



Document Preparation and Book Production Services

- TIPS Mission, page 2
- TIPS Resources, page 2
- Client List, page 3
- Publishing References, page 4
- Company Biographies, page 5
- Production Flowchart, page 7
- Sample 6-Week Production Schedule, page 8
- Sample Pages, page 9

TIPS Mission

To be your full-service publishing partner!

For ten years, TIPS has provided quality work in all aspects of the publishing process. We work hard to meet the needs of our clients, while offering competitive prices.

Your project gets a team of experienced editors and desktop publishers with a proven track record of completing high-quality books on schedule and within budget. You get a detailed, weekly status report and a secure production FTP site for immediate access to any file in any step of the process.

While we adapt our process to meet your needs, we advocate an electronic workflow and review process to save you time and money—especially when working with multi-author teams or with authors outside the United States.

TIPS is located in Carrboro, North Carolina—less than a mile from the Chapel Hill campus of the University of North Carolina. Contact us at 919-933-2629 or by email at Robert.Kern@technicalpublishing.com.

TIPS Resources

Services

- Project management
- Development editing
- Technical editing
- Copy editing
- Proofreading
- Typesetting and composition
- Book design
- Template creation
- Indexing
- Scanning
- Art creation
- Art retouching
- HTML conversions
- CD prep and mastering
- Printing management
- Ebook support
- Certified press-ready PDF output
- XML/SGML/HTML output

Applications

Composition

- QuarkXPress
- FrameMaker
- InDesign
- Latex 2e

Art

- Illustrator
- Photoshop
- Visio

Editing

- MS Word
- Acrobat
- PitStop

Utilities

- MathType
- Pattern Stream
- MS Project

Client List

Since 1997, TIPS has worked with a number of corporations and publishers. We have produced higher education, trade, reference, and professional titles.

Addison Wesley

American Society of Civil Engineers

APress

Chatham House

Columbia University Press

Coriolis Press

Delmar Learning

FIT Press

GlaxoSmithKline

Gulf Publishing

IEEE

ISA

Manning Publications

McGraw Hill

Microsoft Press

O'Reilly & Associates

Perseus Books

Prentice Hall/PTR

SciTech Publications

Seven Bridges Press

Shape Metal Society

Taylor & Francis

Varsity Press

Waveland Publications

Wiley

William Andrews Publishing

W.W. Norton Publishing

Publishing References

American Society of Civil Engineers

Matt Boyle, *Production Manager*, mboyle@asce.org (703) 295-6241

Bright Path Solutions

Kay Ethier Whatley, *Manager*, kay@brightpathsolutions.com (919) 244-8559

Delmar

Larry Main, *Production Supervisor*, Larry.Main@delmar.com (800) 998-7498 x3557

Benjamin Gleeksman, Benjamin.Gleeksman@thomson.com (800) 998-7498 x2642

Stacy Masucci, Stacy.Masucci@thomson.com (800) 998-7498 x2645

Betsy Hough, Betsy.Hough@delmar.com (800) 998-7498 x2639

Fitness Information Technology

Matt Brann, *Editor*, Matt.brann@mail.wvu.edu (304) 293-6888 x5228

GlaxoSmithKline

Bettina Stanger, *Compliance Officer*, Bettina.b.Stanger@gsk.com (919) 483-1337

Gulf Publishing

Sheryl Stone, *Production Manager*, Sheryl.Stone@gulfpub.com (713) 525-4604

ISA

Susan Colwell, *Production Manager*, scolwell@ISA.org (919) 990-9305

Varsity Press

Pat Gowdy, *President*, pgowdy@nc.rr.com (919) 851-0339

William Andrew Publishing

Phil Carmical, *Publisher*, pcarmical@williamandrew.com (512) 282-4993

Company Biographies

Robert Kern, President

Robert Kern founded TIPS Technical Publishing, Inc. in Chapel Hill, North Carolina in December of 1997. Prior to founding TIPS, he spent 12 years with the higher education division of Prentice Hall working in all major aspects of publishing--sales, acquisitions, marketing, production, and new media. He was a technology advocate, specializing in how technology could improve production and how new media could improve instruction. After his work with Prentice Hall, he took the Director of Acquisitions and Development position at Ventana Communications, and quickly became their publisher. After the merger of Ventana and Coriolis, he leveraged his available Ventana staff to form TIPS in order to provide full service book production and book packaging to computer trade publishers. Though founded in the computer trade market, TIPS has expanded into academic, engineering, and other trade markets, and is aggressively following new publishing technologies such as ebook, web and database publishing, and XML conversions.

Mark Fowle, Chief Technology Officer

Mark Fowle has 35 years of IT experience. He has worked in a variety of industries, providing systems administration, infrastructure architecture and design, technical support, networking, and software development. In his current role as CTO at TIPS Technical Publishing, Inc., he has transformed the company from relying on third-party solutions and providers to a company that is fully self-reliant and now provides open source solutions and hosting to other small businesses. Mark built and maintains a Linux server that has been designed from the ground up to integrate the TIPS Technical Publishing multi-platform environment. Using sophisticated open source applications, he has been able to implement a full Business Continuity/Disaster Recovery Plan, securing and protecting the company.

Kathleen Cook, Office Manager/Editor

Kathleen Cook is a graduate of Davidson College, where she earned a BA in English. Growing up in North Carolina with a librarian mother and high school English teacher father, Kathleen was inundated with a love of literature and correct grammar. She joined TIPS in March of 2008. In addition to managing the office, she copy edits, composes pages, proofreads, and indexes books for TIPS and other academic publishers.

Lynanne Fowle, Technical Writer/Editor

Lynanne Fowle entered the field of publishing in 1990 as administrative assistant to the dean of a small, liberal arts college in New Hampshire. A year later, she created the publications office for the College for Lifelong Learning and managed desktop publishing and printing operations there until 1997. During this time, she added electronic publishing, web site development, and project management to the college's marketing and development programs. After moving with her family to North Carolina in 1997, Lynanne worked as the manager of Electricities' desktop publishing office in Raleigh for two years. In May of 1999, Lynanne joined TIPS as managing editor, a position which utilizes her project management skills, desktop publishing background, and editorial experience.

Khedron de Leon, Compositor/Graphics Programmer

Khedron de Leon is a native of North Carolina and has been using computers to edit documents since he was eight, when he was introduced to the Apple IIc and the IBM 8086. He possesses a natural artistic ability, a love for writing, and a driving curiosity to figure out how computers tick. As a layout editor and public relations manager, he has edited hundreds of real-world documents for technical, grammatical, and clarity purposes, ranging from college yearbooks to enterprise network management manuals. Self-taught in many programming languages, Khedron operates/edits a variety of websites, including an online interactive tracking system. Khedron joined TIPS in 2003 as an editor, and also managed Quark composition as a senior project manager. He currently provides advanced technical support to hospitals using Per Se software.

Alexandra Beckstett, Copy Editor

Alexandra Beckstett majored in English with minors in Spanish and literature at Duke University. She joined TIPS in January 2007. In addition to managing the office, she copy edits, composes pages, proofreads, and indexes books for TIPS and other academic publishers.

Juanita Covert, Copy Editor

Juanita Covert has worked for TIPS for six years, copy editing and proofreading books on a wide variety of topics, from computer programming to medieval literature. Prior to working for TIPS, Juanita was a researcher, writer, and editor for the Ann Arbor (MI) Observer. Her last position there was editor of the Ann Arbor Art Fair Guide. She has a BA in communication studies from the University of Michigan and a MA in mass communication from the UNC School of Journalism and Mass Communication. Juanita is also a freelance writer and researcher, most recently working on content for Babycenter.com and for a new pregnancy journal.

