (typographical)

Response: We disagree. The Gregg reference manual states that a hyphen is not used before a suffix. An online reference dictionary confirms this.

Page 541: caption below brown recluse spider photo: (CHANGE "back" to "CEPHALOTHORAX") (typographical)

Response: We disagree. "Back" is in quotes. The use of a one-syllable, four-letter word in place of a five-syllable, thirteen-letter word was deliberate.

Page 541: last paragraph: "...the 30 foot tapeworm that lives in humans' intestine." should read "...the 15 foot tapeworm that lives in humans' intestine." (serious)

Response: We disagree. We have a variety of sources that give lengths longer than 15 feet for the species *Taenia saginata*. 4-12 meters is given in the Canadian MSDS sheets.

Page 549: Figure 15.6 caption: "These two red blood cells ..." should read "These RED BLOOD CELLS..." (serious)

Response: We concur.

Page 590: second sentence under Multiple Births: "Identical twins occur when the fertilized egg begins to divide and the first two cells separate from each other". should read "Identical twins occur when the fertilized egg begins to divide and the DIVIDING MASS OF CELLS SEPARATES INTO TWO CLUMPS" (serious)

Response: We disagree. The division could come anywhere during the first few divisions. The Learning Channel article phrases it "Identical twins occur when one fertilized

egg splits in half after conception, creating twins that are essentially two halves of the same whole.....**Mirror Image Twins** This extremely rare form of identical twins is believed to be the result of the embryo splitting later than in the case of most identical twins."

Page 591: third paragraph: (MUST QUESTION WHY CRAB LICE ARE PRESENTED AS A STD WHEN THEY ARE NOT A DISEASE BUT RATHER AN ECTOPARASITE) (serious)

Response: We disagree. While it is true that it is not a disease and is an ectoparasite, in popular practice and information provided to the public it is included on the list of STDs. Pfizer website is an example. JAMA website also includes them with STD information.

Page 613: Figure 17.4 photo: (SHOULD REPLACE THIS HONEY BEE PHOTO WITH ONE OF A MALE BUMBLE BEE AS THE CAPTION DESCRIBES) (serious)

Response: We concur.

Page A-5: Appendix C: Theory: (WHILE RARELY A SINGLE HYPOTHESIS CAN BECOME A THEORY, THEORIES MOST OFTEN CONTAIN SEVERAL WELL-CONFIRMED HYPOTHESES (serious)

Response: We disagree. While the reviewer's text is more accurate, the current text is not incorrect.

Page A-8: Appendix E: Classification of Organisms: (UNDER KINGDOM PROTISTA REPLACE "Mastigophora" with "SARCOMASTIGOPHORA" AND ADD TO : "flagella" "OR PSEUDOPODIA". (serious)

Response: Please see response to comment on page 285.

Page A-10: Appendix E: Classification of Organisms: (REPLACE "Nemata" with "NEMATODA" AND CHANGE "Class Crustacea" to "SUBPHYLUM CRUSTACEA". (typographical)

Response: Please see response to comment on page 285.

Page A-11: A-10: Appendix E: Classification of Organisms: (REPLACE "Order Primata" with "ORDER PRIMATES" (typographical)

Response: Please see response to comment on page 285.