



The Swiss Silicon Valley Association  
proudly presents:  
**10th Anniversary Tour**  
**1991 - 2002**



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## 1. Program

### 1.1. Timetable

#### **Sunday, May 12**

- 07h00 Check-in at British Airways, Geneva Airport Cointrin  
(for participants leaving from GVA)
- 08h05 Departure from Geneva to London Heathrow (flight BA 742)
- 07h00 Check-in at British Airways, Zurich Airport Kloten (for participants leaving from ZRH)
- 08h00 Departure from Zurich to London Heathrow (flight BA 709)
- 10h40 Departure from London Heathrow to San Francisco Intl. Airport (flight BA 285)
- 13h35 Arrival at San Francisco Intl. Airport
- 14h15 Transfer to Palo Alto
- 15h00 Arrival and Check-in at Hotel Stanford Terrace Inn,  
time to relax or for a walk to California Avenue

#### **Monday, May 13**

- 08h00 Breakfast at the hotel
- 09h00 Departure for IDEO, Palo Alto
- 09h30 Meeting with Bill Moggridge, one of the founder of IDEO
- 11h00 Departure for Stanford University, Palo Alto  
Lunch at the Faculty Club with a speech by Dr. Charles Petrie:  
"Wireless Internet does not mean 3G"
- 13h30 Guided Tour of Campus followed by two visits  
(Wireless Access and the Center of Professional Development)
- 16h30 Possibility of an individual tour of the Stanford University Campus  
or return to the hotel, time for a swim
- 18h00 Welcome dinner at the MacArthur Park in Palo Alto, with guests from Silicon Valley,  
hosted by the Silicon Valley Bank:
  - Mr. Johan Kampe, Director, International VC Group
  - Mr. J. Richard Fredericks, Former Ambassador to Switzerland
  - Mr. Richard Horning, Chair Internet Practice Group TZMM

#### **Tuesday, May 14**

- 08h00 Breakfast at the hotel
- 09h00 Departure from Hotel
- 09h30 Visit to Adobe, San Jose
- 13h30 Visit to Harmonic, Mountain View
- 15h30 Visit to Transmeta Corporation, Santa Clara
- 18h00 Return to the hotel  
time for a swim or to relax
- 19h00 Optional activities planned for the evening, Palo Alto

#### **Wednesday, May 15**

- 08h00 Breakfast at the hotel
- 09h00 Visit to nVidia, Santa Clara
- 11h30 Visit to Tomlinson, Zisko, Morosoli & Maser LLP, Palo Alto
- 13h30 Departure for Santa Clara
- 14h00 Visit to Intel, Santa Clara
- 18h00 Anniversary Party in the hotel

**Thursday, May 16**

- 08h00 Breakfast at the hotel
- 09h00 Departure for Mountain View
- 09h30 Visit Neoteris, Mountain View
- 14h00 Visit to Sun Micro Systems, Menlo Park
- 17h00 Visit to the Silicon Valley World Internet Center, Palo Alto
- 19h30 Dinner in one of the many local restaurants, Downtown Palo Alto  
ertino

**Friday, May 17**

- 08h00 Breakfast and checkout at the hotel
- 09h00 Departure for Cupertino
- 09h30 to Apple Computer, Infinite Loop No 1, Cupertino
- 13h00 Departure for San Francisco
- 14h00 Visit to eZula, San Francisco
- 18h00 Evening in San Francisco

**Saturday, May 18**

- 08h30 Breakfast at the hotel
- 09h30 the Computer Museum History Center, NASA Ames
- 11h00 Drive to Monterey
- 12h30 Lunch in Downtown Monterey
- 15h00 Visit to the World famous Monterey Aquarium  
or optional 17 miles scenic drive to Carmel
- 19h00 Farewell dinner in a fish restaurant in Monterey

**Sunday, May 19**

- 09h00 Breakfast and checkout at the hotel
- 10h00 Time for last minute shopping (Stanford Mall)
- 12h00 Latest Check-out at the hotel
- 13h30 Departure for San Francisco International Airport SFO
- 14h30 Check-in
- 16h45 Departure from San Francisco to London (flight BA 284)

**Monday, May 20**

- 15h20 Arrival Geneva (flight BA 728)
- 16h30 Arrival Zurich (flight BA 716)

# Tour Program

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
07:00								
08:00	0800 ZRH/LEHR flight BA 709							
09:00	0805 GVA/LEHR flight BA 742	Transport to visits	Transport to visits	Transport to visits	Transport to visits	Transport to visits	Transport to visits	Break fast in hotel
10:00		Visit to IDEO meeting with Bill Moggridge Palo Alto	Visit to Adobe San Jose	Visit to nVidia Santa Clara	Visit to Neoteris Mountain View	Visit to Apple Computer Cupertino	Visit to Computer Museum History Center Mountain View	Time for last minute shopping
11:00	Lunch at Stanford University Faculty Club and speech by Dr. Charles Petri "Wireless Internet Does Not Mean 3G"			Visit to TZMM Palo Alto			Drive from Mountain View to Monterey	Latest Check-out hotel
12:00	Departure to San Francisco flight BA 285			Departure to Santa Clara			Lunch in historic downtown Monterey	
13:00	1335 Arrival SFO (87 local time)	Visit to Stanford Center for Professional Development and Wireless Infrastructure	Visit to Harmonic Mountain View		Visit to Sun Microsystems Menlo Park	Departure for San Francisco	Visit to the world famous aquarium or 17 miles drive to Carmel	Departure for San Francisco International Airport
14:00	Visit to Silicon Valley World Internet Center Palo Alto	Further exploration of the Stanford Campus or time for a swim	Visit to Transmeta Santa Clara	Visit to Intel Santa Clara				
15:00		Welcome Dinner at the MacArthur Park in Palo Alto with guests from Silicon Valley	Optional Evening Activities	Anniversary Party in the hotel	Visit to The Silicon Valley World Internet Center Palo Alto	Evening in San Francisco		
16:00					Downtown Palo Alto dinner in one of the many restaurants	time for a walk to Fisherman's Wharf and a dinner		
17:00								
18:00	Time to relax and explore Palo Alto							
19:00							Farewell dinner in a fish restaurant in Monterey	San Francisco Departure to ZRH/GVA flight BA 284
20:00								15:20 Arrival Geneva (next day) 16:40 Arrival Zurich (next day)
21:00							Return to Hotel	

## 2. Hotels

### 2.1. Stanford Terrace Inn, Palo Alto

#### 2.1.1. General Information

Located on the San Francisco Peninsula, halfway between The Silicon Valley and San Francisco, the Stanford Terrace Inn provides affordable luxury in a secluded, quiet garden setting. Our gracious helpful staff will anticipate your needs and assist in any way they can to make your stay comfortable. Our spacious, well appointed rooms are designed to make you stay a "home away from home".