Kara Minoui, Copy Editor

Kara Minoui graduated with a BA in English with a writing concentration from Penn. State University and was a recipient of the 1991 Katey Lehman Writing Award. She also studied corporate and organizational communications at Fairleigh Dickinson University. Kara spent seven years with Prentice Hall, gaining experience in project management and development editing before becoming managing editor for Quadrant HealthCom, a medical communications company. As a freelance writer and editor, Minoui authors a monthly new products column for the American Journal of Orthopedics, compiles annual indices, and edits a number of educational, medical, and technical publications. She has been working with TIPS since 2002.

Melissa Parker, Copy Editor

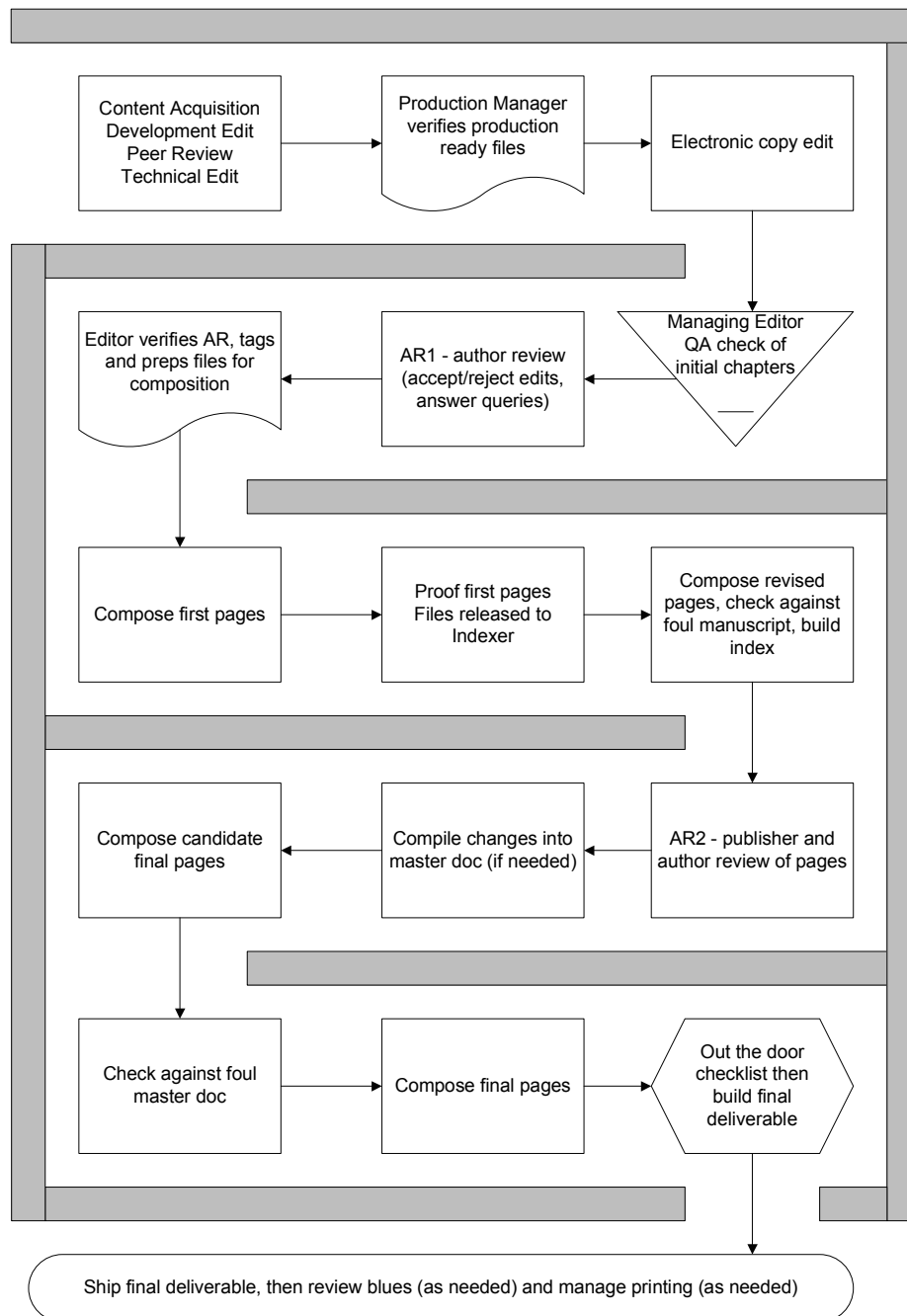
Melissa Parker graduated from the University of Washington in June of 2004. She began her college career on an engineering path, focusing on calculus, chemistry, and computer programming. However, she realized that she was more interested in language and writing, and instead pursued a degree in journalism. Shortly after this decision, she started working for the student newspaper where she held jobs both as a writer and editor. Upon graduation, Melissa sought a job in editing and a move outside the Pacific Northwest. She began working at TIPS in October of 2004.

Meghan Wanucha, Copy Editor

Meghan Wanucha majored in English with a minor in Slavic languages at UNC-Chapel Hill. Meghan joined TIPS in 2005. She has done extensive work in copy editing, composition, proofreading, and indexing, becoming comfortable and proficient with the tools of publishing. Her various project experience ranges from biographies to industry guidebooks to medical references.

Production Flowchart

TIPS' production process is very flexible. We modify our process to meet your needs. The sample production flowchart below illustrates one possible production path for your project.



Sample 6-Week Production Schedule

Below is a typical 6-week book production schedule. More aggressive batched-process schedules are also available.

ID	Task Name	Duration	Start	Finish	Predecessors	Resource Names
1	Receive manuscript and bid awarded	0 days	Tue 3/1/07	Tue 3/1/07		TIPS Project Manager
2	Design	12 days	Tue 3/1/07	Thu 3/17/07		
3	Create design, template, and sample chapter	5 days	Tue 3/1/07	Tue 3/8/07	1	Compositor
4	Publisher review	5 days	Tue 3/8/07	Tue 3/15/07	3	Publisher contact
5	Corrections to design implementation	2 days	Tue 3/15/07	Thu 3/17/07	4	Compositor
6	Edit	11 days	Tue 3/1/07	Wed 3/16/07		
7	Copy Edit	5 days	Tue 3/1/07	Tue 3/8/07	1	Copyeditor
8	Author Review	5 days	Tue 3/8/07	Tue 3/15/07	7	Author
9	Prep files for composition	1 day	Tue 3/15/07	Wed 3/16/07	8	TIPS Project Manager
10	First Pages	15 days	Wed 3/16/07	Wed 4/6/07		
11	Compose first pages	5 days	Wed 3/16/07	Wed 3/23/07	9	Compositor
12	Get CIP	10 days	Wed 3/23/07	Wed 4/6/07	1, 11	TIPS Project Manager
13	Proof first pages	5 days	Wed 3/23/07	Wed 3/30/07	11	Proofreader
14	Revised pages	6 days	Wed 3/30/07	Thu 4/7/07		
15	Compose revised pages	3 days	Wed 3/30/07	Mon 4/4/07	13	Compositor
16	Proof revised pages	3 days	Mon 4/4/07	Thu 4/7/07	15	Proofreader
17	Author review	3 days	Mon 4/4/07	Thu 4/7/07	15	Author
18	Publisher review	3 days	Mon 4/4/07	Thu 4/7/07	15	Publisher contact
19	Index	11 days	Wed 3/23/07	Thu 4/7/07		
20	Tag first pages	5 days	Wed 3/23/07	Wed 3/30/07	11	Indexer
21	Proof and revise index	3 days	Wed 3/30/07	Mon 4/4/07	20	Proofreader
22	Author review	3 days	Mon 4/4/07	Thu 4/7/07	21	Author
23	Publisher review	3 days	Mon 4/4/07	Thu 4/7/07	21	Publisher contact
24	Final Pages	6 days	Thu 4/7/07	Fri 4/15/07		
25	Compose candidate final pages	2 days	Thu 4/7/07	Mon 4/11/07	18	Compositor
26	Compose index	0.5 days	Mon 4/11/07	Mon 4/11/07	24	Author
27	Proof candidate final pages	2 days	Mon 4/11/07	Wed 4/13/07	25	Proofreader
28	Insert and verify final corrections	0.5 days	Wed 4/13/07	Thu 4/14/07	26	Compositor
29	Out-the-door check	0.5 days	Thu 4/14/07	Thu 4/14/07	27	TIPS Managing Editor
30	Print laser checks, preflight files, burn CDs for press and archive	0.5 days	Thu 4/14/07	Fri 4/15/07	28	Compositor
31	Post of FTP final deliverable	1 day	Thu 4/14/07	Fri 4/15/07	28	TIPS Managing Editor
32	Bound book date	0 days	Fri 5/13/07	Fri 5/13/07	30FS+20 days	

Sample Pages

TIPS has designed books for a variety of markets. The following sample pages represent a small selection of books from these markets.

