

the mandibles

the mandibles are an essential anatomical feature found in a wide range of species, from humans to insects. In this comprehensive guide, we will explore the structure, function, and significance of the mandibles across different organisms. You'll discover how mandibles contribute to feeding, defense, and communication, and why they are critical for survival in many animal groups. We'll also examine common disorders related to the human mandible, evolutionary perspectives, and fascinating facts about mandibles in nature. Whether you're a student, enthusiast, or professional, this SEO-optimized article covers all aspects of the mandibles, ensuring you gain a thorough understanding of their biology, diversity, and importance. Continue reading for a deep dive into the world of mandibles and discover what makes them such a remarkable feature in both animal and human anatomy.

- Understanding the Mandibles: Definition and Overview
- Anatomy of the Mandible in Humans
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Understanding the Mandibles: Definition and Overview

The mandibles are crucial jaw structures present in many organisms. In humans and other vertebrates, the mandible refers to the lower jawbone, which plays a vital role in chewing, speaking, and facial structure. In insects, mandibles are paired appendages that serve as mouthparts for grasping and cutting food, as well as for defense. The term "mandibles" is derived from Latin, meaning "jawbone," and is used across biological sciences to describe these key anatomical elements. Mandibles are not only involved in mechanical functions but also contribute to social behaviors and evolutionary adaptations, making them a topic of interest in anatomy, zoology, and evolutionary biology.

Anatomy of the Mandible in Humans

Structure of the Human Mandible

The human mandible is the largest and strongest bone of the face. It holds the lower teeth in place and forms the lower jawline. The mandible consists of a horizontal body and two vertical rami that connect to the temporal bones of the skull at the temporomandibular joints. Key anatomical features include the mandibular condyle, coronoid process, alveolar part, mental foramen, and mandibular notch. These components allow for the movement and functionality required for mastication and speech.

Functions of the Human Mandible

- Supports the lower teeth and gums
- Enables chewing and grinding of food
- Facilitates speech and articulation
- Provides facial structure and aesthetics
- Participates in opening and closing the mouth

Growth and Development of the Mandible

Mandible development begins in the embryo and continues throughout childhood and adolescence. Growth is influenced by genetic and environmental factors, hormonal changes, and functional demands like chewing. Proper alignment and growth are essential for dental health and facial symmetry.

Mandibles in Insects: Structure and Functions

Mandible Structure in Insects

Insects possess a pair of mandibles as part of their mouthparts, typically located on either side of the head. These mandibles are often adapted for biting, cutting, grinding, or crushing food. The size, shape, and strength of

insect mandibles vary widely depending on the species and ecological niche. For example, ants have powerful mandibles for carrying objects and defense, while beetles may have specialized mandibles for burrowing or predation.

Roles of Insect Mandibles

- Feeding on plants, prey, or detritus
- Construction activities, such as nest building
- Defense against predators and rivals
- Communication and social interactions
- Manipulation of objects within the environment

Examples of Mandible Adaptations in Insects

Some insects, such as stag beetles, have exaggerated mandibles used for fighting and attracting mates. Termites use their mandibles to process wood, while grasshoppers have mandibles designed for cutting vegetation. These adaptations highlight the evolutionary versatility of mandibles in the insect world.

Mandibles Across Animal Kingdom

Mandibles in Vertebrates

In vertebrates, the mandible typically refers to the lower jawbone, present in mammals, reptiles, birds, and some amphibians. The structure varies among species, reflecting dietary preferences and feeding mechanisms. For instance, carnivorous mammals have robust mandibles for tearing meat, while herbivorous species possess flatter mandibles for grinding plant material.

Mandibles in Arthropods

Arthropods, including crustaceans and myriapods, also feature mandibles as mouthparts. Crustacean mandibles are used for crushing and consuming food, while millipedes and centipedes have mandibles adapted for their specific diets. The variation in mandible form and function across animal groups

underscores their evolutionary significance.

Functions of Mandibles in Feeding and Defense

Feeding Mechanisms

Mandibles are essential for the mechanical breakdown of food. In humans, they facilitate mastication by moving the lower jaw against the upper teeth. In animals, mandibles may slice, crush, or grind food, enabling efficient digestion and nutrient intake. Insects use their mandibles to process various food sources, including leaves, wood, and prey.

Defensive and Offensive Uses

- Protection against predators
- Territorial disputes and rival combat
- Capture and subdue prey
- Display and mating rituals

Mandibles in Social Interactions

In certain species, mandibles serve as tools for communication or social interaction. For example, ant mandibles are used for grooming nestmates, carrying larvae, and signaling hierarchy within colonies. Mandible gestures and movements can convey information about status, intentions, or threats.

Common Mandible Disorders and Treatments

Human Mandible Disorders

Mandible disorders can impact oral health, facial structure, and quality of life. Common conditions include fractures, temporomandibular joint (TMJ) disorders, congenital anomalies, and infections. Symptoms may involve pain, swelling, difficulty chewing, and jaw misalignment.

Diagnosis and Treatment Options

- Clinical examination and imaging (X-rays, CT scans)
- Orthopedic and dental interventions
- Medication for pain and inflammation
- Surgical correction for severe cases
- Physical therapy and rehabilitation

Preventive Measures for Mandible Health

Maintaining mandible health involves good oral hygiene, avoiding trauma, regular dental check-ups, and addressing misalignments early. Proper nutrition and exercise can also support bone strength and joint mobility.

Evolutionary Adaptations of Mandibles

Origins and Evolution of Mandibles

Mandibles have evolved independently in various animal lineages, reflecting their critical role in survival. In vertebrates, the mandible evolved from ancient jawless fish, while insect mandibles developed from ancestral mouthparts. Natural selection has shaped mandible size, strength, and complexity according to ecological pressures.

Adaptations for Specialized Functions

- Predatory species with reinforced mandibles
- Herbivores with wide, flat mandibles for grinding
- Social insects with mandibles used for colony tasks
- Species with decorative mandibles for mating displays

Mandibles as Evolutionary Innovations

The development of mandibles enabled animals to exploit new food sources, defend themselves, and interact socially, contributing to their adaptive success. The diversity of mandible forms and functions exemplifies evolutionary innovation and the power of natural selection.

Interesting Facts About Mandibles

Unique Mandible Adaptations

Some species have evolved extraordinary mandibles. For example, male stag beetles possess oversized mandibles used in combat, while trap-jaw ants can snap their mandibles shut at record speeds. The human mandible is the only movable bone of the skull and is vital for speech.

Mandibles in Fossil Records

- Mandibles provide clues about ancient diets
- Fossilized mandibles help identify extinct species
- Mandible morphology reveals evolutionary relationships

Mandibles in Culture and Medicine

Mandibles have appeared in art, folklore, and medical literature throughout history. They are often associated with strength and resilience, and their study continues to advance knowledge in dentistry, surgery, and evolutionary biology.

Questions and Answers About the Mandibles

Q: What is the primary function of the mandible in humans?

A: The primary function of the mandible in humans is to facilitate chewing and grinding of food, support the lower teeth, and assist in speech and

facial structure.

Q: How do insect mandibles differ from human mandibles?