At the Stanford Terrace Inn we pride ourselves on being on the cutting edge, whether it is with regard to our clients needs or staff needs. We think of our hotel as the best place to work or stay. We listen and are "Streets Ahead" of our competition. Hospitality is not a lost art at the Stanford Terrace Inn but the standard we work by. We are continually improving our hotel and welcome ideas from all our guests.

#### 2.1.2. Services and Amenities

Stanford Terrace Inn offers King and Queen Rooms. All rooms offer Bathtub/Shower, Bathrobe, Hair Dryer, Clock Radio, Cable TV/HBO, Iron and Ironing Board, Minibar, Coffee making facilities and Microwave.

Breakfast is served in our newly renovated Lobby. To start a successful day, our pool invites you for a refreshing morning swim. For the sportier amongst you, our workout room is equipped with bike, treadmill and steps. Our wooden deck is the perfect location for a relaxing siesta or a last drink in the evening.

#### 2.1.3. Location

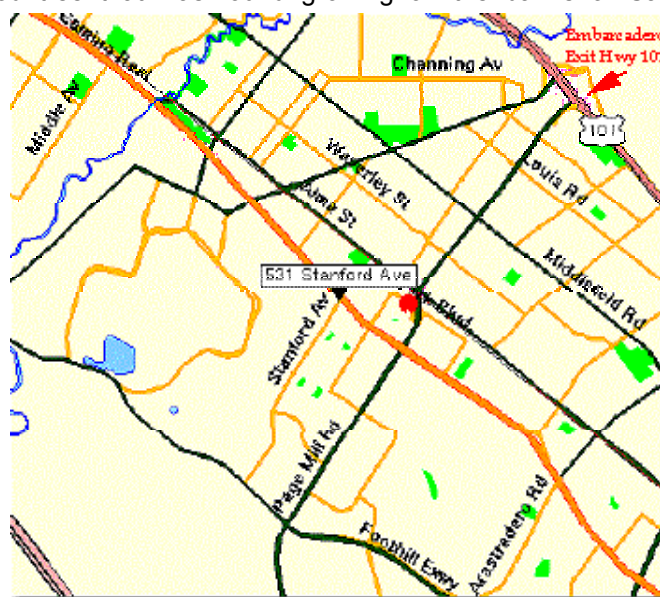
The Stanford Terrace Inn is located in Palo Alto on Stanford Avenue, right across the Stanford University Campus. The name *Palo Alto*, which is Spanish for "tall tree" or "tall pole", was the name given to a huge twin redwood tree that was found growing on the banks of San Francisquito Creek by Captain Gaspar de Portola in November 1769. A proper Spanish description of this unusual twin-trunked tree would have been *Los Palos Altos*. It is fortunate that the plural name was not used, because a fierce winter storm in the late 1880's blew down one of the twin trunks.

#### 2.1.4. Contacting us

Stanford Terrace Inn  
531 Stanford Avenue  
Palo Alto 94306  
California, USA

☎ Phone: +1 800 729 0332

✉ Email: [terraceinn@att.net](mailto:terraceinn@att.net)



### 3. Visits

#### 3.1. IDEO, Palo Alto

IDEO creates products, services and environments for companies pioneering new ways to provide value for their customers. Drawing on twenty years of experience in the field of innovation and design, IDEO defines and develops new futures for industry leaders and start-ups alike.



Having created thousands of products for hundreds of clients, IDEO brings unmatched experience to the process of strategic innovation, from conception through production.

Based on intensive user observation, IDEO identifies opportunities for innovation and evaluates new ideas through rapid prototyping. The company offers complete innovation and design services, from strategy and concept development to engineering and production.

IDEO's multidisciplinary teams include specialists from fields including human factors, cognitive psychology, business strategy, design planning, industrial design, interaction design, graphic design, architecture, mechanical and electrical engineering, software, and manufacturing.

Clients include companies such as 3Com, Amtrak, BBC, Cisco Systems, Handspring, Hewlett-Packard, Hoover, Logitech, MIT, NEC, Nike, Palm Computing, Pepsi-Cola, Polaroid, Samsung, TDK, Xerox etc.



Web site: <http://www.ideo.com>



### 3.2. Stanford University, Palo Alto

In November 1769, Captain Gaspar de Portola's expedition to find and fortify the port of Monterey for Spain found instead San Francisco Bay. The party worked its way down the peninsula and camped on the bank of San Francisquito Creek near the giant California Coast Redwood that later travelers came to call El Palo Alto, or "the high tree" in Spanish. The tall redwood was a familiar landmark to the native Ohlone Indians.

From this campsite, on which one corner of the Stanford campus is now situated, Portola's reconnoitering parties explored the area. Later, from

this same campsite, Francisco de Ortega explored the eastern shore of the Bay. The old redwood, twin-trunked and well over 100 feet high, was visible for miles.

In 1876, former California Governor Leland Stanford purchased 650 acres of Rancho San Francisquito for a country home and began the development of his famous Palo Alto Stock Farm for trotting horses. He later bought adjoining properties to bring his farm to more than 8,000 acres, land that eventually became the Stanford campus. The little town that started to grow across El Camino Real (the old Spanish "King's Road") from the university also took the name Palo Alto.

Today El Palo Alto is rooted precariously on the east bank of San Francisquito Creek, close to the old Southern Pacific Railroad tracks. In 1887, a winter flood rushing down the creek tore off one of the redwood's twin trunks, but half of the venerable tree lives on, a gaunt and time-scarred monument. From Stanford's beginning, El Palo Alto has been the university's symbol and the centerpiece of its official seal.

On October 1, 1891, Stanford University opened its doors after six years of planning and building. In the early morning hours, construction workers were still preparing the Inner Quadrangle for the opening ceremonies. The great arch at the western end had been backed with panels of red and white cloth to form an alcove where the dignitaries would sit. Behind the stage was a life-size portrait of Leland Stanford, Jr., in whose memory the university was founded.

In 1891, 37 students were registered in graduate standing at Stanford, representing the first opportunity for graduate study on the West Coast. Today, 7,625 students in 63 departments and programs are pursuing post baccalaureate degrees in seven schools: Business, Earth Sciences, Education, Engineering, Humanities and Sciences, Law and Medicine. Exchange programs with the University of California at Berkeley and the University of California at San Francisco enable graduate students to take courses not offered at Stanford.