Professional

GSK, *Commercial Practices Policies Resource Manual*

Melander, *HAZMAT Awareness*

Smith, *Process Piping Design Handbook, v. 1*

Speight, *Natural Gas*

Technical

Andrews, *Fundamentals of WiMAX*

Banach, *Inventor 8 Essentials Plus*

Duthie, *ASP.NET*

Reference

ASCE Directory

Hackfort, *Striving for Excellence: First ASPIRE Sports Science Conference*

SMA Conference Proceedings

SMST Conference Proceedings

Higher Education

Bottjer, *Exceptional Fossil Preservation*

Parks, *Physics of Space Plasmas*

Non-fiction Trade

Streissguth, *Johnny Cash: The Biography*

Grants for Independent Medical Education

HIGHLIGHTS

-----Purpose

- Defines the terms under which GSK US Pharma personnel in US Pharmaceuticals may request funding for independent medical education.

-----Appropriate and Prohibited Purposes

- Appropriate purposes for funding:
 - Specific independent education
 - Scholarships, fellowships
 - Students, residents and fellows
 - Independent educational conferences
 - Meals for attendees to independent educational conferences
 - Consumer outreach activities
 - Health fairs, patient testing sites or programs for consumers
 - Content development meetings
- Inappropriate purposes for funding:
 - May not be based on past recommendations regarding GSK
 - May not be used to pay no
 - May not be given to a general
 - May not pay travel, lodging fees, fees or expenses of non
 - May not support political
 - May not support education on scientific topics
 - In-kind support other than
 - Programs taking place outside
 - No return-on-investment (ROI)

★ These highlights provide an overview of some, but not all, details; consult the full policy text when making

Grants for Independent Medical Education.

Q&A

I. General

Question 1 What is the difference between an educational and a charitable grant?

An educational grant is generally funding that is earmarked for a defined independent educational activity, such as a grand rounds program on a disease state of interest to GSK. In contrast, a charitable grant is a donation of funding and/or in-kind support to an eligible health-related IRS 501(c)(3) organization to benefit their charitable mission. Keep in mind that there are other definitions and policy criteria that apply to these grants and that you must consult the respective grants policies.

Question 2 What is the difference between a grant and a fee for service arrangement?

Grants are not made with the expectation or intention that GSK will receive anything in return. Fee for service arrangements, on the other hand, enable GSK to obtain services it needs for a fair market value and are entered into with the expectation that GSK will receive the services it has paid for.

Question 3 I serve on the Board of Directors of a patient advocacy organization that is interested in receiving GSK grants for independent medical education. Can I initiate a grant request when I am a Board member?

Because your role with the organization may present a conflict of interest, you need to consult the Ethics and Compliance Department before initiating the request so they may determine if the potential conflict can be adequately addressed.

2 How Do I Know That I Will Offer or Transport Hazardous Materials?

Introduction to Shipping Papers, Marking, Labeling, and Placarding

When a vehicle is transporting Hazardous Materials (HMs), it carries or displays many items that communicate the presence of such materials. The vehicle may be placarded (see Figure 1-1).



Figure 1-1 Placard from a vehicle transporting hazardous materials.

The vehicle may be marked, as shown in Figure



Figure 1-2 Marking from a vehicle sho

The driver will have *shipping papers* that "Description," which includes a *Proper Ship number*, *identification number* (a four-digit number), *Packing Group (PSN)* (a Roman numeral I, have a *label*, as shown in Figure 1-3.



Figure 1-3 Label from a package showing

74 How Do I Determine that the Package Is Appropriate?

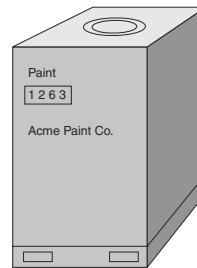


Figure 9-6 Portable tank marking.

Cargo Tanks (Tank Trucks) (Part 172.336)

A cargo tank must have the identification number markings displayed on each side and each end of the cargo tank. The identification numbers may be on orange panels, white square-on-point panels (placard size) or on placards. If the cargo tank is to be shipped in a freight container or on a transport vehicle and the identification numbers are not visible, then the shipper must place or offer the identification numbers to the carrier for placement onto each side and each end of the freight container or transport vehicle. If the cargo tank is mounted permanently inside the enclosed cargo body of a transport vehicle, the markings on the cargo tank are not required, although the markings on the transport vehicle are still required.

Only if the cargo tank transports gases, the PSN or an appropriate common name (e.g. refrigerant gas) must be displayed on each side and each end in letters no less than 2 inches high. An MC 330 or 331 cargo tank must be marked with the letters "QT" if constructed of quenched and tempered steel, or "NQT" if constructed of non-quenched and tempered steel using letters no less than 2 inches high.

Multi-compartment cargo tanks These do not require the identification numbers on the ends of the tank. The identification numbers for each compartment, however, must be placed in the proper order corresponding to the compartment in which they reside (Part 172.336) (see Figure 9-7).

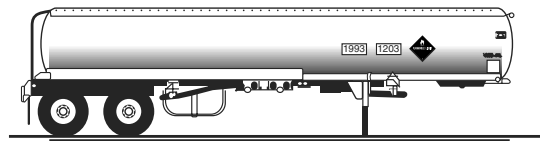


Figure 9-7 Multi-compartment cargo tank markings.

CHAPTER 1

Piping Codes, Standards, and Specifications

In the new computer-aided design (CAD) era, the compliance to industry codes, standards, and specifications remains essential for the successful completion of a process facility, safe operation, and the satisfaction of health, safety, and environment. The chapter is divided into the following:

- 1.1 Introduction
- 1.2 Definitions
- 1.3 Codes
- 1.4 Standards and Specifications

1.1 Introduction

Compliance to a code generally is mandated by regulatory agencies or their representatives. The company for the facility requires that the design meet the requirements of the relevant code or codes and the general public. Compliance is required by the rules of the applicable specification.