A: Insect mandibles are paired mouthparts used for biting, cutting, or crushing food, while human mandibles are single jawbones essential for mastication, speech, and facial aesthetics.

Q: What are common disorders affecting the human mandible?

A: Common mandible disorders include fractures, temporomandibular joint (TMJ) disorders, congenital anomalies, and infections, which can cause pain, swelling, and difficulty chewing.

Q: Why are mandibles important in the animal kingdom?

A: Mandibles are important because they enable diverse feeding strategies, defense mechanisms, social interactions, and evolutionary adaptations across many animal groups.

Q: How do mandibles contribute to insect defense?

A: Insects use mandibles for defense by biting predators, fighting rivals, and protecting their colonies from threats.

Q: Can mandible disorders be treated?

A: Yes, mandible disorders can be treated with medication, dental interventions, surgical correction, and physical therapy, depending on severity and underlying cause.

Q: What is the evolutionary significance of mandibles?

A: Mandibles are evolutionarily significant because they allowed animals to exploit new food sources, develop specialized feeding behaviors, and enhance survival.

Q: Are mandibles found in all animals?

A: No, mandibles are not found in all animals; they are present in specific groups such as vertebrates, insects, and certain arthropods.

Q: What are some unique mandible adaptations in nature?

A: Unique adaptations include the oversized mandibles of stag beetles for combat, trap-jaw ants for rapid closure, and termite mandibles for processing wood.

Q: How do mandibles relate to facial aesthetics in humans?

A: The mandible shapes the lower jawline and contributes significantly to facial symmetry and aesthetics in humans.

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The Mandibles: A Deep Dive into the World of Insect Jaws

Are you fascinated by the intricate world of insects? Have you ever wondered about the powerful, often terrifying, jaws that allow them to chomp, chew, and sometimes even pierce their prey? Then you've come to the right place. This comprehensive guide delves into the fascinating world of mandibles, exploring their structure, function, diversity, and significance in the insect kingdom. We'll uncover the secrets behind these remarkable appendages and explain why understanding mandibles is key to understanding the incredible diversity of insect life.

What are Mandibles?

Mandibles are the primary mouthparts of many arthropods, most notably insects. These hard, jaw-like structures are typically located on either side of the mouth, and their function varies drastically depending on the insect species and its dietary needs. Think of them as the insect equivalent of our teeth, but with far greater versatility and evolutionary adaptation. They're not just for chewing; mandibles play crucial roles in defense, mating, and even nest building.

The Structure of a Mandible

While the specific structure can vary widely, most mandibles share some common features. They are typically composed of hardened chitin, a tough, protective material that makes them incredibly strong and resistant to damage. Many mandibles have sharp, serrated edges ideal for cutting and tearing food. Others may be more blunt and adapted for grinding or crushing. The shape and size of the mandibles are directly correlated to the insect's diet and lifestyle.

Types of Mandibles and Their Functions

The diversity of insect mandibles is astounding. We can broadly categorize them based on their function:

1. Cutting Mandibles:

These sharp, scissor-like mandibles are perfect for slicing through plant tissues or the bodies of prey. Predatory insects like praying mantises possess this type of mandible, allowing them to efficiently capture and consume their victims.

2. Crushing Mandibles:

Insects that feed on tough materials like seeds, wood, or other invertebrates often possess strong, blunt mandibles designed for crushing. Beetles, for example, often showcase remarkably robust mandibles capable of overcoming considerable resistance.

3. Piercing-Sucking Mandibles:

Certain insects, such as mosquitoes, have mandibles modified into long, needle-like structures that

pierce the skin of their hosts to suck blood. These highly specialized mandibles are often paired with other mouthparts to form a complex feeding apparatus.

4. Chewing Mandibles:

Many herbivorous insects possess mandibles primarily adapted for chewing and grinding plant matter. These mandibles are often broad and flat, with serrated edges for efficient processing of leaves and other vegetation.

The Importance of Mandibles in Insect Ecology

Mandibles are far more than just feeding tools. Their importance extends to various aspects of insect ecology:

Defense Mechanisms:

Many insects use their mandibles as a primary defense mechanism against predators. The powerful jaws of certain beetles, for instance, can inflict a painful bite, deterring potential attackers.

Mating Behavior:

In some species, males use their mandibles in aggressive displays or combat during mating rituals. The size and strength of the mandibles can be a significant factor in determining mating success.

Nest Building and Manipulation:

Certain insects use their mandibles to build and modify their nests. Ants and termites, for example, employ their mandibles to excavate tunnels, carry building materials, and defend their colonies.

Mandibles: A Window into Insect Evolution

The incredible diversity of mandibles across different insect species provides valuable insights into

evolutionary adaptation and the intricate relationship between form and function. Studying mandibles helps us understand how insects have evolved to exploit various ecological niches and thrive in diverse environments.

Conclusion

Mandibles are fundamental to the lives of insects, playing crucial roles in feeding, defense, and social interactions. Their remarkable diversity reflects the incredible adaptability of insects and their evolutionary success. By understanding the structure, function, and evolution of mandibles, we gain a deeper appreciation for the complexity and beauty of the insect world.

FAQs

1. Can all insects bite? No, not all insects have mandibles capable of biting humans. Many insects have mouthparts adapted for sucking or piercing, while others lack the strength to break human skin.
2. Are mandibles always visible? Not always. In some insects, mandibles are hidden or partially concealed by other mouthparts.
3. How are mandibles formed? Mandibles develop during the insect's larval stage and are typically hardened and sclerotized as the insect matures.
4. Do mandibles ever regenerate? In some insect species, damaged or lost mandibles can regenerate to some extent, particularly during larval stages.
5. What is the largest mandible relative to body size? Certain species of stag beetles boast extraordinarily large mandibles, often exceeding the size of their heads. These are primarily used in mating displays and fights.

the mandibles: The Mandibles Lionel Shriver, 2016-06-21 From Lionel Shriver, the acclaimed author of the National Book Award finalist *So Much for That* and the international bestseller *We Need to Talk About Kevin*, comes a striking new novel about family, money, and global economic crisis. The year is 2029, and nothing is as it should be. The very essence of American life, the dollar, is under attack. In a coordinated move by the rest of the world's governments, the dollar loses all its value. The American President declares that the States will default on all its loans--prices skyrocket, currency becomes essentially worthless, and we watch one family struggle to survive through it all. The Mandibles can count on their inheritance no longer, and each member must come to terms with this in their own way--from the elegant ex-pat author Nollie, in her middle age, returning to the U.S. from Paris after many years abroad, to her precocious teenage nephew Willing, who is the only one to actually understand the crisis, to the brilliant Georgetown economics professor Lowell, who

watches his whole vision of the world disintegrate before his eyes. As ever, in her new novel, Shriver draws larger than life characters who illuminate this complicated, ever-changing world. One of our sharpest observers of human nature, Shriver challenges us to think long and hard about the society we live in and what, ultimately, we hold most dear.

