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| http://images.magnetmail.net/images/template/acs/gold.gif In This Edition  |  | | --- | | [Pig stomach mucins are effective as anti-viral agents for consumer products](#1)  [A new “Achilles’ heel” in fungus that causes dandruff](#ARTICLE_2)  [Beyond stain-resistant: New fabric coating actively shrugs off gunk](#3)  [Shift to green energy sources could mean crunch in supply of scarce metals](#4)  [Chronicling pink slime’s fall from grace](#5) |  |  | | --- | | [**Journalists’ Resources:**  Press releases, briefings and more from ACS’ 243rd National Meeting Inside Science News Service](#Resources)  [C&EN Video Spotlight: Chemical Reactors Made By 3-D Printing](#VideoSpotlight)  [Must-reads from C&EN: Biobased bottles for soda pop, shampoo and more](#mustread)  [ACS Pressroom Blog](#pressroomblog)   [Bytesize ScienceBlog](#bytesizeblog)  [ACS Satellite Pressroom: Daily news blasts on Twitter](#twitter) [C&EN on Twitter](#CENTwitter)  [ACS Press Releases](#releases) |  |  | | --- | | [**ACS Videos:**](#Videos)[Spellbound: A video series on how kids became scientists](#Spellbound)  [Prized Science video series](#Dance)  [First Living, Dancing Periodic Table of the Elements](#Mars)  [A Day Without Chemistry](#daywithoutchemistry)   [The Chemistry of Sourdough Bread](#sourdough)  [The Chemistry of Fireworks](#fireworks)  [The Chemistry of Grilling and Barbecuing](#barbecue) |  |  | | --- | | [**ACS Podcasts:**](#podcasts)     [Bytesize Science: A podcast for young listeners](#globalchallenges)  [Global Challenges/Chemistry Solutions](#Bytesizescience)    [Science Elements: From the PressPac](#Scienceelements)   [*SciFinder®* Podcasts](#scifinder) |  |  | | --- | | [**And Don't Miss:**](#dontmiss)  [Chemistry Glossary](#glossary)  [Chemical Abstracts Service (CAS) Web site on everyday chemicals](#CAS) |   [PressPac Archives](http://www.mmsend88.com/link.cfm?r=800557068&sid=18554852&m=1897737&u=ACS&j=10013750&s=http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_PRESSPACS&node_id=223&use_sec=false&sec_url_var=region1&__uuid=a0c923e3-c385-4d96-bdc8-eadaa07eb02f) | **ACS NEWS SERVICE Weekly Press Package - April 25, 2012   ALL CONTENT IS FOR IMMEDIATE RELEASE  Please credit the individual journal or the American Chemical Society as the source for this information.**  Here is the latest American Chemical Society (ACS) Weekly PressPac from the Office of Public Affairs. It has news from ACS’ more than 40 peer-reviewed journals and Chemical & Engineering News.  Science Inquiries: Michael Woods, editor [m\_woods@acs.org](mailto:m_woods@acs.org) 202-872-6293  General Inquiries: Michael Bernstein [m\_bernstein@acs.org](mailto:m_bernstein@acs.org)  202-872-6042  ARTICLE #1 **FOR IMMEDIATE RELEASE**  **Pig stomach mucins are effective as anti-viral agents for consumer products** Biomacromolecules   |  | | --- | | http://images.magnetmail.net/images/clients/ACS/042512PigIstock_thumb.jpg Pig stomach mucins are effective as anti-viral agents for consumer products Credit: iStock |   Scientists are reporting that the mucus lining the stomachs of pigs could be a long-sought, abundant source of “mucins” being considered for use as broad-spectrum anti-viral agents to supplement baby formula and for use in personal hygiene and other consumer products to protect against a range of viral infections. Their study appears in ACS’ journal Biomacromolecules.  In the report, Katharina Ribbeck and colleagues point out that mucus, which coats the inside of the nose, mouth and vagina, is the immune system’s first line of defense. The slimy secretion traps disease-causing microbes, ranging from influenza virus to HIV (which causes AIDS) before they can cause infection. That has led to consideration of mucin, the main component of mucus, for use as an anti-viral agent in a variety of products. However, existing sources of mucins, such as breast milk, cannot provide industrial-sized quantities. Large amounts of mucus exist in the lining of pigs’ stomachs, and the authors set out to determine if pig mucus — already used as a component of artificial saliva to treat patients with “dry mouth,” or xerostomia — has the same anti-viral activity.  