96 Chapter 2—Piping Components

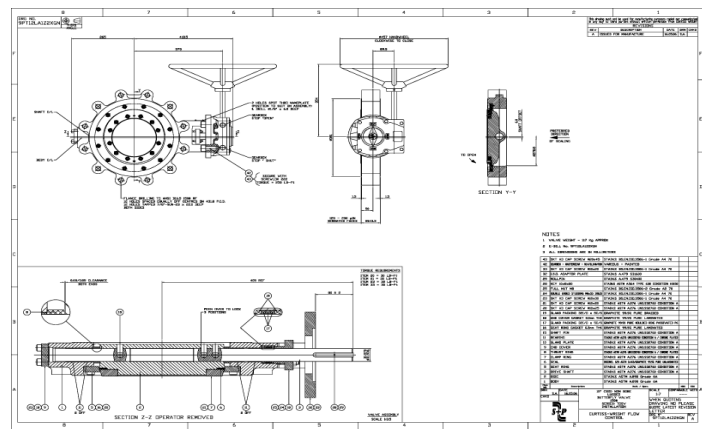
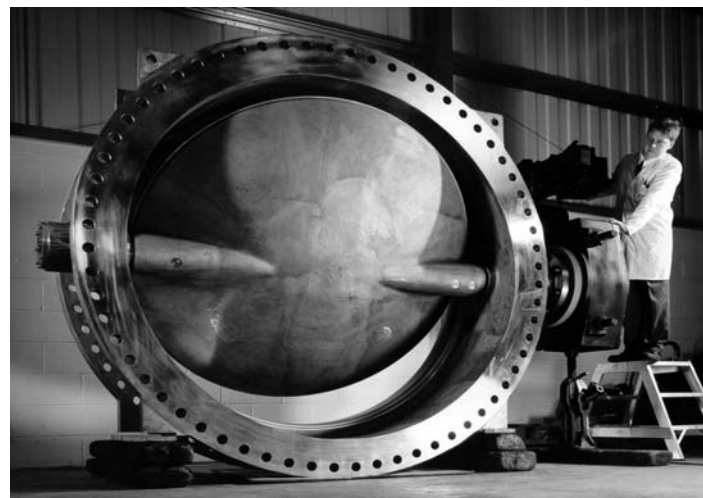


Figure 2-13 Butterfly valve: (top) 84" class 150 butterfly valve for water service and (bottom) a general arrangement for a butterfly valve. (Printed with the permission of Curtiss Wright Controls.)

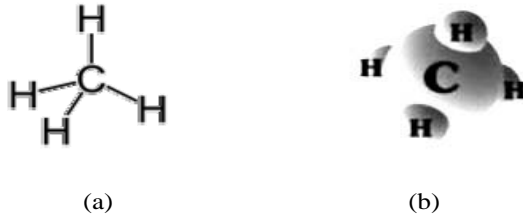


Figure 1-1 Simplified representation of methane as (a) a two-dimensional formula and (b) a three-dimensional formula.

Table 1-1 Range of Composition of Natural Gas

Gas
Methane
Ethane
Propane
Butane
Pentane and higher hydrocarbons
Carbon dioxide
Oxygen
Nitrogen
Hydrogen sulfide, carbonyl sulfide
Rare gases: Argon, Helium, Neon, Xenon

hydrogen sulfide, nitrogen, and helium heating value of natural gas. However, certain natural gases where their content may be extracted commercially.

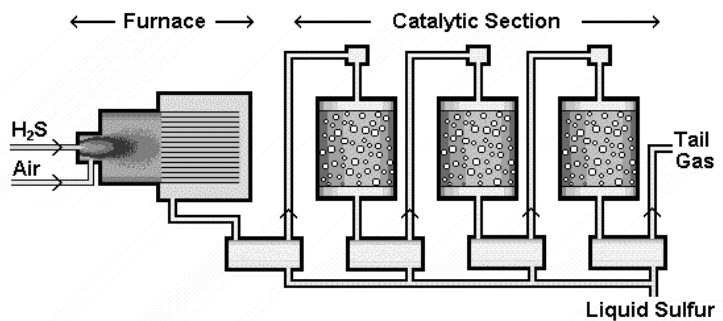
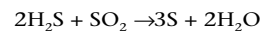
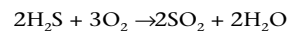


Figure 6-6 The Claus process. (Maddox, 1974 and <http://www.nelliott.demon.co.uk/company/claus.html>)

The conversion process used in most modern refineries is the Claus process, or a variant thereof.

The Claus process (Figure 6-6) involves combustion of about one-third of the hydrogen sulfide to sulfur dioxide and then reaction of the sulfur dioxide with the remaining hydrogen sulfide in the presence of a fixed bed of activated alumina, cobalt molybdenum catalyst resulting in the formation of elemental sulfur:



Different process flow configurations are used to achieve the correct hydrogen sulfide/sulfur dioxide ratio in the conversion reactors.

Overall, conversion of 96 to 97% of the hydrogen sulfide to elemental sulfur is achievable in a Claus process. If this is insufficient to meet air quality regulations, a Claus process tail-gas treater is used to remove essentially the entire remaining hydrogen sulfide in the tail gas from the Claus unit. The tail-gas treater may employ a proprietary solution to absorb the hydrogen sulfide followed by conversion to elemental sulfur.

Sidebar 3.4 A Pedagogy for Developing Statistical Models

Our pedagogy for developing statistical models of wireless channels consists of three steps discussed in the sections noted.

1. **Section 3.5.1:** First, consider a single channel sample corresponding to a single principal path between the transmitter and the receiver:

$$h(\tau, t) \rightarrow h_0 \delta(\tau, t) ..$$

Attempt to quantify: How is the value of $|h_0|$ statistically distributed?

2. **Section 3.5.2:** Next, consider how this channel sample h_0 evolves over time:

$$h(\tau, t) \rightarrow h_0(t) \delta(\tau) ..$$

Attempt to quantify: How does the value of $h_0(t)$ evolve over time? That is, how is $h_0(t)$ correlated with $h_0(t')$?

3. **Section 3.5.2 and Section 3.5.3:** Finally, consider how this channel sample evolves over time as specified by step 2. Consider a time-varying function. One simple approach is to consider a general multipath channel with $v + 1$ taps. The value for each of these taps is distributed as a Gaussian random process. The channel evolves over time as specified by step 2.

quadrature (sine) components of $r(t)$, denoted as $r_I(t)$ and $r_Q(t)$, are correlated Gaussian random processes.

Consider a snapshot value of $r(t)$ at time $t = 0$. The values $r_I(0)$ and $r_Q(0)$ are Gaussian random variables. The envelope amplitude $|r| = \sqrt{r_I^2 + r_Q^2}$ is Rayleigh and the phase $\angle r$ is exponentially distributed. Formally,

$$f_{|r|}(x) = \frac{2x}{P_r} e^{-x^2/P_r}, \quad x \geq 0$$

and

$$f_{\angle r}(x) = \frac{1}{2\pi} e^{-jx}, \quad x \in [0, 2\pi)$$

where P_r is the average received power owing to the signal, in Equation (3.10). The pathloss and shadow fading are assumed to be fixed over some period of time around this mean, owing to the fading (see Figure 3.10).

Table 2.2 Fixed and Mobile WiMAX Initial Certification Profiles

Band Index	Frequency Band	Channel Bandwidth	OFDM FFT Size	Duplexing	Notes
Fixed WiMAX Profiles					
1	3.5 GHz	3.5MHz	256	FDD	Products already certified
		3.5MHz	256	TDD	
		7MHz	256	FDD	
		7MHz	256	TDD	
2	5.8GHz	10MHz	256	TDD	
Mobile WiMAX Profiles					
1	2.3GHz–2.4GHz	5MHz	512	TDD	Both bandwidths must be supported by mobile station (MS)
		10MHz	1,024	TDD	
		8.75MHz	1,024	TDD	
2	2.305GHz–2.320GHz, 2.345GHz–2.360GHz	3.5MHz	512	TDD	
		5MHz	512	TDD	
		10MHz	1,024	TDD	
3	2.496GHz–2.69GHz	5MHz	512	TDD	Both bandwidths must be supported by mobile station (MS)
		10MHz	1,024	TDD	
4	3.3GHz–3.4GHz	5MHz	512	TDD	
		7MHz	1,024	TDD	
		10MHz	1,024	TDD	
5	3.4GHz–3.8GHz, 3.4GHz–3.6GHz, 3.6GHz–3.8GHz	5MHz	512	TDD	
		7MHz	1,024	TDD	
		10MHz	1,024	TDD	

With the completion of the IEEE 802.16e-2005 standard, interest within the WiMAX group has shifted sharply toward developing and certifying mobile WiMAX¹ system profiles based on this newer standard. All mobile WiMAX profiles use scalable OFDMA as the physical layer. At least initially, all mobility profiles will use a point-to-multipoint MAC. It should also be noted that all the current candidate mobility certification profiles are TDD based. Although TDD is often preferred, FDD profiles may be needed for in the future to comply with regulatory pairing requirements in certain bands.