the mandibles: The Mandibles Lionel Shriver, 2016-06-21 With dry wit and psychological acuity, this near-future novel explores the aftershocks of an economically devastating U.S. sovereign debt default on four generations of a once-prosperous American family. Down-to-earth and perfectly realistic in scale, this is not an over-the-top Blade Runner tale. It is not science fiction. In 2029, the United States is engaged in a bloodless world war that will wipe out the savings of millions of American families. Overnight, on the international currency exchange, the “almighty dollar” plummets in value, to be replaced by a new global currency, the “bancor.” In retaliation, the president declares that America will default on its loans. “Deadbeat Nation” being unable to borrow, the government prints money to cover its bills. What little remains to savers is rapidly eaten away by runaway inflation. The Mandibles have been counting on a sizable fortune filtering down when their ninety-seven-year-old patriarch dies. Once the inheritance turns to ash, each family member must contend with disappointment, but also—as the U.S. economy spirals into dysfunction—the challenge of sheer survival. Recently affluent, Avery is petulant that she can’t buy olive oil, while her sister, Florence, absorbs strays into her cramped household. An expat author, their aunt, Nollie, returns from abroad at seventy-three to a country that’s unrecognizable. Her brother, Carter, fumes at caring for their demented stepmother, now that an assisted living facility isn’t affordable. Only Florence’s oddball teenage son, Willing, an economics autodidact, will save this formerly august American family from the streets. The Mandibles is about money. Thus it is necessarily about bitterness, rivalry, and selfishness—but also about surreal generosity, sacrifice, and transformative adaptation to changing circumstances.

the mandibles: The Lubetkin Legacy Marina Lewycka, 2016-05-05 'Lively . . . a joy to read' - The Times *Shortlisted for the Bollinger Everyman Wodehouse prize* The bestselling author of A Short History of Tractors in Ukrainian is back in this hilarious, farcical, tender novel of modern issues and manners. North London in the twenty-first century: a place where a son will swiftly adopt an old lady and take her home from hospital to impersonate his dear departed mother, rather than lose the council flat. A time of golden job opportunities, though you might have to dress up as a coffee bean or work as an intern at an undertaker or put up with champagne and posh French dinners while your boss hits on you. A place rich in language - whether it's Romanian, Ukrainian, Russian, Swahili or buxom housing officers talking managementese. A place where husbands go absent without leave and councillors sacrifice cherry orchards at the altar of new builds. 'Laugh-out loud' Daily Express 'Insightful, witty and engaging, painting a picture of modern Britain that will be at once recognizable and enlightening' Stylist 'Entertaining and timely' Evening Standard

the mandibles: We Need to Talk About Kevin Lionel Shriver, 2006-03-06 Now a major motion picture starring Tilda Swinton. Published in twenty-eight countries. Over a million copies sold worldwide. Two years ago Eva Khatchadourian’s son, Kevin, murdered seven of his fellow high-school students, a cafeteria worker and a popular teacher. Now, in a series of letters to her absent husband, Eva recounts the story of how Kevin came to be Kevin. Fearing that her own shortcomings may have shaped what her son has become, she confesses to a deep, long-standing ambivalence about both motherhood in general and Kevin in particular. How much is her fault? When did it all start to go wrong? Or was it, in fact, ever ‘right’ at all? Lionel Shriver tells a compelling, absorbing, and resonant story while framing the horrifying tableau of teenage carnage as a metaphor for the larger tragedy—the tragedy of a country where everything works, nobody starves and anything can be bought but a sense of purpose.

the mandibles: Mandibles Jeff Strand, 2024-07-11 Fire ants. Even when they're normal sized, they're horrible, wretched insects whose sting causes burning pain. But these ants are far from normal. And the city of Tampa, Florida has become infested with the oversized creatures. From the demented Bram Stoker Award-winning author of Twentieth Anniversary Screening and Clowns Vs.

Spiders comes a relentlessly paced novel of insect terror. As the city descends into pure chaos on a hot summer afternoon before the Fourth of July weekend, four groups of survivors must make their way to safety, past thousands of hyper-aggressive ants that can finish you off with just one searing sting. Dustin, an entomologist, may have the secret to what is happening. Unfortunately, he's being held hostage by a pair of psychopathic convenience store robbers who are just as happy to let the city burn. Packed with humor, action, and thrills, Mandibles is an over the top, large-scale, carnage-filled, insects-on-a-rampage extravaganza!

the mandibles: *How to Travel without Seeing: Dispatches from the New Latin America* Andrés Neuman, 2016-08-30 A kaleidoscopic, fast-paced tour of Latin America from one of the Spanish-speaking world's most outstanding writers. Lamenting not having more time to get to know each of the nineteen countries he visits after winning the prestigious Premio Alfaguara, Andrés Neuman begins to suspect that world travel consists mostly of "not seeing." But then he realizes that the fleeting nature of his trip provides him with a unique opportunity: touring and comparing every country of Latin America in a single stroke. Neuman writes on the move, generating a kinetic work that is at once puckish and poetic, aphoristic and brimming with curiosity. Even so-called non-places—airports, hotels, taxis—are turned into powerful symbols full of meaning. A dual Argentine-Spanish citizen, he incisively explores cultural identity and nationality, immigration and globalization, history and language, and turbulent current events. Above all, Neuman investigates the artistic lifeblood of Latin America, tackling with gusto not only literary heavyweights such as Bolaño, Vargas Llosa, Lorca, and Galeano, but also an emerging generation of authors and filmmakers whose impact is now making ripples worldwide. Eye-opening and charmingly offbeat, *How to Travel without Seeing: Dispatches from the New Latin America* is essential reading for anyone interested in the past, present, and future of the Americas.

the mandibles: *The Motion of the Body Through Space* Lionel Shriver, 2020-05-19 In Lionel Shriver's entertaining send-up of today's cult of exercise—which not only encourages better health, but now like all religions also seems to promise meaning, social superiority, and eternal life—an aging husband's sudden obsession with extreme sport makes him unbearable. After an ignominious early retirement, Remington announces to his wife Serenata that he's decided to run a marathon. This from a sedentary man in his sixties who's never done a lick of exercise in his life. His wife can't help but observe that his ambition is "hopelessly trite." A loner, Serenata disdains mass group activities of any sort. Besides, his timing is cruel. Serenata has long been the couple's exercise freak, but by age sixty, her private fitness regimes have destroyed her knees, and she'll soon face debilitating surgery. Yes, becoming more active would be good for Remington's heart, but then why not just go for a walk? Without several thousand of your closest friends? As Remington joins the cult of fitness that increasingly consumes the Western world, her once-modest husband burgeons into an unbearable narcissist. Ignoring all his other obligations, he engages a saucy, sexy personal trainer named Bambi, who treats Serenata with contempt. When Remington sets his sights on the legendarily grueling triathlon, MettleMan, Serenata is sure he'll end up injured or dead. And even if he does survive, their marriage may not. *The Motion of the Body Through Space* is vintage Lionel Shriver written with psychological insight, a rich cast of characters, lots of verve and petulance, an astute reading of contemporary culture, and an emotionally resonant ending.