They found that pig mucus is effective at blocking a range of viruses, from strains of influenza to the human papilloma virus, which is associated with cervical and oral cancer. They report that pig mucins could be added to toothpastes, mouthwashes, wound ointments and genital lubricants to protect against viral infections. “We envision porcine gastric mucins to be promising antiviral components for future biomedical applications,” the report says.  The authors acknowledge the [National Institutes of Health](http://www.mmsend88.com/link.cfm?r=800557068&sid=18554853&m=1897737&u=ACS&j=10013750&s=http://www.nih.gov/) and the [German Academic Exchange Service (DAAD)](http://www.mmsend88.com/link.cfm?r=800557068&sid=18554854&m=1897737&u=ACS&j=10013750&s=http://www.daad.org/).   |  | | --- | | http://images.magnetmail.net/images/clients/ACS/042512Biomac_thumb.jpg [Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=18554855&m=1897737&u=ACS&j=10013750&s=http://web.1.c2.audiovideoweb.com/1c2web3536/042512biomac.jpg) for high-resolution image |   ARTICLE #1 **FOR IMMEDIATE RELEASE** “Mucin Biopolymers as Broad-Spectrum Antiviral Agents”  [DOWNLOAD FULL TEXT ARTICLE](http://www.mmsend88.com/link.cfm?r=800557068&sid=18554856&m=1897737&u=ACS&j=10013750&s=http://pubs.acs.org/stoken/presspac/presspac/abs/10.1021/bm3001292)   CONTACT: Katharina Ribbeck, Ph.D. Massachusetts Institute of Technology Cambridge, Mass. 02139 Email: [ribbeck@mit.edu](mailto:ribbeck@mit.edu)    [To Top](#top)  http://images.magnetmail.net/images/clients/ACS/goldline.gif  ARTICLE #2 **FOR IMMEDIATE RELEASE**  **A new “Achilles’ heel” in fungus that causes dandruff** Journal of Medicinal Chemistry   |  | | --- | | http://images.magnetmail.net/images/clients/ACS/042512DandruffIstock_thumb(1).jpg A new “Achilles’ heel” in fungus that causes dandruff Credit: iStock |   Research on the fungus that ranks as one cause of dandruff — the embarrassing nuisance that, by some accounts, afflicts half of humanity — is pointing scientists toward a much-needed new treatment for the condition’s flaking and itching. The advance is the topic of a report in ACS’ Journal of Medicinal Chemistry.  Claudiu T. Supuran and colleagues explain that dandruff involves an excessive shedding of dead skin cells from the scalp. In people without dandruff, it takes about 30 days for a crop of new skin cells to mature, die and shed. In people with dandruff, it may take only 2-7 days. Irritation by the scalp-dwelling fungus Malassezia globosa (M. globosa) is one cause of dandruff. Shampoos and other dandruff treatments contain anti-fungal agents, but the authors say new medicines are badly needed since the two existing compounds are not very effective at preventing and treating dandruff.  In the quest for a better treatment, Supuran’s group identified an enzyme in M. globosa that is essential for the fungus’s growth. Tests showed that sulfonamides, a family of existing antibiotic medicines, were more effective in preventing the fungus’s growth than ketoconazole, a widely used anti-fungal medicine that is an ingredient in certain dandruff treatments. As a result of the study, the scientists believe that the enzyme is a prime target for developing better anti-dandruff medicines.   |  | | --- | | http://images.magnetmail.net/images/clients/ACS/042512JMedChem_thumb.jpg [Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=18554857&m=1897737&u=ACS&j=10013750&s=http://web.1.c2.audiovideoweb.com/1c2web3536/042512jmedchem.jpg) for high-resolution image |   ARTICLE #2 **FOR IMMEDIATE RELEASE** “Molecular Cloning, Characterization and Inhibition Studies of a β-Carbonic Anhydrase from Malassezia globosa, a Potential Antidandruff Target”  [DOWNLOAD FULL TEXT ARTICLE](http://www.mmsend88.com/link.cfm?r=800557068&sid=18554858&m=1897737&u=ACS&j=10013750&s=http://pubs.acs.org/stoken/presspac/presspac/full/10.1021/jm300203r) CONTACT: Claudiu T. Supuran, Ph.D. Università degli Studi di Firenze