1. Although designated as mobile WiMAX, it is designed for fixed, nomadic, and mobile usage scenarios.

ANALYSIS TOOLS

Various tools are available that assist in analyzing sketch, part, and assembly models. The Measure tool actually consists of four separate tools. You can measure distances, angles, and loops, and perform area calculations. You can also calculate the center of gravity of parts and assemblies.

THE MEASURE TOOL

The Measure tools are on the Tools menu, as shown in Figure 6-54. The following sections discuss these tools in greater detail.



Figure 6-54

Measure Distance Click to measure the length of a line, radius, length of an arc, distance between points, radius of elements relative to the active coordinate system. The measurement box displays the measurement for the selection. Also, a temporary line designating graphics.

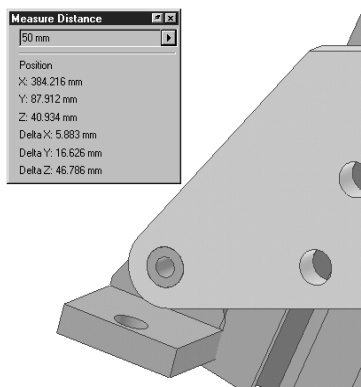


Figure 6-55

Measure Angle Click to measure the angle between two points. The measurement box (see the selection of two edges of the pl

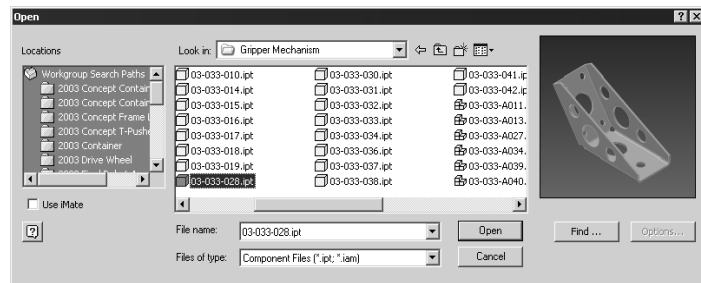


Figure 6-6

TOP-DOWN APPROACH

You can create new components while in an assembly. This method is referred to as the *top-down assembly approach*. To create a new component in the current assembly, click the Create Component tool on the Assembly Panel Bar as shown in Figure 6-7, press the shortcut key N, or right-click and select Create Component from the menu.



Figure 6-7

The Create In-Place Component dialog box will appear, as shown in Figure 6-8. Enter a new file name, a file type, a location where you will save it, and the template file on which to base it. Also determine if the component will be constrained to a face on another component in the assembly. If you click the Constrain sketch plane to selected face or plane box option, a flush constraint will be applied between the selected face and the new component's initial sketch plane. If you leave the options box clear, no constraint will be applied. You will still select a face, however, on which to start sketching the new component.

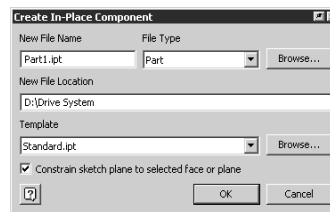


Figure 6-8

ASP.NET Development Overview

In this chapter , you will learn about

- ✓ *The types of ASP.NET applications and how Visual Studio .NET projects are used for*
- ✓ *The file types used in ASP.NET applications and why you might use one over another*
- ✓ *The available languages for ASP.NET and why you might use one over another*

In the last chapter, you learned about the basics of creating ASP.NET applications and the basics of ASP.NET development. We'll also see how to use Visual Studio .NET and identifying its parts and how to use it. Read later chapters.

ASP .NET Project Types

There are two basic types of ASP.NET applications: Web applications and Web services. For a Web application that will be developed programmatically, there are ASP.NET application types that can be developed with or without the Visual Studio environment makes development significantly easier and faster. The following table lists the ASP.NET XML Web service project types.

<identity> Element Attributes		
Attribute	Description	Options
<i>impersonate</i>	Determines whether ASP.NET applications will use impersonation.	<i>true</i> Enables impersonation of security accounts by ASP.NET applications. <i>false</i> Disables impersonation of security accounts by ASP.NET applications.
<i>userName</i>	Specifies a user account that the affected ASP.NET application will impersonate.	Any valid user account. You should ensure that the account that you choose has access to only the desired resources. For example, as a rule, it is not a good idea to have an ASP.NET application impersonate an account in the Administrators group. If omitted, ASP.NET will impersonate the account of the logged on user (as provided by IIS).
<i>password</i>	Specifies the password for the account named in the <i>userName</i> attribute.	

<authorization>

The *<authorization>* element lets you specify which accounts or roles (groups) are authorized to access resources within the scope of the configuration file. The *<authorization>* element supports two child elements, *<allow>* and *<deny>*, each of which has three attributes. The *<authorization>* element has the following syntax:

```
<authorization>
  <allow
    users="userlist"
    roles="rolelist"
    verbs="verblast" />
  <deny
    users="userlist"
    roles="rolelist"
    verbs="verblast" />
</authorization>
```

For information on *<authorization>* element attributes, consult the following table.

PAST AND PRESENT OFFICERS

Name	Pres.	Vice Pres.	Secy.	Treas.	Director
WIEDEMAN, JOHN H.	83	79-80 (II)			76-78 (10)
WILSON, JR., LAWRENCE E.					82-84 (6)
WOODFORD, JR., WALTER E.					83-85 (5)
WOODRUFF, RICHARD S.					81-83 (14)
WOODSON, MARK W.					04-06 (11)
WOOLERY, WILLIAM L.					97-99 (10)
WORTMAN, ROBERT H.					93-95 (11)
ZOINO, WILLIAM S.		86-87 (I)			
ZWOYER, EUGENE M.*			72-82		69-71 (15)

Honorary Members

"An Honorary Member shall be a person who shall have attained acknowledged eminence in some branch of engineering or in the arts and sciences related thereto." (Bylaws 2.1.6)

The current roster of active Honorary Members includes:

JOEL I. ABRAMS, Ph.D., P.E.	KEITH F. FAHERTY, Ph.D., P.E.
HOJJAT ADELI, Ph.D.	LARRY J. FEESER, Ph.D., P.E.
MAURICE L. ALBERTSON, P.E.	STEVEN J. FENVES, Ph.D.
HARL P. ALDRICH, JR., Ph.D., P.E.	D. ALLAN FIRMAGE, P.E.
RICHARD O. ANDERSON, P.E.	JOHN W. FISHER, Ph.D., P.E.
ALFREDO H. S. ANG, Ph.D.	GERARD F. FOX, P.E.
SOL J. ARCEIVALA, P.E.	J
TUNG AU, Ph.D., P.E.	R
CLYDE N. BAKER, JR., P.E.	T
PAUL E. BARTLETT, P.E.	G
LEO R. BEARD, P.E.	
STEPHEN D. BECHTEL, JR., Ph.D.	B
DAVID T. BIGGS, P.E.	H
DAVID P. BILLINGTON, P.E.	J
OMER W. BLODGETT, P.E.	R
RICHARD P. BRAUN, P.E.	A
NORMAN H. BROOKS, P.E.	W
COLIN B. BROWN, Ph.D., P.E.	D
JACK E. BUFFINGTON, P.E.	J
PHILIP H. BURGL, P.E.	D
JOHN J. CASSIDY, Ph.D., P.E.	D
JACK E. CERMAK, Ph.D., P.E.	J
WAI-FAI CHEN, Ph.D., P.E.	W
AH BAH CHIN	D
KEN P. CHONG, Ph.D., P.E.	H
JOHN T. CHRISTIAN, Ph.D., P.E.	J
A. JAMES CLARK	J
G. WAYNE CLOUGH, Ph.D., P.E.	J
RAY W. CLOUGH, Ph.D., P.E.	K
EDWARD COHEN, P.E.	F
W. GENE CORLEY, Ph.D., P.E.	G
L. LE ROY CRANDALL, P.E.	J
ELIO D'APPOLONIA, P.E.	N
JACOB DEKEMA	S
ROBERT J. DESJARDINS, P.E., L.S.	N
ANTHONY M. DIGIOIA, JR., Ph.D., P.E.	A
ALBERT A. DORMAN, P.E., L.S.	R
J. MICHAEL DUNCAN, P.E.	E
JACKSON L. DURKEE, P.E.	R
REX A. ELDER, P.E.	C

* Served as Secretary beginning May 1, 1972; resigned March 31, 1982.