#### Stanford Center for Professional Development (SCPD)

##### Bridging Stanford and Industry

The Stanford Center for Professional Development (SCPD) fills the career-long educational needs of today's best talent in engineering, science, and technology, regardless of time or distance. In partnership with over 450 member companies and government organizations, SCPD delivers Stanford academic programs to more than 5,000 students annually via broadcast television, videotapes, and the Internet.

Our goal is to keep industry professionals at the leading edge of their specialties while offering the same educational opportunities as other Stanford students: access to and participation in a world-class university community.

Web site: <http://www.stanford.edu>

# Stanford University





### 3.3. Adobe, San Jose

Founded in 1982, Adobe Systems Incorporated builds award-winning software solutions for Network Publishing, including Web, print, video, wireless, and broadband applications. Its graphic design, imaging, dynamic media, and authoring tools enable customers to create, publish, and deliver visually rich content for various types of media. The company's products are used by Web and graphic designers, professional publishers, document-intensive organizations, business users, and consumers. Adobe is the second largest PC software company in the U.S., with annual revenues exceeding \$1.2 billion. It employs over 2,800 employees worldwide and has operations in North America, Europe, the Pacific Rim, Japan, and Latin America. Adobe's worldwide headquarters are in San Jose, California.



Each day, millions of people worldwide turn to Adobe's award-winning software to bring ideas to life on the Web, the printed page and video. Adobe is literally everywhere you look. In fact, a majority of the images on the Web today were created or modified with one or more of Adobe's products, such as Adobe® Photoshop®, Adobe Illustrator®, Adobe Acrobat®, Adobe GoLive®, Adobe LiveMotion™, Adobe FrameMaker®, Adobe Premiere® and Adobe After Effects®.

Customers span every industry and profession, from multi-national corporations to small businesses, and range from highly skilled graphic designers to home users. Regardless of industry or level of expertise, the reason for using Adobe software remains the same: to create and deliver high quality content that conveys a consistent, distinctive image across the Web, print and video.

🌐 Web site: <http://www.adobe.com>

### 3.4. Harmonic, Mountain View

Harmonic is a leading developer of innovative broadband solutions and technologies that enable communications providers around the world to deliver video, voice, and data services to their customers. Harmonic's technically advanced fiber optic, digital video, and IP data delivery systems enable network operators to provide a range of interactive and advanced digital services that include high-speed Internet access, telephony, digital video, HDTV, video and audio streaming, and video-on-demand. Harmonic is headquartered in Sunnyvale, California and employs approximately 925 people. Harmonic operates more than 15 R&D, Sales, and System Integration Centers globally.



Worldwide, there is a dramatic upsurge in the demand for advanced broadband services. Fiber optic networks are the information backbones upon which many network operators deliver these services. Harmonic's optical networking product line enables the delivery of interactive services in networks originally designed for one-way transmission. Harmonic develops standards-based solutions that enable operators to maximize the capacity of their broadband networks with advanced compression, processing, and multiplexing technology. Harmonic's advanced digital video solutions enable satellite, cable, terrestrial, and wireless operators to offer digital television and advanced data services to their customers. As video, data and telephony services continue to converge, effectively managing and compressing these bandwidth-intensive applications becomes critical to the long-term viability an operator's network.

In today's communications environment subscribers require multimedia services. To meet this demand, Harmonic provides high-speed data delivery software and hardware technology that enables operators to deliver IP data services directly to their customers' PCs. Harmonic's data broadcasting products consist of a data gateway, a variety of receiver devices and two-way satellite terminals.

🌐 Web site: <http://www.harmonicinc.com>



### 3.5. Transmeta Corporation, Santa Clara

Transmeta is a publicly traded company located in Santa Clara, California. Transmeta develops and sells software-based microprocessors, and develops additional hardware and software technologies that enable computer manufacturers to build computers that simultaneously offer long battery life, high performance and x86 compatibility. Transmeta's family of Crusoe microprocessors is targeted at the notebook and Internet appliance segments of the mobile Internet computer market, as well as ultra-dense servers.



Transmeta continues to be a small company with a little more than 400 employees located in California and throughout the world. This allows Transmeta to be innovative and quick in bringing products to market. To support a growing worldwide customer base, sales and service offices are located in the United States, Japan, and Taiwan.

Transmeta's premier product is the Crusoe processor. It is a revolutionary x86-compatible family of solutions specially designed for the handheld and lightweight mobile computing market. The high-performance Crusoe processor consumes 60 to 70 percent less power and runs much cooler than competing chips, by transferring the most complex part of a processor's job – determining what instructions to execute and when – to software in a process called Code Morphing. Because it enables a battery charge to last twice as long, this technology allows all-day computing.

The remarkably low power consumption, which allows the processor to run cooler than conventional chips, makes the Crusoe processor ideal for Internet devices and the ultra-light mobile PC

🌐 Web site: <http://www.transmeta.com>

### 3.6. nVidia, Santa Clara

NVIDIA® Corporation (Nasdaq: NVDA) is the recognized global leader in advanced graphics processing technology for mainstream platforms. The unmatched breadth of NVIDIA's product line provides stunning 3D, 2D, and high-definition digital video and television for every audience and price point of the desktop computer market -- from workstations to internet-enabled appliances. PC OEMs, add-in card manufacturers, system builders, and consumer electronics companies worldwide choose NVIDIA GPUs as the core component of their graphics processing solutions. NVIDIA GPUs are used by large corporations, small- to medium-sized businesses, and home-based consumers. NVIDIA's award-winning graphics processors deliver superior performance and crisp visual quality for PC-based applications such as manufacturing, science, e-business, entertainment, and education.



3D graphics is a powerful digital medium that enables the communication and visualization of the simplest information to the most complex, whether it is professional applications like CAD/CAM and digital content creation, commercial applications like financial analysis and business-to-business collaboration or simply surfing the internet or playing games. The visually engaging and interactive nature of 3D graphics responds to consumers' demands for a convincing simulation of reality beyond what is possible with traditional 2D graphics. The fundamental interactive capability of 3D graphics is expected to make it the visual portal to a digitally connected world.

NVIDIA's objective is to be the most important 3D company in the world. The company is committed to developing innovative technologies that deliver stunning multimedia experiences on mass computing platforms. NVIDIA intends to achieve its goals by investing in its people, methodologies, technology, and brand to ensure its customers a unique competitive advantage with uncompromising quality and competitive prices.