Firenze, Italy, I-50019 Phone: +39-055-457-3005 Fax: +39-055-457-3385 Email: [claudiu.supuran@unifi.it](mailto:claudiu.supuran@unifi.it)  [To Top](#top)  http://images.magnetmail.net/images/clients/ACS/goldline.gif  ARTICLE #3 **FOR IMMEDIATE RELEASE  Beyond stain-resistant: New fabric coating actively shrugs off gunk** Langmuir   |  | | --- | | http://images.magnetmail.net/images/clients/ACS/042512StainIstock_thumb.jpg Beyond stain-resistant: New fabric coating actively shrugs off gunk Credit: iStock |   Scientists are reporting development and successful testing of a fabric coating that would give new meaning to the phrase “stain-resistant” — a coating that would take an active role in sloughing off grease, dirt, strong acids and other gunk. The report, which shows that the coating is even more water-repellent than car wax or Teflon, appears in ACS’ journal Langmuir.  Tong Lin and colleagues explain that a method called “layer-by-layer” (LbL) self-assembly produces films and coatings for sensors, drug-delivery devices and many other products. LbL involves setting down alternate layers of positively and negatively charged materials that are held together by electric charges. With this approach, coatings can be custom-designed for specific applications by selecting the composition of each layer. The downside: These multilayer films are not very stable and eventually come apart. Lin and colleagues wanted to develop a way to stabilize those layers with UV light to form a “superhydrophobic” coating, one that uses natural surface forces to highly repel water and other materials.  Laboratory tests showed that the new coating, applied to cotton fabric, repelled water, acids, bases and organic solvents. The coating also was durable, remaining intact on the cotton fabric after 50 trips through a home washing machine. When the researchers applied several layers of the coating on the fabric, the contact angle (a measure of water-repellence) was about 154 degrees, making it even more repellent than car wax (90-degree contact angle), Teflon (95-degree contact angle) or products that repel rainwater from car windshields (110-degree contact angle).   |  | | --- | | http://images.magnetmail.net/images/clients/ACS/042512Langmuir_thumb.jpg [Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=18554860&m=1897737&u=ACS&j=10013750&s=http://web.1.c2.audiovideoweb.com/1c2web3536/042512langmuir.jpg) for high-resolution image |   ARTICLE #3 **FOR IMMEDIATE RELEASE** “Photoreactive Azido-Containing Silica Nanoparticle/Polycation Multilayers: Durable Superhydrophobic Coating on Cotton Fibers”  [DOWNLOAD FULL TEXT ARTICLE](http://www.mmsend88.com/link.cfm?r=800557068&sid=18554861&m=1897737&u=ACS&j=10013750&s=http://pubs.acs.org/stoken/presspac/presspac/full/10.1021/la300281q)  CONTACT: Tong Lin, Ph.D.  Associate Director for the Australian Future Fibres Research and Innovation Centre Deakin University Geelong, VIC 3217 Australia Phone: +61-3-5227-1245 Email: [tong.lin@deakin.edu.au](mailto:tong.lin@deakin.edu.au)    [To Top](#top)  http://images.magnetmail.net/images/clients/ACS/goldline.gif    ARTICLE #4 **FOR IMMEDIATE RELEASE: A PressPac Instant Replay\***  **Shift to green energy sources could mean crunch in supply of scarce metals** Environmental Science & Technology   |  | | --- | | http://images.magnetmail.net/images/clients/ACS/042512TurbinesIstock_thumb.jpg Shift to green energy sources could mean crunch in supply of scarce metals Credit: iStock |   A large-scale shift from coal-fired electric power plants and gasoline-fueled cars to wind turbines and electric vehicles could increase demand for two already-scarce metals — available almost exclusively in China — by 600-2,600 percent over the next 25 years, a new study has concluded. Published in the ACS journal Environmental Science & Technology, it points out that production of the two metals has been increasing by only a few percentage points per year.  