GENERAL INFORMATION

Journal	Institution			Member		
	Online Only	Print + Online		Online Only	Print + Online	
	Dom./Int'l	Dom.	Int'l	Dom./Int'l	Dom.	Int'l
Monthly						
Construction Engineering and Management	\$692	\$814	\$862	\$173	\$204	\$252
Engineering Mechanics	\$908	\$1068	\$1116	\$227	\$267	\$315
Environmental Engineering	\$796	\$936	\$984	\$199	\$234	\$282
Geotechnical & Geoenvironmental Engineering	\$824	\$970	\$1018	\$206	\$242	\$290
Hydraulic Engineering	\$785	\$924	\$972	\$196	\$231	\$279
Materials in Civil Engineering	\$565	\$664	\$712	\$141	\$166	\$214
Structural Engineering	\$988	\$1163	\$1121	\$247	\$291	\$339
Transportation Engineering	\$637	\$750	\$798	\$159	\$187	\$235
Bimonthly						
Bridge Engineering	\$485	\$571	\$595	\$121	\$143	\$167
Composites for Construction	\$393	\$462	\$486	\$98	\$116	\$140
Computing in Civil Engineering	\$381	\$449	\$473	\$95	\$112	\$136
Hydrologic Engineering	\$437	\$514	\$538	\$109	\$129	\$153
International Journal of Geomechanics	\$352	\$414	\$438	\$88	\$104	\$128
Irrigation and Drainage Engineering	\$426	\$501	\$525	\$106	\$125	\$149
Performance of Constructed Facilities	\$325	\$382	\$406	\$81	\$96	\$120
Water Resources Planning and Management	\$403	\$474	\$498	\$101	\$119	\$143
Waterway, Port, Coastal and Ocean Engineering	\$336	\$395	\$419	\$84	\$99	\$123
Quarterly						
Aerospace Engineering	\$314	\$370	\$386	\$79	\$92	\$108
Architectural Engineering	\$258	\$303	\$319	\$64	\$76	\$92
Cold Regions Engineering	\$198	\$233	\$249	\$50	\$58	\$74
Energy Engineering	\$234	\$275	\$291	\$59	\$69	\$85
Infrastructure Systems	\$291	\$342	\$358	\$73	\$86	\$102
Leadership and Management in Engineering	\$191	\$224	\$240	\$48	\$56	\$72
Management in Engineering	\$241	\$283	\$299	\$60	\$71	\$87
Natural Hazards Review	\$259	\$304	\$320	\$65	\$76	\$92
Practice Periodical of Hazardous, Toxic and Radioactive Waste Management	\$276	\$324	\$340	\$69	\$81	\$97
Practice Periodical on Structural Design and Construction	\$256	\$301	\$317	\$64	\$75	\$91
Professional Issues in Engineering Education and Practice	\$308	\$362	\$378	\$77	\$91	\$107
Surveying Engineering	\$242	\$284	\$300	\$60	\$71	\$87
Urban Planning and Development	\$265	\$312	\$328	\$66	\$78	\$94
All 2007 Journals	\$9,146	\$10,760	\$11,160	\$2,940	\$3,459	\$3,859

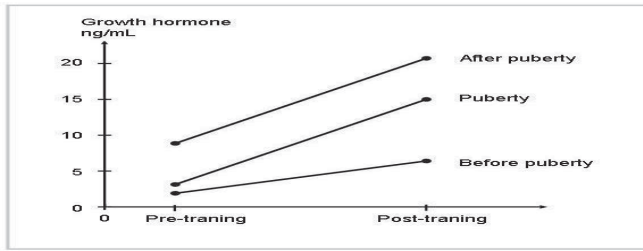


Figure 1-4 Effects of training on the growth hormone response in children before, during, and after puberty. There is not a gender difference in this response. Adapted from: (1) Rowland, T. W. (2005). *Children's exercise physiology* (2nd ed., Chapter 2). Champaign, IL: Human Kinetics. (2) Rubin, S. A., Buttrick, P., Malhotra, A., Melmed, S., & Fishbein, M. C. (1990). *Cardiac physiology, biochemistry, and morphology in response to excess growth hormone in the rat*. *J Mol Cell Cardiol*, 22, 429-438.

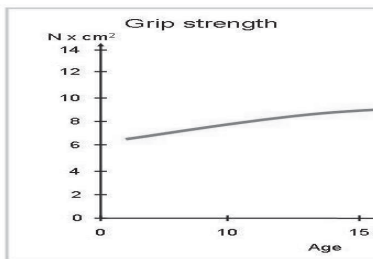
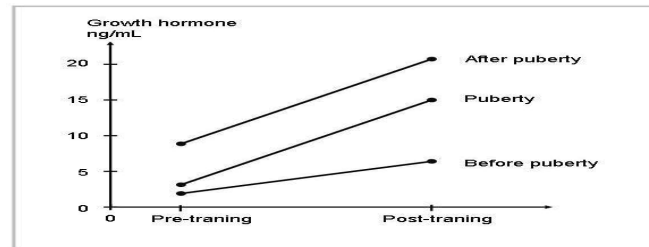


Figure 1-5 Grip strength normalised for muscle size and very young to adult age. The important message is that strength by muscle cross-sectional area and lever arm changes that finding is most likely that with maturation the nervous system adaptations following prepubescent strength training. Me

muscle fibre architecture, i.e., angle of pennation, and (3) more strength per unit sarcomere.

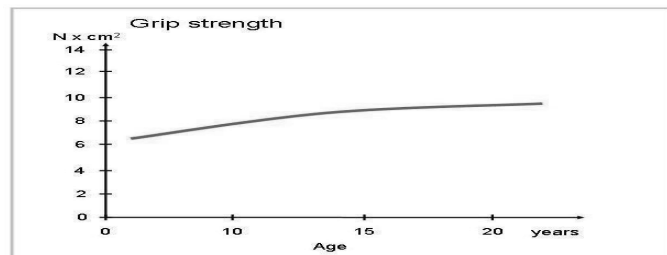
No data are available to support the change in strength per sarcomere. There have been arguments for the possibility that under altered muscle fibre architecture is at least in part a contributing factor, but latest findings indicate that it is not (Blimkie & Sale, 1998). Thus,

tha
ner
uni
dri
mo
wh
to :



الشكل 4: تأثير التدريب على استجابة هرمون النمو لدى الأطفال قبل وأثناء وبعد البلوغ. لا يوجد اختلاف على مستوى الجنس في هذه الاستجابة (مقتبس بتصرف عن المرجع 5 الفصل الثاني والمرجع 7).

هناك عامل آخر يساهم في قوة العضلات الكبيرة التي نلاحظ خلال فترة الطفولة. بالنظر إلى تغير العضلة (CSA) والذراع الرافعة خلال النمو فإن قوة العضلات تزداد بشكل ملحوظ أكثر مما هو متوقع (شكل 5) ويمكن تعليل ذلك ب: (1) تحسن النشاط العصبي للعضلة. (2) تعديل بناء ألياف العضلة مثل زاوية الامتداد. (3) قوة أكبر لكل وحدة ساركومية.