🌐 Web site: <http://www.nvidia.com>



### 3.7. Tomlinson, Zisko, Morosoli & Maser LLP, Palo Alto

Tomlinson, Zisko, Morosoli & Maser LLP is a leading Silicon Valley law firm addressing the



legal service needs of domestic and international business. Strategically located at the beginning of Silicon Valley's "power corridor" -- Palo Alto's Page Mill Road -- the firm is known for its particular expertise on legal issues involving emerging technologies. Clients include Fortune 500 firms, promising new start-ups and established companies in California and around the world. TZMM focuses on partnering with each and every client, and has a practical, results-oriented approach to problem solving.

"We're a little different than our competitors, we want a good quality of life," says firm co-founder Tomlinson. He insists the firm's lawyers are not lazy, but instead have made a conscious choice not to maximize income at the expense of quality of life.


The 16-lawyer firm has an unusual structure: 10 partners and six nonpartner attorneys. The firm requires its nonpartner attorneys to bill 1,675 hours a year, a reasonable goal compared to big-firm counterparts that demand upwards of 1,950. The firm's partners are expected to bill 1,450 hours a year.

Even with the reduced work schedule, these attorneys are earning more than a decent living. Tomlinson Zisko posted 1998 revenues per [partner] of \$570,000, according to Richard Horning, the partner in charge of finance.

Richard Horning, the firm's new financial partner, joined the firm in 1996 from his own practice. He handles high-tech litigation, including protection of intellectual property, patent cases, licensing counseling and arbitration. His clients include Hewlett Packard, Network Connection and Celo Communications and other companies as far away as Sweden, Italy, Switzerland, France and the United Kingdom.

 Web site: <http://www.tzmm.com>

### 3.8. Intel, Santa Clara

For more than three decades, Intel Corporation has developed technology enabling the computer and Internet revolution that has changed the world.  Founded in 1968 to build semiconductor memory products, Intel introduced the world's first microprocessor in 1971. Today, Intel supplies the computing and communications industries with chips, boards, systems, and software building blocks that are the "ingredients" of computers, servers and networking and communications products. These products are used by industry members to create advanced computing and communications systems. Intel's mission is to be the preeminent building block supplier to the Internet economy.

Microprocessors, also called central processing units (CPUs), are frequently described as the "brain" of a computer because they control the central processing of data in personal computers (PCs), servers, workstations, and other devices.

Intel is a leader in semiconductor manufacturing and technology and has established a competitive advantage through its scale of operations, agility of its factory network, and consistent execution worldwide. Intel has 12 fabrication facilities and 12 assembly and test facilities worldwide. Intel produces the silicon for its high-performance microprocessors, chipset and flash memory components in its fabrication facilities. After the silicon-based products are created, they are sent to Intel's assembly and test facilities where each wafer is cut into individual microprocessors, placed within external packages, and tested for functionality. In 2001, Intel spent \$7.3 billion on capital investments to help build manufacturing capacity and increase manufacturing efficiency. Four fabrication facilities now operate using 0.13-micron manufacturing process technology. This process shrinks line widths on silicon transistors to just 1/1000th the width of a human hair, which increases processor performance while requiring less power and lower cost per chip. Intel also began the manufacturing conversion from 200 mm silicon wafers to 300 mm silicon wafers. Chip fabrication costs on 300 mm wafers will be at least 30 percent lower than on 200 mm wafers.

 Web site: <http://www.intel.com>



### 3.9. Neoteris, Mountain View



Neoteris, Inc., has introduced the industry's first *Instant Virtual Extranet*™ (IVE) appliances, which deliver significant value to enterprises seeking the rewards and promise of the *Virtual Corporation*. Neoteris enables instant, secure access to corporate network resources from any standard Web browser for employees and corporate partners. Neoteris products improve security and deliver all the benefits of best in class VPNs and extranets without the deployment cost, client administration, or complexity that has come to be associated with these applications.

Neoteris offers two products –EmployeeAccess™ and PartnerAccess.™ EmployeeAccess connects remote employees at a dramatically lower Total Cost of Ownership than traditional dial access or VPN solutions. PartnerAccess radically lowers the cost and time required to connect partners compared to custom extranet deployments. Both products improve security and provide access via any standard Web browser, with no client software or hardware, and no changes to the corporate LAN. To date more than twenty businesses are using Neoteris' EmployeeAccess and PartnerAccess products, including Oracle Small Business, Borland, Verity, Finisar, Monterey Designs and ARX Networks. With no special client software or hardware needed, their constituents can now remotely access vital corporate data from enterprise applications such as Oracle databases, SAP, and Siebel via any web browser. Because Neoteris' solutions come in the form of a single hardened appliance that leverages existing applications, they require minimal IT administration, unlike traditional VPNs or custom extranets, which are costly to implement, don't scale well, and require onerous amounts of administration and management.

🌐 Web site: <http://www.neoteris.com>

### 3.10. Sun Microsystems, Menlo Park



Since its inception in 1982, a singular vision "The Network is The Computer[tm]" has propelled Sun Microsystems, Inc. to its position as a leading provider of industrial-strength hardware, software, and services that make the Net work. Sun can be found in more than 170 countries and on the World Wide Web. Sun was founded with one driving vision. A vision of computers that talk to each other no matter who built them. A vision in which technology works for you, not the other way around. While others protected proprietary, stand-alone architectures, we focused on taking companies into the network age, providing systems and software with the scalability and reliability needed to drive the electronic marketplace.



In virtually every field, from manufacturing to financial services, telecommunications to education, retail to government, and energy to health care, Sun is helping companies leverage the power of the Internet. To streamline processes and raise productivity. To reduce both costs and complexity. We understand the critical issues you face every day, and we offer proven products and comprehensive services to take your business where you want it to go, to a new level of competitive advantage.

Workstations that redefine high performance, Servers that give new meaning to high availability, High-speed networking, Robust system software, Intelligent network storage systems, Platform-independent Java, and Jini(TM), and Jiro(TM) technologies.

As broad as our product line is, we recognize that no single supplier of computing solutions can be all things to all people. That's why we've established long-standing relationships with leading companies worldwide. With value-added resellers who add capabilities to Sun systems for use in specialized markets. With original equipment manufacturers that incorporate Sun products and technologies in everything from embedded controllers to massively parallel supercomputers. And with independent software vendors who work with us to deliver tuned and tested business solutions--for enterprise resource planning, supply-chain management, data warehousing, and more. Not to mention systems integration firms who use Sun products to deliver comprehensive, integrated solutions for mixed-platform environments.