Randolph E. Kirchain, Ph.D., and colleagues explain that there has been long-standing concern about a secure supply of the so-called rare earth elements, 17 elements adjacent on the periodic table of elements. These metals are used to make airplane components and lasers for medical imaging. Two of the rare earths, dysprosium and neodymium, are critical for current technologies for manufacturing wind turbines that generate electricity and electric vehicles. Those green technologies, Kirchain notes, would be essential in carrying out a proposed stabilization in atmospheric levels of carbon dioxide, the main greenhouse gas, at 450 parts per million. Kirchain’s team analyzed the supply of lanthanum, cerium, praseodymium, neodymium, samarium, europium, gadolinium, terbium, dysprosium and yttrium under various scenarios.  They projected the demand for these 10 rare earth elements through 2035. In one scenario, demand for dysprosium and neodymium could be higher than 2,600 and 700 percent respectively. To meet that need, production of dysprosium would have to grow each year at nearly twice the historic growth rate for rare earth supplies. “Although the RE [rare earth] supply base has demonstrated an impressive ability to expand over recent history, even the RE industry may struggle to keep up with that pace of demand growth,” the authors said. But they also point out that shortfalls in future supply could be mitigated “through materials substitution, improved efficiency, and the increased reuse, recycling, and use of scrap.”   |  | | --- | | http://images.magnetmail.net/images/clients/ACS/042512EST_thumb.jpg [Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=18554862&m=1897737&u=ACS&j=10013750&s=http://web.1.c2.audiovideoweb.com/1c2web3536/042512est.jpg) for high-resolution image |   ARTICLE #4 **FOR IMMEDIATE RELEASE** “Evaluating Rare Earth Element Availability: A Case with Revolutionary Demand from Clean Technologies”  [DOWNLOAD FULL TEXT ARTICLE](http://www.mmsend88.com/link.cfm?r=800557068&sid=18554863&m=1897737&u=ACS&j=10013750&s=http://pubs.acs.org/stoken/presspac/presspac/abs/10.1021/es203518d)  CONTACT: Randolph E. Kirchain, Ph.D. Massachusetts Institute of Technology Cambridge, Mass., 02139 Phone: 617-253-4258 Fax: 617-258-7471 E-mail: [kirchain@mit.edu](mailto:kirchain@mit.edu)  **\* A previous PressPac item that you may have missed**     [To Top](#top)  http://images.magnetmail.net/images/clients/ACS/goldline.gif  ARTICLE #5 **FOR IMMEDIATE RELEASE**  **Chronicling pink slime’s fall from grace** Chemical & Engineering News   |  | | --- | | http://images.magnetmail.net/images/clients/ACS/042512CEN_thumb.jpg [Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=18554864&m=1897737&u=ACS&j=10013750&s=http://web.1.c2.audiovideoweb.com/1c2web3536/042512cen.jpg) for high-resolution image. |   The process for producing what has become known as “pink slime” actually seemed like a triumph of technology in an industry haunted by the specter of food poisoning and, at one point, even got rave reviews in the news media, according to an article in the current issue of Chemical & Engineering News. C&EN is the weekly newsmagazine of the American Chemical Society, the world’s largest scientific society.  In the article, Carmen Drahl, C&EN associate editor, points out that lean finely textured beef’s fall from grace is a case study in what can happen when consumers interested in making informed choices about their food clash with a company that lacks transparency about a mysterious-sounding process. The article explains that South Dakota-based Beef Products, Inc., makes lean finely textured beef (LFTB) from pieces of meat left over after butchering a cow for roasts and steaks. These irregular bits are heated to remove the fatty part of the meat, then exposed to a puff of ammonia gas to kill any remaining bacteria. The LFTB is blended with other trimmings to make ground beef, and Drahl notes that the ammonia content of the final product is lower than the amount in salami or bleu cheese.  