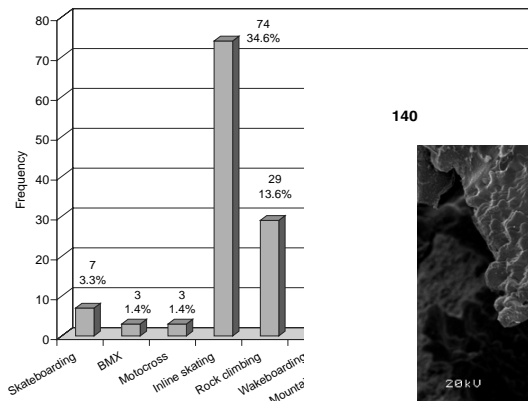
الشكل 5: إن قوة القبضة الموضحة لحجم العضلة والذراع الرافعة ترسم مدى الأعمار من أدنى سن وحتى البلوغ. والرسالة المهمة هنا، هي أنه يمكن زيادة القوة أكثر، مما يمكن تفسيره على أنه نتيجة متغيرات المنطقة المقطعية للعضلة والذراع الرافعة التي تحدث أثناء النمو. ما يبرر هذه النتيجة هو أنه مع بلوغ النضوج، فإن النشاط العصبي للعضلة يتحسن (مقتبس بتصرف عن المرجع 5، الفصل 10 والمرجع 9).

ليست هناك بيانات متوفرة لدعم التغير في القوة لكل ساركومية، وهناك اختلاف في إمكانية أن تكون عاملاً مساهماً جزئياً، لكن دلت النتائج الأخيرة على أنها ليست كذلك، ولذا فإن ما يبقى من تعليل لذلك هو النشاط العصبي للوحدات الحركية منفردة

Figure 6: Kinds of extreme sports by season.

Season	Kinds of Extreme Sports
Summer Extreme Sports	Skateboarding, BMX, Motocross, Inline skating, ATV riding Wakeboarding, Rock climbing, Mountainboarding
Winter Extreme Sports	Snowboarding, Skiing, Snowmobiling, Skiboarding Artificial (indoor) rock climbing

Figure 7: Frequency and percentage of summer extreme sports participation. (Note: SES is an abbreviation for summer extreme sports.)



As shown in Figure 10, the majority of the respondents (49.7% in winter) considered themselves to be at an intermediate level and 46 (26.3%) in winter considered themselves beginner (18.3% in winter labeled themselves "advanced"; and ten (5.7%) in winter described themselves as being advanced.

In order to figure out the extreme sports participants regarding the types of gear owned by participants as well as to buy in the future. Questions were also asked regarding

140

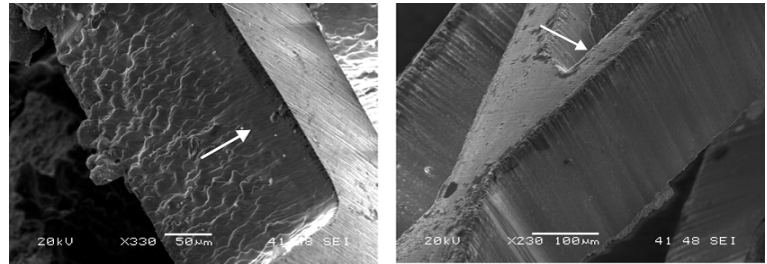


Figure 6 Side views of cuts by dpSSL (left) and femtosecond pulse laser (right).

The cutting edge was very sharp in contrast to standard lasers and even to ultrashort pulse lasers where bulging appeared.

CUTTING SPEED

When optimized, the melt-cutting process with standard lasers was working very rapidly—about 300mm/min. for wall thicknesses of about 250µm. Since q-switched dpSSLs or femtosecond lasers are also evaporating, more laser power was needed for working at the same speed (due to the phase transitions). Unfortunately, increasing the absolute average laser power led to a degradation of the beam profile caused by increasing thermal lensing effects within the resonators. Femtosecond lasers needed to increase their repetition rate to boost the average power. Entering the MHz regime, a quasi cw modus is established where melting occurs and the above-mentioned advantages are lost. Additionally, the cutting pattern has to be traced by the laser up to 40 times for a wall thickness of 250µm because a single pulse cannot totally penetrate the material. Both effects lead to a drastic reduction of the cutting speed to about 10m/min. or even less.

Table 1 Summary of the Properties of Lasers and their Machining Performance

	standard	dpSSL	femto
wavelength	1064nm	1064nm	~775nm
pulse duration	~ 100µs	~100ns	~100fs
repetition	~ 1000Hz	~10kHz	~1kHz
beam profile M ²	~2.5	~1	1.5
HAZ	2–8µm	2–8µm	negligible
Kerf quality	burrs, slag, rough edges	less burrs, slag, sharp edges, ablation zone	plane, no burrs, rough edges
cutting speed	up to 300mm/min.	up to 300mm/min.	10–40mm/min.

13

Berlin-Ichthyosaur: Preserving Some of the Earth's Largest Marine Vertebrates

David J. Bottjer

Remarkable fossil deposits that preserve articulated marine reptiles are common among Mesozoic Lagerstätten. Although some of these Lagerstätten, such as Monte San Giorgio (Chapter 12), preserve a startling diversity of articulated marine reptiles, and some, such as the Posidonia Shale (Chapter 15), have extensive soft-tissue preservation, others lay their claim to fame on different factors. Complete

skeletons of the ichthyosaur *Shonisaurus popularis* are found within the Upper Triassic Luning Formation in the Shoshone Mountains at Berlin-Ichthyosaur State Park, Nye County, Nevada (Camp 1981; Orndorff, Wieder, and Filkorn 2001) (Figures 13.1 and 13.2). These skeletons come from a deposit reputed to be the richest source of ichthyosaurs in North America.

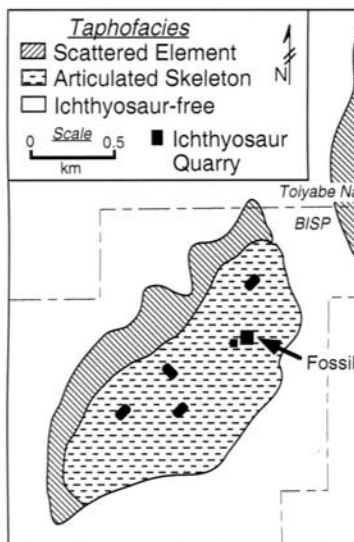


Figure 13.1 Location of ichthyosaur quarries at Berlin-Ichthyosaur State within the Upper Triassic Luning Formation. (Modified from Hogler 1997)

66 Burgess Shale-Type Localities

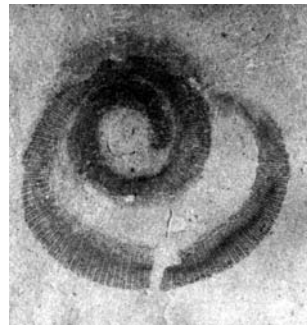


Figure 5.4 The worm *Palaeoscolex ratcliffi* from the Spence Shale in the Wellsville Mountains, Utah. Length of specimen is 9 cm. (Photo courtesy of R. Robison, University of Kansas)

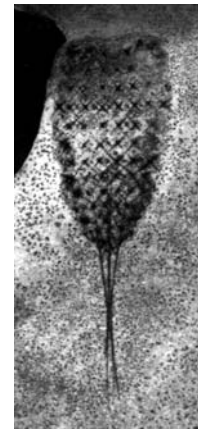


Figure 5.5 The sponge *Diagoniella cyathiformis* from the Marjum Formation in the House Range, Utah. Length of specimen is 2.7 cm. (Photo courtesy of R. Robison, University of Kansas)

banki, *Hazelia palmata*, and *Leptomitus metta*, and hexactinellid sponges such as *Diagoniella cyathiformis* (Figure 5.5), *Hintzespongia bilamina*, *Testispongia venula*, *Protospongia hicksi* (Figure 5.6), and *Valospongia gigantis* (Rigby 1966, 1969, 1978, 1983; Rigby and Gutschick 1976; Rigby, Gunther, and Gunther 1997). These units are also well known for exquisite preservation of easily disarticulated biomineralized taxa, such as articulated hyolithids, carapoids, eocrinoids (Figure 5.7), and several edrioasteroids (Sprinkle 1985; Ubags and Robison 1985, 1988; Babcock and Robison 1988).