the mandibles: *The Mandibles: A Family, 2029-2047* Lionel Shriver, 2016-05-12 THE BRILLIANT NEW NOVEL FROM THE ORANGE PRIZE-WINNING AUTHOR OF WE NEED TO TALK ABOUT KEVIN. 'Distinctly chilling' Independent 'Unsettling as it is entertaining' Financial Times 'It's scaring the hell out of me' Tracy Chevalier

the mandibles: *Another Life* Jodie Chapman, 2021-04-01 THE STUNNING AND UNFORGETTABLE LOVE STORY ABOUT HOPE, SACRIFICE AND BELONGING 'An astounding debut about sibling grief, religion and sliding doors love' PANDORA SYKES 'Like if One Day had been written by Sally Rooney' 5***** READER REVIEW 'A modern day Atonement meets David Nicholls. Beautifully written - I couldn't put it down' EMMA GANNON 'Absolutely loved it. I thought about it as I went to bed, as I was washing up' GIOVANNA FLETCHER A BBC2 BETWEEN THE

COVERS PICK _____ Nick and Anna are young. They meet at a cinema, both working summer jobs. They've lived different lives. Carry secret hurts. But they're drawn together by something neither understands. Fast forward and they've long ago gone their separate ways. Inhabiting different worlds. Shaped by the hurt they bear. Yet neither can quite forget the other. So when tragedy brings them back together, they find themselves asking . . . What if we took a chance on another life? _____ 'This beautiful tale of love, loss and sacrifice will break your heart . . . Perfectly captures the agony of falling in love' DAILY MAIL 'I have a feeling that this will be one of my favourite books of 2021! I could not put it down, it's so, so good' 5***** READER REVIEW 'Prepare for all the feels in this heart-breaking must-read' FABULOUS MAGAZINE 'I loved it. Beautifully written, it made me think about love and breaking out into a world that is completely different' ZOE LYONS 'An intricate story of love . . . A beautiful piece of writing' SUNDAY EXPRESS 'I was devastated to finish this book. It broke my heart, and if you're a fan of Sally Rooney, Another Life is something you'll want. The characters are real, the themes of grief, family and loss are so raw. Chapman is a master' DAILY RECORD 'Fans of David Nicholls will adore this complex love story' PRIMA 'The Romeo and Juliet of our generation' GILLIAN MCALLISTER 'This beautiful tale of love, loss and sacrifice will break your heart . . . Perfectly captures the agony of falling in love' DAILY MAIL 'Stunning. Written with such poignancy, full of nostalgia, unspoken longing and the agony of wrong turns' BETH MORREY 'A complex, beautiful, multilayered debut exploring love in all its forms' WOMAN'S WEEKLY 'I have a feeling that this will be one of my favourite books of 2021! I could not put it down, it's so, so good' 5***** READER REVIEW

the mandibles: *The Crucible of Time* John Brunner, 2012-04-16 Life had become too interesting on one world crawling across the rubble-strewn arm of a spiral galaxy. For as the system moved it swept up cosmic dust and debris. Ice ages and periods of tropical warmth followed one another very quickly. Meteors large and small fell constantly. Yesterday's fabled culture might be tomorrow's interesting hole in the ground. But society had always endured. Many thought it always would. Only the brightest scientists admitted that to survive, the race would have to abandon the planet. And to do that they'd have to invent spacecraft . . . This engrossing epic describes the development, over millennia, of a species from a culture of planet-bound medieval city-states to a sophisticated, technological civilization. With *The Crucible of Time*, John Brunner returns to the large-canvas science fiction he pioneered in his Hugo Award-winning, novel *Stand on Zanzibar*. First published in 1982.

the mandibles: *Oral and Maxillofacial Surgery for the Clinician* Krishnamurthy Bonanthaya, Elavenil Panneerselvam, Suvy Manuel, Vinay V. Kumar, Anshul Rai, 2021 This is an open access book with CC BY 4.0 license. This comprehensive open access textbook provides a comprehensive coverage of principles and practice of oral and maxillofacial surgery. With a range of topics starting from routine dentoalveolar surgery to advanced and complex surgical procedures, this volume is a meaningful combination of text and illustrations including clinical photos, radiographs, and videos. It provides guidance on evidence-based practices in context to existing protocols, guidelines and recommendations to help readers deal with most clinical scenarios in their daily surgical work. This multidisciplinary textbook is meant for postgraduate trainees, young practicing oral surgeons and experienced clinicians, as well as those preparing for university and board certification exams. It also aids in decision-making, the implementation of treatment plans and the management of complications that may arise. This book is an initiative of Association of Oral and Maxillofacial Surgeons of India (AOMSI) to its commitment to academic medicine. As part of this commitment, this textbook is in open access to help ensure widest possible dissemination to readers across the world. ; Open access Unique presentation with contents divided into color-coded core competency gradations Covers all aspects of oral and maxillofacial surgery Supplemented with videos of all commonly carried out procedures as operative video Every chapter or topic concludes with future perspective and addresses cutting edge advances in each area Every topic has a pull out box that provides the most relevant systematic reviews/ key articles to every topic.

the mandibles: *Kill Decision* Daniel Suarez, 2012-07-19 A scientist and a soldier must join

forces when combat drones zero in on targets on American soil in this gripping technological thriller from New York Times bestselling author Daniel Suarez. Linda McKinney studies the social behavior of insects—which leaves her entirely unprepared for the day her research is conscripted to help run an unmanned and automated drone army. Odin is the secretive Special Ops soldier with a unique insight into a faceless enemy who has begun to attack the American homeland with drones programmed to seek, identify, and execute targets without human intervention. Together, McKinney and Odin must slow this advance long enough for the world to recognize its destructive power. But as enigmatic forces press the advantage, and death rains down from above, it may already be too late to save mankind from destruction.

the mandibles: *Bone Augmentation by Anatomical Region* Zvi Artzi, 2020-05-15

Comprehensively describes bone augmentation techniques and their application to the different anatomical regions of the upper and lower jaws. Bone Augmentation by Anatomical Region is a unique, evidence-based guide focusing on each specific anatomical region – anterior maxilla, posterior maxilla, anterior mandible, and posterior mandible – in order to emphasize the correct implemented procedures needed to successfully perform oral osseous reconstruction. Numerous ridge augmentation techniques are covered, including: horizontal and vertical guided bone regeneration, autologous block transplantation, interpositional bone grafting, allogeneic blocks, sandwich technique, split-expansion ridge technique, and sinus floor grafting. Non-augmented approaches such as forced socket site extrusion and the installation of digitally printed implants are also presented and discussed. Guides readers on tackling bone augmentation via anatomical region of the jaws and their related surrounding muscles, vascularization and innervation Presents innovative augmentation techniques for the anterior maxilla, posterior maxilla, anterior mandible, and posterior mandible Includes clinical photographs in each section and a decision tree to help readers select the appropriate surgical modality Bone Augmentation by Anatomical Region is a specialist resource suitable for dentists who practice implant dentistry, oral surgeons, oral and maxillofacial surgeons, periodontists, and postgraduate dental students in the above-mentioned disciplines. Please note Due to recently developments, part of Chapter 2 Biologic Conditions for Bone Growth and Maintenance: Managing the Oxidative Stress has been amended which will be available in all future reprints. All electronic versions have been updated.