Drahl explains, however, that popular opinion has turned against LFTB. A former scientist from the U.S. Department of Agriculture coined the term “pink slime,” and public revulsion grew. The article quotes food-safety attorney Sarah Klein, who explains that while there is no evidence the process is dangerous to consumers, safety is just one of the influences on customer choices. Klein adds: “The industry could do a better job of educating consumers about the benefits of not wasting parts of an animal, to avoid the public outcry that happens when people feel they’ve been misled.”  ARTICLE #5 **FOR IMMEDIATE RELEASE** "Pink Slime"  This story is available at: [http://cenm.ag/slime](http://www.mmsend88.com/link.cfm?r=800557068&sid=18571485&m=1897737&u=ACS&j=10013750&s=http://cenm.ag/slime)    [To Top](#top)  http://images.magnetmail.net/images/clients/ACS/goldline.gif    **Journalists’ Resources**  **Press releases, briefings and more from ACS’ 243rd National Meeting** [www.eurekalert.org/acsmeet.php](http://www.mmsend88.com/link.cfm?r=800557068&sid=18554866&m=1897737&u=ACS&j=10013750&s=http://www.eurekalert.org/acsmeet.php)  [http://www.ustream.tv/channel/acslive](http://www.mmsend88.com/link.cfm?r=800557068&sid=18554867&m=1897737&u=ACS&j=10013750&s=http://www.ustream.tv/channel/acslive%20) **Inside Science News Service** For thoroughly enjoyable multimedia coverage of the science behind the news — a valuable resource for journalists and news media organizations everywhere. [Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=18554868&m=1897737&u=ACS&j=10013750&s=http://www.insidescience.org/) to visit the Inside Science News website.  **C&EN Video Spotlight: Chemical Reactors Made By 3-D Printing** An international team of researchers led by Leroy Cronin of the University of Glasgow has applied the up-and-coming technology of 3-D printing to chemical synthesis. The researchers built their own printer and used it to fabricate customized vessels for all manner of chemical reactions. In some cases, the reactors even participate in the reaction. This work is intended to make expensive chemical engineering tools available to everyone, the researchers say.  [Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=18554869&m=1897737&u=ACS&j=10013750&s=http://cen.acs.org/media/video/2012/03/cen-09016-notw4-video-vid3.html) to view the video.  **Must-reads from C&EN: Biobased bottles for soda pop, shampoo and more** Major producers of beverages and other consumer products are eager to switch to bottles made with plant-based ingredients, rather than traditional petrochemicals, as part of their sustainability efforts. For an update on the progress, contact Michael Bernstein at [m\_bernstein@acs.org](mailto:m_bernstein@acs.org).  **ACS Pressroom Blog** The ACS Office of Public Affairs' [pressroom blog](http://www.mmsend88.com/link.cfm?r=800557068&sid=18554870&m=1897737&u=ACS&j=10013750&s=http://www.acspressblog.com) highlights research from ACS’ more than 40 peer-reviewed journals and National Meetings.  **Bytesize Science Blog**  Educators and kids, put on your thinking caps: The American Chemical Society has [a blog for Bytesize Science](http://www.mmsend88.com/link.cfm?r=800557068&sid=18554871&m=1897737&u=ACS&j=10013750&s=http://www.bytesizescience.com), a science podcast for kids of all ages.  **ACS Satellite Pressroom: Daily news blasts on Twitter** The satellite press room has become one of the most popular science news sites on Twitter. To get our news blasts and updates, create a free account at [https://twitter.com/signup](http://www.mmsend88.com/link.cfm?r=800557068&sid=18554872&m=1897737&u=ACS&j=10013750&s=https://twitter.com/signup). Then visit [http://twitter.com/ACSpressroom](http://www.mmsend88.com/link.cfm?r=800557068&sid=18554873&m=1897737&u=ACS&j=10013750&s=http://twitter.com/ACSpressroom) and click the ‘join’ button beneath the press room logo.   **C&EN on Twitter** Follow @cenmag <[http://twitter.com/cenmag](http://www.mmsend88.com/link.cfm?r=800557068&sid=18554874&m=1897737&u=ACS&j=10013750&s=http://twitter.com/cenmag)> for the latest news in chemistry and dispatches from C&EN's blog, CENtral Science <[http://centralscience.org](http://www.mmsend88.com/link.cfm?r=800557068&sid=18554875&m=1897737&u=ACS&j=10013750&s=http://centralscience.org)>.