🌐 Web site: <http://www.sun.com>



### 3.11. Silicon Valley World Internet Center, Palo Alto

The Silicon Valley World Internet Center is a dynamic think tank and



Silicon Valley  
WORLD INTERNET CENTER

showcase for the advancement of Internet-related technologies and markets. It is a for-profit, fee-for-service corporation. A multi-corporate, third party venue, the Center provides a physical and virtual forum for high-level collaboration among technology leaders and key end-users. The Center focuses primarily on the areas of eBusiness, eServices and wireless communication.

The Center has hosted thousands of Internet-savvy developers and end-users from around the world, and seeks to attract an elite group of leading producers of technology as its Sponsors and outside clients. Additionally, the Center reaches out to include the vital community of end-users -- customers leading in the integration of Internet-related applications and eServices.

The Center delivers value to its sponsors, clients and partners, especially in the areas of:

- Knowledge Exchange
- Branding
- New Market and Partnering Opportunities

In 1996 the Center welcomed Deutsche Telekom as its Founding Executive Sponsor. The Center's current Sponsors include:

- |                    |                    |
|--------------------|--------------------|
| • IBM              | • Deutsche Telekom |
| • SAP              | • Fujitsu          |
| • Sun Microsystems | • Cable & Wireless |
| • Amdocs           |                    |

Web site: <http://www.swic.com>

### 3.12. Apple Computer, Cupertino

Apple's history has been a rocky one, and there have been many ups and downs since the company started in Steve Jobs' bedroom (and later garage). But there is an underlying theme in the history of Apple: innovation. Apple computer has had more industry firsts than any other personal computer company in the world, and it is this innovation that has always set Apple apart from the norm.



Will Apple ever dominate the entire personal computer market? Probably not. That battle is lost, and has been over for a long time. But Apple can continue to challenge the market, to innovate where the larger companies can't. Because it has control of both hardware and software, Apple can do a lot more than any other hardware or software company. Apple still has a truly impressive market-share in the graphics and content-creation community, and is gaining ground with consumers. More importantly, Apple is invested in turning itself into "a really cool consumer company," moving "beyond the box" and into emerging markets.

#### Latest news about Apple

The new iMac is designed around a stunning 15-inch LCD flat screen that's brighter, sharper and easier on the eyes than old-fashioned CRT displays. And instead of requiring your neck, shoulders and back to do the adjusting, the new iMac's display literally glides through the air — allowing you to effortlessly adjust its height or angle with a touch of your finger. Inside its ultra-compact 10.6-inch base lives the fastest iMac ever, with a Pentium-crushing 800MHz PowerPC G4 processor that blazes through Mac OS X applications. And our revolutionary SuperDrive that lets you burn your own DVDs in addition to custom CDs. It's clear that the new iMac is several leaps ahead of any other computer out there. Just like its predecessor.



Web site: <http://www.apple.com>



**3.13. eZula, San Francisco**

eZula, Inc. is a leading provider of real-time contextual Internet solutions. eZula's flagship product TopText iLookup is the premier personal Internet reference and simplification tool, empowering millions of Internet users with an easy way to retrieve relevant information and simplify Internet Navigation.



TopText iLookup allows its community to retrieve instant information on any word, phrase or concept as they appear on the Internet and enjoy real-time cross-referencing capabilities including Active Encyclopedia, Active Dictionary, and relevant commercial offers.

eZula's enterprise clients include leading Fortune 500 companies in Financial Services, Travel, Entertainment & Lifestyle, Automotive, and Retail. Founded in 1999, eZula, Inc. is a privately-held company based in San Francisco, CA.

TopText iLookup 2.0 is the premier personal Internet reference and simplification tool that empowers you with an easy way to navigate the Internet and retrieve relevant information with a click of the mouse.

This new version adds more reference and navigation simplification features designed to make your Internet experience even easier and simpler than ever before. We're sure you'll love it!

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Web site: <http://www.ezula.com>

**3.14. Computer Museum History Center, Moffett Federal Airfield Mountain View**

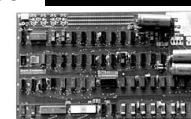
The mission of The Computer Museum History Center is to preserve and present for posterity the artifacts and stories of the information age. As such, the Museum plays a unique role in the history of the computing revolution and its worldwide impact on the human experience.



Established in 1996, The Computer Museum History Center is a non-profit entity dedicated to the preservation and celebration of computing history. It is home to one of the largest collections of computing artifacts in the world, a collection comprising over 3,000 artifacts, 2,000 films and videotapes, 5,000 photographs, 2,000 linear feet of cataloged documentation and gigabytes of software. The collection is housed in a visible storage building in Mountain View, California, in the heart of Silicon Valley.



The Center's strength is chiefly in post-WWII electronic computing but it also maintains a representative collection of objects from earlier eras.



The History Center's collecting activities began in the late 1970s and have grown in the intervening years to comprise five separate collections with many thousands of individual objects.



The five collections are: Artifacts, Documentation, Ephemera, Media (Audio/Digital/Film/Photo/Video), and Software.

We hope you enjoy learning about computer history through our collections. If you are seeking something specific but are unable to locate it here, please contact us directly.

The museum's efforts are well underway to create a new and worthy home at Moffett Field as part of the proposed NASA Research Park. In the spring of 2001, the Museum completed an architectural ideas competition in order to select the architect for a new 114,000 square-foot world-class exhibition and research facility. We plan to open our doors to the public in 2005.

Web site: <http://www.computerhistory.org>



## 4. Sightseeing

### 4.1. Monterey Bay Aquarium, Monterey

The aquarium project was initiated in 1977 by a group of four marine biologists at Stanford's Hopkins Marine Station in Pacific Grove. From the beginning, we planned our permanent exhibits as a walk through Monterey Bay's beautiful natural communities. The aquarium opened October 20, 1984. In 1996, we almost doubled our exhibit space with the opening of the Outer Bay Wing, devoted to the open ocean and deep sea. The main feature is the Outer Bay Waters exhibit, the one-million-gallon tank containing tuna, sharks, ocean sunfish and sea turtles.

The aquarium is owned by the Monterey Bay Aquarium Foundation, a public non-profit organization established by David and Lucile Packard and about 1.8 million people are visiting it each year.

The aquarium was a gift to the community by David and Lucile Packard. The original cost of the aquarium was approximately \$55 million.

The aquarium is a nonprofit organization. In order to meet the annual budget, it relies on income from admission fees, memberships, contributions from individuals and businesses, foundation grants, special events, and our gift and bookstores. No government money is involved (except an occasional research grant). We envision a world in which the oceans are healthy, and people are committed to protecting the integrity of Earth's natural systems, which sustain us all. To help make this vision a reality, we create exhibits, programs and publications that introduce people from all walks of life to the wonders of the marine world—from Monterey Bay to the vast oceans beyond. Stewardship begins with inspiration, and we offer enjoyable and enlightening experiences to inspire a love and understanding of nature. Effective conservation efforts have their roots in science, and we work to advance conservation through education and research. We help people discover their connection with natural systems and take their next steps in becoming active ocean stewards.