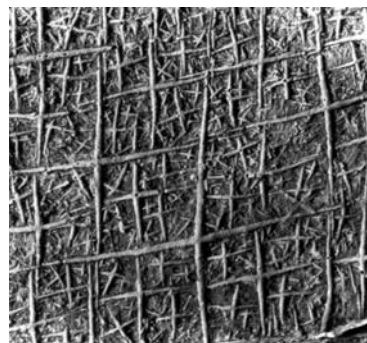


Figure 5.6 Spiculate fabric in wall of the sponge *Protospongia hicksi* from the Marjum Formation in the House Range, Utah. Field of view is 2.1 cm. (Photo courtesy of J. K. Rigby Sr, Brigham Young University)

Middle Cambrian (Lowermost Marjuman) Burgess Shale near the Walcott Quarry, Canadian Rockies. Burgess Shale-type localities located within 30 km of the Walcott Quarry contain several new forms not known from the original quarries, such as the spectacular chelicerate *Sanctacaris uncata* (Collins, Briggs, and Conway Morris 1983; Briggs and Collins 1988). Most of the localities, however, contain similar faunas, but in very different proportions (Collins, Briggs, and Conway Morris 1983; Collins 1985). In total, at least five distinct faunal assemblages are recognized and occur at four stratigraphic levels spanning two trilobite zones (Collins, Briggs, and Conway Morris 1983; Briggs and Collins 1988). Some of these localities are dominated by the large predator *Anomalocaris*. In contrast, other horizons do not contain *Marella* (the most common animal in the Burgess Shale), but include abundant *Alalcomenaeus* and *Branchiocaris*, which are extremely rare in the Walcott Quarry (Collins, Briggs, and Conway Morris 1983; Briggs and Collins 1988).

Upper Ordovician (Ashgill) Soom Shale Member of the Cedarberg Formation of Cape Province, South Africa. Although isolated occurrences of Burgess Shale-type taxa, such as *Palaeoscolex* and *Diagoniella*, are known from Silurian deposits (Rigby 1986b; Conway Morris 1977, 1989b), the youngest occurrence of an entire Burgess Shale-type fauna occurs in the Soom Shale, where gut traces, fibrous

7

J.R., JOHN, JOHNNY

The big sound of the small trio grew in 1961 when Cash moved to Nashville. He had been in New York. The club was one of the swankier stopovers on the circuit in the 1950s and 1960s, a gig that got Cash a lot of attention. Tours in the Northeast usually included stops at music ranches (such as Sunset Park in Maryland, Lone Star Ranch in New Hampshire) and were embellished by the acts. But the prospects were slim, and a follow-up series of dates scheduled in New York City, inspired Cash to fill out his sound and to hire a tall beefy Tennessean who'd been a fixture in the area more than capable of handling the job.

Grant oriented Holland to his new work in Syracuse kindling a quick romance with Maxine. Ed and sister Bonnie shared the bill with Cash. [Holland] just sat on the stool and, automatically, I was doing, and he was great at it," says Cash.

101



25. The changing of the guard. Lou Robin (l) and Saul Holiff. (Saul Holiff Collection).



26. Baptism in the Jordan River with Jimmy Snow (l) and Larry Lee (r). (Saul Holiff Collection).



27. With June and John Carter at the American Music Awards, 1977. (Author's Collection).

152 4. Particles in Space

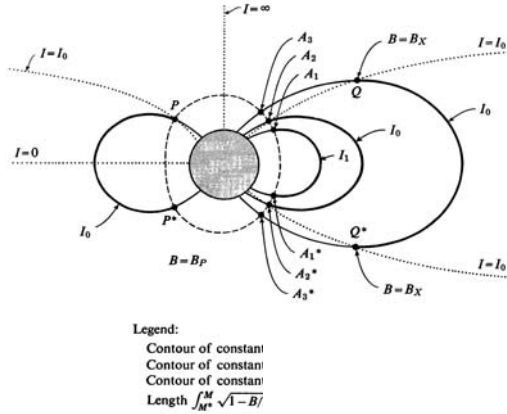


Figure 4.21: Guiding center motion and I contours. (From O'Brien, 1967).

the second invariant. Distortions of direction result in a non-circular drift. If the particle orbits are modified the dipole field, how do we identify the centers move in time? In Figure 4.2 labeled I_0 on the left. Its mirror pair is I_1 . Thus, once the equatorial α is specified B_M . Now, the particle is also azimuthal drifts, what factors constrain the magnetic lines of force, the guiding center of the motion such that the second invariant is constant.

$$J = \int m v_{\parallel} ds = \int m v \left(1 - \frac{B}{2}\right) ds$$

The total momentum $m v$ of a particle is constant and, therefore, it can be taken outside the integral and integrated between the

156 4. Particles in Space

Let us study the motion of particles in the one-dimensional magnetic tail configuration

$$\begin{aligned} B_x &= B_0 & z &\geq L \\ B_x &= \frac{B_0 z}{L} & L &\geq z \geq -L \\ B_x &= -B_0 & z &\leq -L \end{aligned} \quad (4.177)$$

discussed in Chapter 3. Recall that this model supports a neutral line at $z = 0$. The plasma sheet boundary is located at $\pm L$ and the lobe field intensity is constant at B_0 . The component equations of the Lorentz equation of motion using (4.1) are

$$\begin{aligned} \ddot{x} &= 0 \\ \ddot{y} &= \left(\frac{qB_0}{mL}\right) z \dot{z} \\ \ddot{z} &= -\left(\frac{qB_0}{mL}\right) z \dot{y} \end{aligned} \quad (4.178)$$

where the dot means time derivative. Now, multiply the second equation by \dot{y} and the third by \dot{z} , add, and obtain

$$\frac{d}{dt}(y^2 + z^2) = 0 \quad (4.179)$$

This describes the motion of particles in the plane perpendicular to the direction of the magnetic field (yz -plane). Equation (4.179) is just the conservation of energy equation.

Noting that $d(z^2/2)/dt = z\dot{z}$, we can integrate the second equation of (4.178) and obtain

$$\dot{y} = \dot{y}_0 + \left(\frac{qB_0}{2mL}\right) (z^2 - z_0^2) \quad (4.180)$$

Insert this into the third equation of (4.178) and, after multiplying it by $2\dot{z}$, integrate exactly and obtain

$$\dot{z}^2 = \dot{z}_0^2 + \left(\frac{qB_0}{mL}\right) \left[\left(\frac{qB_0}{2mL}\right) z_0^2 - \dot{y}_0 \right] (z^2 - z_0^2) - \left(\frac{qB_0}{2mL}\right)^2 (z^4 - z_0^4) \quad (4.181)$$

In these equations, z_0 , \dot{z}_0 , y_0 and \dot{y}_0 are initial values. Equation (4.181) is rather complicated. The equation may be simplified and put in the form (see Rothwell and Yates, 1984, cited in the Bibliography)

$$\dot{z}^2 = (1 - k^2 + k^2 z^2)(1 - z^2) \quad (4.182)$$

where $k^2 = qB_0 z_m^2 / 4Ly_0$ and z_m represents the point on the z -axis where the particles turn around.

The general solutions of (4.182) involve elliptic integrals and Jacobi elliptic functions, and there are three different classes of orbits depending on the values of k^2 . For example, if $k^2 = 1$, the solutions correspond