the mandibles: *Big Brother* Lionel Shriver, 2013-06-04 Big Brother is a striking novel about siblings, marriage, and obesity from Lionel Shriver, the acclaimed author the international bestseller We Need to Talk About Kevin. For Pandora, cooking is a form of love. Alas, her husband, Fletcher, a self-employed high-end cabinetmaker, now spurns the “toxic” dishes that he’d savored through their courtship, and spends hours each day to manic cycling. Then, when Pandora picks up her older brother Edison at the airport, she doesn’t recognize him. In the years since they’ve seen one another, the once slim, hip New York jazz pianist has gained hundreds of pounds. What happened? After Edison has more than overstayed his welcome, Fletcher delivers his wife an ultimatum: It’s him or me. Rich with Shriver’s distinctive wit and ferocious energy, Big Brother is about fat: an issue both social and excruciatingly personal. It asks just how much sacrifice we’ll make to save single members of our families, and whether it’s ever possible to save loved ones from themselves.

the mandibles: *Animal bones in Australian archaeology* Melanie Fillios, Natalie Blake, 2015-12-02 Zooarchaeology has emerged as a powerful way of reconstructing the lives of past societies. Through the analysis of animal bones found on a site, zooarchaeologists can uncover important information on the economy, trade, industry, diet, and other fascinating facts about the people who lived there. Animal bones in Australian archaeology is an introductory bone identification manual written for archaeologists working in Australia. This field guide includes 16 species commonly encountered in both Indigenous and historical sites. Using diagrams and flow charts, it walks the reader step-by-step through the bone identification process. Combining practical and academic knowledge, the manual also provides an introductory insight into zooarchaeological methodology and the importance of zooarchaeological research in understanding human behaviour through time.

the mandibles: A Friend of the Earth T. C. Boyle, 2011-08-01 _____ 'A comedy with teeth ... razor sharp and darkly funny' (TIMES) 'Boyle's prose is so good and his imagination so fertile that after a while you just sit back and are swept along' (TELEGRAPH) 'Surreal, daring and compassionate. Easily one of the best books of the year' (MAIL) 'Superb ... if Boyle was from this side of the pond, this is the book they'd all have to beat for the Booker Prize' (SUNDAY TIMES) It's 2025, and 75-year-old environmentalist and retired eco-terrorist Ty Tierwater is eking out a bleak living managing a pop star's private zoo. It is the last one in southern California, and vital for the cloning of its captive species. Once, Ty was so serious about environmental causes that as a radical activist committed to Earth Forever! he endangered the lives of both his daughter, Sierra, and his wife, Andrea. Now, when he's just trying to survive in a world cursed by storm and drought, Andrea re-enters his life. Frightening, funny, surreal and gripping, T.C. Boyle's story is both a modern morality tale, and a provocative vision of the future.

the mandibles: Practical Procedures in Implant Dentistry Christopher C. K. Ho, 2021-07-16 Practical Procedures in IMPLANT DENTISTRY Master the fundamentals and intricacies of implant dentistry with this comprehensive and practical new resource Practical Procedures in Implant Dentistry delivers a comprehensive collection of information demonstrating the science and clinical techniques in implant dentistry. Written in a practical and accessible style that outlines the principles and procedures of each technique, the book offers clinical tips and references to build a comprehensive foundation of knowledge in implantology. Written by an international team of contributors with extensive clinical and academic expertise, Practical Procedures in Implant Dentistry covers core topics such as: Rationale and assessment for implant placement and restoration, including the diagnostic records and surgical considerations required for optimal planning and risk management Incision design considerations and flap management, with an essential knowledge of regional neuro-vascular structures Implant placement, encompassing the timing of the placement, bone requirements and understanding the importance of the peri-implant interface for soft tissue stability Impression techniques, loading protocols, digital workflows and the aesthetic considerations of implants Prosthetic rehabilitation of single tooth implants to fully edentulous workflows, including discussions of soft tissue support, biomechanics and occlusal verification Perfect for both general dental practitioners and specialists in implant dentistry, Practical Procedures in Implant Dentistry is also a valuable reference to senior undergraduate and postgraduate dental students.

the mandibles: Enter the Aardvark Jessica Anthony, 2020-03-24 'It's a long time since I have enjoyed a novel so much. Fresh, witty and smart it also has a heart.' KATE ATKINSON 'Sizzles with uproarious fun, from its snout to the sting in its tale.' INDEPENDENT 'The perfect tonic for testing times.' GUARDIAN We all know politics is absurd. But could a Republican be brought down by a stuffed aardvark? Republican congressman Alexander Paine Wilson is determined that nothing will stop him in his campaign for re-election. Not the fact that he is a bachelor, not the fact that his main adversary Nancy Beavers - married, with children - is rising in the polls. Nothing. That is, until one hot day in August, he receives a large parcel via FedEx. Inside is a gigantic taxidermied aardvark. This aardvark has a surprising history - from the Victorian naturalist who discovered it to the taxidermist who deemed it his finest creation. But for Wilson, the entrance of the aardvark sets off a chain of events that threaten to ruin his entire career. Constantly surprising, brilliantly comic and piquantly provocative, Enter the Aardvark is a tale for our times, a biting satire with a tender underbelly. _____ 'Sometimes, a paragraph near the start of a novel is so perfect and funny that you read it over and over, laugh every time, and know you're in for a treat...I'm loving this. Completely insane but utterly hilarious'. JOHN BOYNE 'Spry, slim, clever...the inventiveness is impressive and the story has heart' THE SUNDAY TIMES 'What begins as a topical takedown of the American political system deepens into a hugely enjoyable romp through history.' OBSERVER 'Fresh, astute and mouthwateringly sharp, this is a rare thing; a political satire that tugs on the heartstrings in unconventional ways.' IRISH TIMES 'Sharp, inventive and very funny, it's an entertainingly bizarre political satire.' TATLER 'Part 21st-century political

satire, part unexpectedly affecting 19th-century love story...It's every bit as strange as it sounds, and yet somehow it works' DAILY MAIL 'Old, dead creature brings down flash, vain senator... Out in front as the most fizzing and amusing novel of the year.' STRONG WORDS magazine 'A blisteringly innovative and outrageous novel.' NY OBSERVER 'Weird, wonderful, and very much of the moment, Enter the Aardvark is a landmark political novel of the Trump era...With heart and humor, Anthony expertly skewers our current political climate.' ESQUIRE 'Inventive and darkly funny...as Anthony connects characters from today with those from 19th-century England, she offers an original and unsettling lens through which to view male power as it has evolved over time.' TIME 'Enter Jessica Anthony. With her highly inventive, ever attentive, and morally serious (as all great comedy must be) Enter the Aardvark, she estranges all over again our deplorable political moment, and thereby helps make it bearable.' JOSHUA FERRIS 'Mischievously zoological and darkly satirical - a brilliant novel' JOHN IRONMONGER, author of NOT FORGETTING THE WHALE 'A feverish, rollicking beast of a book. Totally assured, completely unpredictable, Jessica Anthony has created a true original.' SIMON WROE, author of CHOP CHOP and HERE COMES TROUBLE

the mandibles: The Mandibles Lionel Shriver, 2016-05-01 The new novel from the author of WE NEED TO TALK ABOUT KEVIN and POST BIRTHDAY WORLD. This novel deals with money, power and society's steady march towards extinction, seen through the eyes of one family.