Our first priority is to provide an unsurpassed visitor experience at our site.

We focus on living exhibits and seek to maximize opportunities for visitors to encounter, discover and observe ocean life.

Our permanent exhibits focus on Monterey Bay and its connection to the world's oceans. Our special exhibits may expand beyond the bay.

We exhibit plants and animals in their natural habitats in order to communicate the inter-relatedness of all life. However, other approaches may be used, especially for special exhibitions.

We invest in the future welfare of the oceans by providing meaningful programs for children and their parents and teachers.

We acknowledge that learning should be engaging and enjoyable and seek to provide entertaining experiences that advance our educational mission.



🌐 Web site: <http://www.mbaqa.org>

#### 4.2. 17 Mile Drive to Carmel, Carmel

Ah, yes, the 17-Mile-Drive. This spectacular meeting of land and sea includes the 200-300-year-old Lone Cypress, legendary golf courses such as Pebble Beach Golf Links, The Links at Spanish Bay and Cypress Point, with living accommodations befitting royalty. This is a journey that can take all afternoon if you let it. And, undoubtedly, you will. You can access this private paradise through any of the guarded entrance gates for the price of a movie — \$8.

17 Mile Drive is the scenic route between Monterey and Carmel. The road winds along the rugged coast and curves through groves of Monterey Pine and Gowen Cypress trees past the famous Lone Cypress, always a popular photo opportunity. 17 Mile Drive is best done slowly, taking time to appreciate the vistas, the marine life, especially the harbor seals, and birds. The beaches will entice you to stop, but please don't go in the water. Rough surf makes the water unsafe.

South of Monterey is Carmel, perhaps best known as the town where actor Clint Eastwood was once mayor. The seaside scenery has a calming effect on this quaint village. The main shopping district is located on Ocean Avenue (between Junipero and Monte Verde). Carmel resembles an 18th-century European village with narrow streets lined with antique shops, art galleries, boutiques and restaurants.



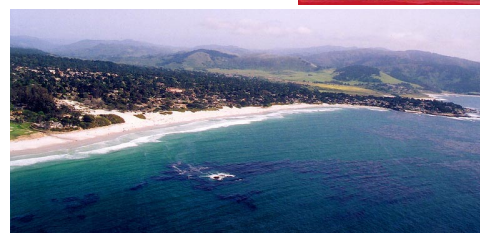
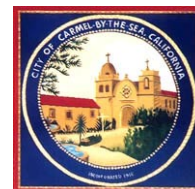
#### 4.3. Carmel

Carmel, California is nestled between the world famous Pebble Beach golf course to the north and the spectacular Big Sur coast to the South. By carefully guarding the natural beauty of the area, Carmel has created a European style retreat away from all the headaches of everyday life.

Walking along the beach listening to the surf pound against the rocks, playing golf on perfectly manicured green along the waters edge, horseback riding along the waters edge, or just relaxing in your deck chair are just a few of the outdoor activities available to you. Attend one of our many special events, outdoor performances, art gallery walks around town, or listen to live music at some of the local restaurants. Just relax and enjoy your Carmel experience.

First incorporated as a City in 1916, the community was founded by artists and writers-among them Jack London, George Sterling, Mary Austin and Robinson Jeffers. Carmel-by-the-Sea is resplendent in rich natural beauty and prides itself on its white sand beach, luxuriant landscaped bluffs, verdant urban forest, natural parklands and roadside greenbelts.

Since the turn of the century, Carmel-by-the-Sea has been a Mecca for artists, writers, actors and playwright's intent on creating an intellectual and cultural oasis. These Bohemian founders fought to maintain the outdoor mystic and small-town appeal of our community and their efforts are in evidence today. The residential district has no sidewalks or streetlights and the beach is unadulterated by commercial development. Except on a very limited basis, there is no mail delivery and homes are known by name and have no addresses. Carmel-by-the-Sea is one square mile in area, with a population that has grown and which, in recent years, has remained steady at between 4,400 and 4,600.



Web site: <http://www.carmelcalifornia.com>

## 5. California

### 5.1. At a glance

More than a state, California is a state of mind. Surfer, cyclist, logger, vintner, migrant, magnate, starlet and politician – each has his or her own California. Yet these make up only a small part of the kaleidoscope that is the state itself. From its varied climate and topography, “land’s end” geographical position and virtually boundless natural resources, California has developed a distinctive style that is evident in fashion, cuisine, architecture, art and business. “The Golden State” has long been a popular designation for California and was made the official State Nickname in 1968. It is particularly appropriate since California’s modern development can be traced back to the discovery of gold in 1848 and fields of golden poppies can be seen each spring throughout the state.



#### 5.1.1. Geography

California is a state of remarkable geographic diversity. The highest point in the country outside Alaska, 14,494-foot Mount Whitney, is just 85 miles from the lowest, Death Valley, at 282 feet below sea level. One might swim in the ocean and ski on fresh snow in the same day. Ribbon Falls in California’s Yosemite National Park is the continent’s highest waterfall. Within the state, giant sequoias are the largest, coastal redwoods the tallest and bristlecone pines the oldest known living trees.

Mountains parallel the entire coastline. From the northwest corner the Coast Ranges extend almost to Los Angeles. Their moderate slopes wear evergreens in the north, stately oaks mid-state and brushy shrubs known as chaparral in the south. From the northeast the Sierra Nevada forms a continuous barrier that runs half the length of the state. It is a single block of granite that rises gradually from the west, then drops abruptly on the east, where its escarpment towers nearly 10,000 feet above the valleys.

Other major ranges include the White Mountains, east of the Sierra Nevada, and the volcanic Cascades, in the northern reaches of the state. Mount Shasta and Mount Lassen, both now quiescent, are California’s biggest volcanoes. North of Los Angeles the Coast Ranges and the Sierra Nevada join to form the transverse ranges, which include the Tehachapi, San Gabriel and San Bernardino mountains. From Mount San Jacinto, a series of mountains called the peninsular range extends into Mexico.

Between the Coast Ranges and the Sierra Nevada is the great Central Valley, about 400 miles long and 40 to 50 miles wide. The northern half is called the Sacramento Valley; the southern part, San Joaquin Valley. The Owens Valley lies between California’s two highest mountain ranges, the Sierra Nevada and White Mountains. Elevations exceed 14,000 feet, and 10,000-foot-high walls rise on either side. Death Valley is an independent basin shooting northward from the Mojave Desert between high, bare ranges.