**ACS Press Releases**  [Press releases](http://www.mmsend88.com/link.cfm?r=800557068&sid=18554876&m=1897737&u=ACS&j=10013750&s=http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_NEWSRELEASES&node_id=222&use_sec=false&sec_url_var=region1&__uuid=50b5ab93-801d-4d0d-868f-b9507ff9d709) on a variety of chemistry-related topics.  [To Top](#top)  http://images.magnetmail.net/images/clients/acs/goldline.gif  **ACS Videos**  The American Chemical Society encourages news organizations, museums, educational organizations and other web sites to embed links to these videos.  **Spellbound: How Kids Became Scientists**   |  | | --- | | http://images.magnetmail.net/images/clients/ACS/Spellbound3.jpg |   The road to a Nobel Prize began for one scientist in elementary school when his father placed a sign on his bedroom door proclaiming him to be a “doctor.” This is just one of the many experiences that helped launch the careers of scientists from diverse backgrounds who are featured in a new ACS video series called [Spellbound: How Kids Became Scientists](http://www.mmsend88.com/link.cfm?r=800557068&sid=18554877&m=1897737&u=ACS&j=10013750&s=http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_ARTICLEMAIN&node_id=1355&content_id=CNBP_028033&use_sec=true&sec_url_var=region1&__uuid=e8e6ee76-0abe-4e78-84c4-3717c995c65e).  **Prized Science video series**   |  | | --- | | http://images.magnetmail.net/images/clients/ACS/PrizedScienceCraiksmall.jpg |   Prized Science: How the Science Behind ACS Awards Impacts Your Life video series is new for 2011! In the first episode, see how Ahmed Zewail, Ph.D., developed a technology that's paving the way for new medicines, new fuels and new materials that will give people longer, healthier, happier lives. Zewail is the winner of the 2011 Priestley Medal. The second episode features the work of David Craik, Ph.D., who made advances toward new drugs for treating health problems that affect millions of people around the world, including antibiotic-resistant bacteria and AIDS. Craik is the winner of the ACS 2011 Ralph F. Hirschmann Award in Peptide Chemistry, sponsored by Merck Research Laboratories. More episodes will appear later in the year. The series is available at the [Prized Science](http://www.mmsend88.com/link.cfm?r=800557068&sid=18554878&m=1897737&u=ACS&j=10013750&s=http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_ARTICLEMAIN&node_id=446&content_id=CTD1_018821&use_sec=true&sec_url_var=region1&__uuid=594bce97-0b05-4df7-b759-1a0f9156c5d8) website and on [DVD](mailto:m_bernstein@acs.org).  **First Living, Dancing Periodic Table of the Elements**   |  | | --- | | http://images.magnetmail.net/images/clients/ACS/Chemists.jpg |   That famous chart displaying the chemical elements that make up everything on Earth — a fixture on the walls of classrooms and labs — literally comes alive in this new video from the American Chemical Society (ACS). [Chemists Can Dance!](http://www.mmsend88.com/link.cfm?r=800557068&sid=18554879&m=1897737&u=ACS&j=10013750&s=http://bytesizescience.com/index.cfm/2011/3/29/The-Chemistry-Dance) features scores of chemists wearing symbols representing the elements, kicking up their heels to the tune of an original rap song. It's all part of ACS' celebration of the International Year of Chemistry. Check out the fun and share the link.  **A Day Without Chemistry**  Imagine a day without cars, electric lights, TV, telephones, safe food and water, medicine, clothing, your house and thousands of other familiar objects that make up modern society. Do it, and you are imagining a day in a world without chemistry. ACS explores that thought-provoking premise in a new high-definition video released as part of the celebration of the International Year of Chemistry. [A Day Without Chemistry](http://www.mmsend88.com/link.cfm?r=800557068&sid=18554880&m=1897737&u=ACS&j=10013750&s=http://www.youtube.com/watch?v=AbfW_CMMe48) follows a person who sees more and more everyday necessities and conveniences disappear before his widening eyes. 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