the mandibles: Coup de Foudre Ken Kalfus, 2015-05-12 The explosive new collection by the celebrated author of Thirst and PEN/Faulkner Award finalist Pu-239 and Other Russian Fantasies, Coup de Foudre is the kind of groundbreaking work of literary invention Ken Kalfus's fans have come to expect. The book is anchored by the full text of the provocatively topical title novella that appeared in Harper's, a sometimes farcical, ultimately tragic story about the president of an international lending institution accused of sexually assaulting a housekeeper in a New York hotel. Recalling recent news events with irony and compassion, Kalfus skewers international political gridlock and the hypocrisies of acceptable sexual conduct. In "The Moment They Were Waiting For," a murderer on death row casts a spell granting the inhabitants of his city the foreknowledge of the dates they will die. In "v. The Large Hadron Collider," a judge distracted by the faint possibility of an adulterous affair must decide whether to throw out a nuisance lawsuit that raises the even fainter possibility that the entire Earth may be destroyed. "The Un-" is a nostalgic story of a young writer's struggles as he tries to surmount the colossal, heavily guarded wall that apparently separates writers who have been published from those who have not. Varying boldly in theme, setting, and tone, the stories in Coup de Foudre share Kalfus's distinctive humor and intellect, inextricably bound with high literary ambition.

the mandibles: The Blot Jonathan Lethem, 2017-02-02 **A New York Times top 100 Notable Book of the Year** Alexander Bruno is a man with expensive problems. Sporting a tuxedo and trotting the globe, he has spent his adult life as a professional gambler. His particular line of work: backgammon, at which he extracts large sums of money from men who think they can challenge his peerless acumen. In Singapore, his luck turned. Maybe it had something to do with the Blot - a black spot which has emerged to distort Bruno's vision. It's not showing any signs of going away. As Bruno extends his losing streak in Berlin, it becomes clinically clear that the Blot is the symptom of something terrible. There's a surgeon who can help, but surgery is going to involve a lot of money, and worse: returning home to the garish, hash-smoke streets of Berkeley, California. Here, the unseemly Keith Stolarsky - a childhood friend in possession of an empire of themed burger bars and thrift stores - is king. And he's willing to help Bruno out. But there was always going to be a price.

the mandibles: Property Lionel Shriver, 2019-02-18 The first ever story collection from the inimitable Lionel Shriver 'Genius' Stylist 'Phenomenal' Observer 'Brilliant' The Times

the mandibles: Biological Affinity in Forensic Identification of Human Skeletal Remains Gregory E. Berg, Sabrina C Ta'ala, 2014-12-13 Ancestry determination in the identification of unknown remains can be a challenge for forensic scientists and anthropologists, especially when the remains available for testing are limited. There are various techniques for the assessment of ancestry, ranging from traditional to new microbiological and computer-assisted methods. Biological

Affinity in Forensic Identification of Human Skeletal Remains: Beyond Black and White presents a range of tools that can be used to identify the probable socio-cultural race category of unknown human remains. Gathering insight from those who have made recent improvements and scientific advances in the field, the book begins with the historical foundations of the concept of biological affinity and the need for increased research into methods for determining ancestry of skeletal remains. The contributors cover a range of topics, including: Ancestry estimation from the skull using morphoscopic and morphometric traits and variables Innovative methods from metric analyses of the postcrania, and new approaches to dental non-metric variation The biological diversity of Hispanic populations and use of discriminant function analysis and 3D-ID software to determine ancestry Methods of age progression and facial reconstructions to create two-dimensional (2D) and three-dimensional (3D) facial composites for missing people The preparation of skeletal remains for DNA extraction and sampling, and mtDNA methods that are available for identification of haplogroups (e.g., ancestral populations) No single method or technique is adequate in the assessment of ancestry. For accurate determinations, the use of traditional and new techniques combined yields better results. This book demonstrates the large repertoire of tools available to those tasked with these challenging determinations.

the mandibles: Motorman David Ohle, 1972 A man lives in the City of one possible future with little strength, few feelings and four implanted sheep's hearts.

the mandibles: The Pesthouse Jim Crace, 2010-06-04 During the years of America's ascendancy, the great ships brought waves of immigrants to the promised land. In sight of the Statute of Liberty, the huddled masses disembarked in search of the American dream. In the imagined future, the great ships play a different role. In a work of outstanding originality, Jim Crace's *The Pesthouse* envisions a future America in ruins and a reversal of history: desperate Americans seeking passage to the promised land of Europe. Crace's future United States is a lawless wasteland. The economy collapses, industry ceases, and the remaining populace returns to subsistence farming. The only hope rests with reaching the east coast and obtaining passage by ship to Europe. Like many Americans, Franklin Lopez and his brother, Jackson, leave their farm to begin the long trek east. Within sight of their goal, Franklin is forced, by an enflamed knee, to stop. While Jackson continues forward, Franklin seeks rest in a seemingly abandoned stone building in a forest. Inside, Jackson discovers Margaret. Margaret is feverish with a deadly illness and is confined to the Pesthouse with little hope of recovery. Franklin should flee. Instead, he is drawn to Margaret and stays by her side while she sweats out the fever. After her recovery, Margaret joins Franklin on the journey east. This journey is fraught with danger. Rule-of-law no longer exists and the land is plagued by roaming bandits and slave traders. The threat of danger slowly draws Margaret and Franklin closer to each other. A bond of love begins to form. They also draw comfort from joining a group of like-minded pilgrims. The illusion of safety is soon shattered. While resting from a day of travel, the group is taken captive by mounted bandits. Franklin is taken as a slave. On account of her recent illness, Margaret is spared along with an elderly couple and a baby. Margaret must continue on without Franklin. A bewildered Margaret slowly pushes eastward with the elderly couple and the baby. She is eventually separated from them and must take sole responsibility for the baby. With hope fading, Margaret stumbles upon the refuge of the Ark; a religious community which provides food and shelter in exchange for denouncing all metal technologies. Margaret accepts the laws of the Ark and is allowed to enter with her baby. While safe, Margaret secretly hopes to be reunited with Franklin. Their paths cross again under tragic circumstances. The Ark is attacked by the same mounted bandits that enslaved Franklin. While the Ark is looted and the community massacred, Margaret and her baby escape. They are reunited with Franklin by chance following a slave uprising in the vicinity of the Ark. Narrowly escaping their pursuers, Franklin, Margaret and the baby continue the journey to the East coast. Upon finally reaching their destination, the dream is shattered. Margaret discovers there is no room for women with young children on the ships bound to Europe. There is no choice but to turn back. With the end of one dream a new one is born. Inspired by their growing love, Franklin and Margaret decide to return west, with the baby, as a

family. Jim Crace concludes “going westward, they would go free.”