### 5.1.2. Total Area

- 163707 square miles, of which 155973 square miles land and 7734 square miles water
- 840 miles Coastline and 3,427 miles of Shoreline

### 5.1.3. Population

Approximately 34 million people live in the state of California, representing just over 12 percent of the entire United States population. Although the state's growth rate has slowed some since 1990 due to a general decline in birth rates, California's population is projected to increase by 30 percent, to nearly 41 million people, as it approaches the year 2010. Los Angeles, with an estimated population of 9.5 million, accounts for nearly one-third of all Californians, and had a population greater than all but seven states in the United States. By the year 2020, Los Angeles is expected to have a population of nearly 13 million.

- Ethnic breakdown: 69.1 percent White, 7.4 percent Black, 9.6 percent Asian, 0.8 percent American Indian, 13.1 percent Other, 25.4 percent Hispanic Origin; 11 percent 65 years and over.
- Median age: 33.6 years
- Households: 52.7 percent married couple families; 26.9 percent married couple families with children; 53.9 percent college educated; median household income: \$35,798; per capita income: \$16,409; 55.6 percent owner occupied housing; median house value: \$195,500; median monthly rent: \$561. 5.2 percent unemployment.

## 5.2. Los Angeles

The city is grotesquely shaped, like a charred scrap of paper, with independent municipalities such as Beverly Hills and Culver City as well as unincorporated county land lying within its boundaries. Elevation averages about 275 feet (84 meters), ranging from sea level to 5,082 feet (1,549 meters) at Mt. Lukens (also called Sister Elsie Peak). The Santa Monica Mountains, covering an area of 92 square miles and reaching heights of 3,000 feet, bisect the city, separating Hollywood, Beverly Hills, and Pacific Palisades from the southern boundary of the San Fernando Valley, a 220-square-mile area with such suburban communities as Burbank, Glendale, North Hollywood, Studio City, Sherman Oaks, Encino, Tarzana, Woodland Hills, and the mission city of San Fernando.

The valley's principal east-west artery, Ventura Boulevard, is a 17-mile bazaar of specialty shops, ethnic restaurants, banks, medical buildings, shopping malls, automobile agencies, and realtors' offices. The French writer-diplomat Romain Gary pronounced it "one of the most remarkable streets in the world." In the 1920s it was a dirt road. The post-World War II boom turned it into the main street of what would now be one of the country's largest cities if the valley were an independent entity.

Once the sanctuary for middle-class white families fleeing the city's congestion and racial tensions, the valley is now breaking up its rural estates to make room for condominiums and shopping centers. Walnut orchards and truck gardens have given way to housing for blacks, Hispanics, and Asians who have gone to work in new plants ranging from basic industry to high technology. Burbank, long the butt of television comedians ("Burbank has a low suicide rate, because living in Burbank makes suicide redundant"), now proclaims itself the country's entertainment center. It is home for recording companies, the National Broadcasting Company, and three major motion-picture studios (Walt Disney Productions, Warner Bros., Inc., and Columbia Pictures Television Division).

Hollywood, eight miles northwest of the central city, was laid out in 1887 by Horace Wilcox, a Prohibitionist, who intended his subdivision to be a sober, God-fearing community. In 1910, when its water supply ran low, Hollywood was gobbled up by Los Angeles. The following year Blondeau Tavern, at the intersection of Sunset Boulevard and Gower Street, was turned into Hollywood's first motion-picture studio--to be abandoned 60 years later when Columbia Pictures moved to Burbank. By then the stars had long since left Hollywood, many of them moving into secluded hillside mansions above Beverly Hills, the most famous of which was Pickfair, built by Douglas Fairbanks for Mary Pickford in 1919. (After Pickford's death in 1979 it was sold to a sports entrepreneur.)

### 5.2.1. Climate

Coastal mountain ranges to the north and east act as buffers against extremes of summer heat and winter cold. Even in the hottest months, the humidity tends to be mercifully low and the nights cool. "Night and morning low clouds" is the most common summer forecast, with the sun breaking through in the afternoon. Pronounced climatic differences occur in different sections of the city. The San Fernando Valley is generally several degrees cooler in winter and warmer in summer than communities on the opposite side of the Santa Monica Mountains. The city's mean temperature is about 64° F (18° C). The record high was 110° F (43° C) on September 1, 1955, the record low 27.9° F (-2.3° C) on January 4, 1949. The average annual rainfall is 14 inches (356 millimeters), with most of it falling in the winter months.

### 5.3. San Francisco and the Bay Area

Hilly, roughly square, and about 46 square miles (120 square kilometers) in area, San Francisco occupies the northern tip of a peninsula. To its south are the bedroom suburbs of San Mateo County; to the east and northeast is the bay; to the west and northwest lies the Pacific Ocean.

The most prominent of San Francisco's hills are Twin Peaks, Mt. Davidson, and Mt. Sutro, all more than 900 feet (270 meters) in height. The best known are Nob Hill, where the wealthy "nobs" built extravagant mansions in the 1870s, and Telegraph Hill, which once looked down on the Barbary Coast, a neighborhood alive with gaudy wickedness. Thanks to the pioneer planners' prejudice in favor of a squared-off grid, the downtown streets march intrepidly up precipitous slopes, terrifying newly arrived drivers, making the cable cars more than sentimental anachronisms, and providing splendid views of the bay.

San Francisco Bay is a drowned river valley, submerged during the melting of the last glacial ice sheet. Enthusiastic and profitable filling of the tidelands has reduced its area at mean high tide from about 700 square miles in 1880 to a mere 435 square miles. More than half of the bay is still fillable, but in 1965 the state legislature created the Bay Conservation and Development Commission to control further landfill projects. At its widest point the bay measures 13 miles (21 kilometers) and at its deepest, in the Golden Gate channel, 357 feet. The maximum daily flow of water through the Golden Gate into the Pacific is seven times the flow of the Mississippi River at its mouth.