the mandibles: Temporomandibular Disorders National Academies of Sciences, Engineering, and Medicine, Health and Medicine Division, Board on Health Care Services, Board on Health Sciences Policy, Committee on Temporomandibular Disorders (TMDs): From Research Discoveries to Clinical Treatment, 2020-07-01 Temporomandibular disorders (TMDs), are a set of more than 30 health disorders associated with both the temporomandibular joints and the muscles and tissues of the jaw. TMDs have a range of causes and often co-occur with a number of overlapping medical conditions, including headaches, fibromyalgia, back pain and irritable bowel syndrome. TMDs can be transient or long-lasting and may be associated with problems that range from an occasional click of the jaw to severe chronic pain involving the entire orofacial region. Everyday activities, including eating and talking, are often difficult for people with TMDs, and many of them suffer with severe chronic pain due to this condition. Common social activities that most people take for granted, such as smiling, laughing, and kissing, can become unbearable. This dysfunction and pain, and its associated suffering, take a terrible toll on affected individuals, their families, and their friends. Individuals with TMDs often feel stigmatized and invalidated in their experiences by their family, friends, and, often, the health care community. Misjudgments and a failure to understand the nature and depths of TMDs can have severe consequences - more pain and more suffering - for individuals, their families and our society. Temporomandibular Disorders: Priorities for Research and Care calls on a number of stakeholders - across medicine, dentistry, and other fields - to improve the health and well-being of individuals with a TMD. This report addresses the current state of knowledge regarding TMD research, education and training, safety and efficacy of clinical treatments of TMDs, and burden and costs associated with TMDs. The recommendations of Temporomandibular Disorders focus on the actions that many organizations and agencies should take to improve TMD research and care and improve the overall health and well-being of individuals with a TMD.

the mandibles: Transfixed by Prehistory Maria Stavrinaki, 2022-05-24 An examination of how modern art was impacted by the concept of prehistory and the prehistoric Prehistory is an invention of the late nineteenth century. In that moment of technological progress and acceleration of production and circulation, three major Western narratives about time took shape. One after another, these new fields of inquiry delved into the obscure immensity of the past: first, to surmise the age of the Earth; second, to find the point of emergence of human beings; and third, to ponder the age of art. Maria Stavrinaki considers the inseparability of these accounts of temporality from the disruptive forces of modernity. She asks what a history of modernity and its art would look like if considered through these three interwoven inventions of the *longue durée*. Transfixed by Prehistory attempts to articulate such a history, which turns out to be more complex than an inevitable march of progress leading up to the Anthropocene. Rather, it is a history of stupor, defamiliarization, regressive acceleration, and incessant invention, since the “new” was also found in the deep sediments of the Earth. Composed of as much speed as slowness, as much change as deep time, as much confidence as skepticism and doubt, modernity is a complex phenomenon that needs to be rethought. Stavrinaki focuses on this intrinsic tension through major artistic practices (Cézanne, Matisse, De Chirico, Ernst, Picasso, Dubuffet, Smithson, Morris, and contemporary artists such as Pierre Huyghe and Thomas Hirschhorn), philosophical discourses (Bataille, Blumenberg, and Jünger), and the human sciences. This groundbreaking book will attract readers interested in the intersections of art history, anthropology, psychoanalysis, mythology, geology, and archaeology.

the mandibles: A Perfectly Good Family Lionel Shriver, 2009 Following the death of her worthy liberal parents, Corlis McCrea moves back into her family's grand Reconstruction mansion in North Carolina, willed to all three siblings. Her timid younger brother has never left home. When her bullying black-sheep older brother moves into 'his' house as well, it's war.

the mandibles: Escapism Yi-Fu Tuan, 1998 Acclaimed cultural geographer Yi-Fu Tuan considers humanity's enduring desire to escape reality— and embrace alternatives such as love, culture, and Disneyworld In prehistoric times, our ancestors began building shelters and planting

crops in order to escape from nature's harsh realities. Today, we flee urban dangers for the safer, reconfigured world of suburban lawns and parks. According to geographer Yi-Fu Tuan, people have always sought to escape in one way or another, sometimes foolishly, often creatively and ingeniously. Glass-tower cities, suburbs, shopping malls, Disneyland—all are among the most recent monuments in our efforts to escape the constraints and uncertainties of life—ultimately, those imposed by nature. What cultural product, Tuan asks, is not escape? In his new book, the capstone of a celebrated career, Tuan shows that escapism is an inescapable component of human thought and culture.

the mandibles: *The Post-Birthday World* Lionel Shriver, 2009-03-17 “Complex and nervy, Shriver’s clever meditation will intrigue anyone who has ever wondered how things might have turned out had they followed, or ignored, a life-changing impulse.” — People (Critic's Choice) This dazzling novel from the Orange Prize-winning author of the international bestseller *We Need to Talk About Kevin* takes a psychological and deeply human look at love and volition Does the course of life hinge on a single kiss? Whether the American expatriate Irena McGovern does or doesn’t lean into a certain pair of lips in London will determine whether she stays with her smart, disciplined, intellectual American partner Lawrence, or runs off with Ramsey—a wild, exuberant British snooker star the couple has known for years. Employing a parallel-universe structure, Shriver follows Irena’s life as it unfolds under the influence of two drastically different men. In a tour de force that, remarkably, has no villains, Shriver explores the implications, both large and small, of our choice of mate—a subject of timeless, universal fascination for both sexes.

the mandibles: *The New Republic* Lionel Shriver, 2012-03-27 Acclaimed author Lionel Shriver—author of the National Book Award finalist *So Much for That*, *The Post-Birthday World*, and the vivid psychological novel *We Need to Talk About Kevin*, now a major motion picture—probes the mystery of charisma in a razor-sharp new novel that teases out the intimate relationship between terrorism and cults of personality, explores what makes certain people so magnetic, and reveals the deep frustrations of feeling overshadowed by a life-of-the-party who may not even be present. “Shriver is a master of the misanthrope. . . . [A] viciously smart writer.” —Time

the mandibles: *The Mandible Trilogy* A. Jardine David a. Jardine, 2010-03 Professor Paul Mandible, on leave in France from teaching English on a U.S. Navy ship, experiences a personal renaissance within moments of meeting the rich and beautiful Collette Doublet at a sidewalk café in Nice. But first, Paul must deal with Bunny, his compulsion-riddled, Bible belt, neurotic wife of twenty-seven years, and his mundane teaching job at Grand View College in Des Moines, Iowa. Paul enlists Collette's help to divorce Bunny in Mexico. But when Bunny is brutally murdered, Paul is arrested by the Mexican authorities, although he didn't kill her. Upon his release, Paul marries Collette and they reside in her villa in Nice, France. Life is anything but dull for Paul who has succeeded in escaping his weary life in Iowa. First, Paul learns that his father, Harry, will inherit an unexpected fortune from his long-lost genetic father, Eduardo, who died in his native Spain. Harry wants nothing to do with the money, so Paul travels to Spain to collect and finds himself in jeopardy. Then while vacationing in Africa, Paul discovers some startling information about his relatives, and he must make some difficult decisions to set the record straight.

the mandibles: *Function, Phylogeny, and Fossils* David R. Begun, Carol V. Ward, Michael D. Rose, 2013-11-21 An insightful new work, *Function, Phylogeny, and Fossils* integrates two practices in paleobiology which are often separated - functional and phylogenetic analysis. The book summarizes the evidence on paleoenvironments at the most important Miocene hominoid sites and relates it to the pertinent fossil record. The contributors present the most up-to-date statements on the functional anatomy and likely behavior of the best known hominoids of this crucial period of ape and human evolution. A key feature is a comprehensive table listing 240 characteristics among 13 genera of living and extinct hominoids.

the mandibles: *In Love and War* Alex Preston, 2014-07-01 *In Love and War* weaves fact and fiction to create a sweeping portrait of a city at war. The novel is told through the eyes, letters and journals of Esmond Lowndes, who comes to Italy a lost and lonely young man in the shadow of his

politician father. Through his friendships with a striking cast of contemporary characters, from the poet Ezra Pound to Alice Keppel, a former royal mistress, Esmond begins to leave his early disappointments behind him. On the cobbles of Florence's many-storied streets, he deepens his appreciation of art and literature, and falls in love. With the coming of war, Esmond finds himself stranded in a city of enemies, hunted by the malevolent Mario Carità, head of the Fascist secret police. He retreats into the hills above Florence, taking with him a painting that has come to assert a profound hold over him. When the Nazis arrive, Esmond is drawn into Giustizia e Libertà, the Resistance movement, and is soon helping to spirit refugees to safety, to hide the city's Jews. With his lover, Ada, at his side, he is at the centre of assassination plots, shoot-outs and car chases, culminating in a final mission of extraordinary daring. *In Love and War* is a novel that will take you deep into the secret heart of history, meticulously researched and full of period detail. It is a novel of art and letters, of bawdy raconteurs and dashing spies. With Esmond Lowndes you will see the beauty of Florence as never before, and feel the horror of war as it sweeps over the city's terracotta rooftops. Inspired by a host of real-life stories, *In Love and War* is both epic and intimate, harrowing and heartwarming.

the mandibles: Hench Natalie Zina Walschots, 2020-09-22 "This book is fast, furious, compelling, and angry as hell. -- Seanan McGuire, New York Times bestselling author *The Boys* meets *My Year of Rest and Relaxation* in this smart, imaginative, and evocative novel of love, betrayal, revenge, and redemption, told with razor-sharp wit and affection, in which a young woman discovers the greatest superpower—for good or ill—is a properly executed spreadsheet. Anna does boring things for terrible people because even criminals need office help and she needs a job. Working for a monster lurking beneath the surface of the world isn't glamorous. But is it really worse than working for an oil conglomerate or an insurance company? In this economy? As a temp, she's just a cog in the machine. But when she finally gets a promising assignment, everything goes very wrong, and an encounter with the so-called "hero" leaves her badly injured. And, to her horror, compared to the other bodies strewn about, she's the lucky one. So, of course, then she gets laid off. With no money and no mobility, with only her anger and internet research acumen, she discovers her suffering at the hands of a hero is far from unique. When people start listening to the story that her data tells, she realizes she might not be as powerless as she thinks. Because the key to everything is data: knowing how to collate it, how to manipulate it, and how to weaponize it. By tallying up the human cost these caped forces of nature wreak upon the world, she discovers that the line between good and evil is mostly marketing. And with social media and viral videos, she can control that appearance. It's not too long before she's employed once more, this time by one of the worst villains on earth. As she becomes an increasingly valuable lieutenant, she might just save the world. A sharp, witty, modern debut, *Hench* explores the individual cost of justice through a fascinating mix of Millennial office politics, heroism measured through data science, body horror, and a profound misunderstanding of quantum mechanics.

the mandibles: I Thought I Knew You Penny Hancock, 2019-03-12 Jules and Holly have been best friends since university. They tell each other everything – trading revelations and confessions, and sharing both the big moments and the small details of their lives: Holly is the only person who knows about Jules' affair; Jules was there for Holly when her husband died. And their two children – just four years apart – have grown up together. So when Jules' daughter Saffie accuses Holly's son of a terrible crime, neither woman can possibly be prepared for what this means – for their families or their friendship. Especially as Holly refuses to believe her son is guilty. For fans of *He Said, She Said* and *Anatomy of a Scandal*, Penny Hancock's *I Thought I Knew You* is about secrets and lies – and whose side you take when it really matters.

the mandibles: The Mandibles of "Sinanthropus Pekinensis" Franz Weidenreich, 1938

the mandibles: 50 Landmark Papers every Oral and Maxillofacial Surgeon Should Know Niall MH McLeod, Peter A Brennan, 2020-12-29 The exponential growth in the number of research papers published in recent decades can make it difficult to identify the key papers that have truly made a difference in the practice of oral and maxillofacial surgery. This book provides readers with a

concise reference source for the key papers that underpin contemporary surgical practice in oral and maxillofacial surgery. Covering all aspects of the specialty, the content will help both trainees and specialists to understand the scientific developments and pioneering surgeries that allow us to practice as we currently do. It is essential revision material for those sitting for specialist examinations in oral and maxillofacial surgery. + Presents 50 key research studies on surgery along with full analysis + Additional commentaries from the original authors, experts or editors - providing a valuable perspective on why the study is important + Constitutes essential reading for trainees, residents and fellows, and surgeons studying for professional examinations + Distills all the literature into a compact guide on the must-know scientific articles About the Editors Niall MH McLeod FRCS (OMFS), FDS, MRCS Consultant Oral & Maxillofacial Surgeon, The Royal London and Whipps Cross Hospitals, London, UK Peter A Brennan MD, PhD, FRCS, FRCSEd, FDS Consultant Maxillofacial Surgeon and Professor of Surgery, Queen Alexandra Hospital, Portsmouth, UK

the mandibles: Insect Mouthparts Harald W. Krenn, 2019-12-09 This is the first comprehensive book focusing on the form and function of insect mouthparts. Written by leading experts, it reviews the current knowledge on feeding types and the evolution of mouthparts and presents new research approaches. The richly illustrated articles cover topics ranging from functional morphology, biomechanics of biting and chewing, and the biophysics of fluid-feeding to the morphogenesis and genetics of mouthpart development, ecomorphology in flower-visiting insects as well as the evolution of mouthparts, including fossil records. Intended for entomologists and scientists interested in interdisciplinary approaches, the book provides a solid basis for future scientific work. Chapter 6 of this book is available open access under a CC BY 4.0 license at link.springer.com.

the mandibles: Jemima J. Jane Green, 2006-08-03 Discover the addictive and uplifting story of reinvention, self-discovery and the meaning of true love from the bestselling author of Life Swap and The Friends We Keep 'Inspirational, uplifting, made me laugh and left me feeling very happy' 5***** Reader Review 'Compulsively readable' Sunday Times 'Perfect if you want to feel uplifted . . . So relatable' 5***** Reader Review _____ Jemima Jones is overweight. About seven stone overweight. Treated like a slave by her thin and bitchy flatmates, lorded over at the Kilburn Herald by the beautiful Geraldine (less talented, but better paid), her only consolation is food. What with that and her passion for her charming, sexy colleague Ben, she knows her life needs changing. But can Jemima reinvent herself? And should she? _____ 'The kind of novel you'll gobble up in a single sitting' Cosmopolitan 'Green writes with acerbic wit about the law of the dating jungle' Sunday Express Readers ADORE Jemima J: 'Truly uplifting and fun' 5***** Reader Review 'I was utterly engrossed' 5***** Reader Review 'A fantastic book that you can't put down' 5***** Reader Review 'Beautiful and heartwarming' 5***** Reader Review 'Light hearted, warm and funny' 5***** Reader Review

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