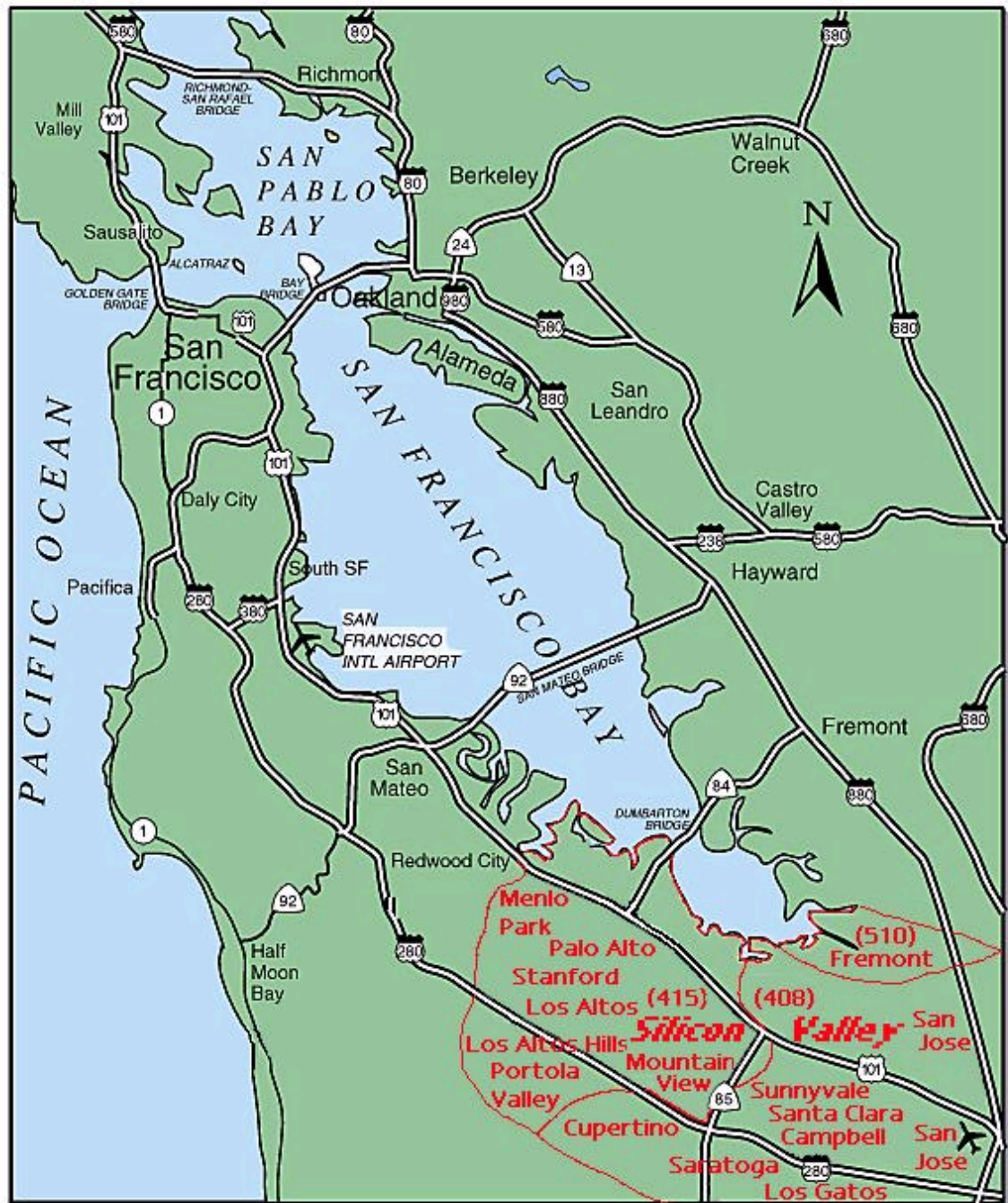
Within the portion of San Francisco Bay lying inside the city limits are the natural islands of Alcatraz and Yerba Buena and man-made Treasure Island, created for a world's fair in 1939 and later turned into a naval base (1941-93). Alcatraz (Spanish: "Pelican") was from 1934 to 1963 the most notorious maximum-security, "escape-proof" prison in the United States. In 1969, after the decaying cell blocks had been given up by the Federal Bureau of Prisons, a multi-tribal group of American Indians invaded the island and asserted their rights to abandoned federal property, but they were forcibly evicted in 1971. The island became part of the Golden Gate National Recreation area in 1972.

#### 5.3.1. Climate

Winter in San Francisco is rainy and mild, the spring sunny and mild, the summer foggy and cool, and the autumn sunny and warm. The average minimum temperature is 51° F (11° C), the average maximum, 63° F (17° C). The mean rainfall, almost all of which occurs between November and April, is about 21 inches (533 millimeters). The sun shines during two-thirds of the possible daylight hours. The most characteristic feature of the weather, however, is the summer fog, which lies low over the city until midday, creating consternation among shivering tourists. This fog is a phenomenon of temperature contrasts created when warm, moist ocean air comes in contact with cold water welling up from the ocean bottom along the coast.

#### 5.4. Silicon Valley

Silicon Valley is an industrial conurbation in west-central California, U.S., in the southern part of the San Francisco Bay Area to be more precise. It stretches for about 25 miles (40 km) from San Jose in the southeast to Palo Alto in the northwest. Silicon Valley occupies the San Jose and Santa Clara valleys and also includes the communities of Sunnyvale, Santa Clara, Los Altos, and also Mountain View. It derived its name from the dense concentration of electronics and computer corporations and their factories that sprang up there in the 1970s and '80s (silicon is the basic material of the semiconductor elements in computer circuits). By the early 1990s the economic emphasis in Silicon Valley had partly switched from computer manufacturing to research, development, and marketing of computer products and software.



## 5.5. History of Silicon Valley

Silicon Valley, located on the San Francisco, California, peninsula, radiates outward from Stanford University. It is made up by the San Francisco Bay on the east, the Santa Cruz Mountains on the west, and the Coast Range to the southeast. At the turn of the century, when fruit orchards predominated, the area was known as the Valley of Heart's Delight. Today, semiconductor chips, made of silicon, are the principal product of the local high-tech industries. It has been said that an institution is but the lengthened shadow of one great man. Inasmuch as Silicon Valley is an institution, Fred Terman was such a man.

In the 1930's, Professor Frederick Emmons Terman of Stanford University's Department of Electrical Engineering was concerned by the lack of good employment opportunities in the area for Stanford engineering graduates. It troubled him that his best graduates had to go to the East Coast to find employment, especially in the field of radio engineering. His solution was to establish the then-new radio technology locally.

One of his first steps was to bring together two of his former students, William Hewlett and David Packard, founders of the Hewlett-Packard Company. After World War II, when Terman was dean of the School of Engineering, he was successful in attracting research support from a number of sources. This amount eventually became very large, especially when compared with pre-war experiences. Terman was thus able to attract bright new faculty and students. In addition, he continued to encourage his graduates to start their own companies. Faculty members soon joined in consulting, investing, and, in some instances, founding new companies.

Fred Terman became a legend in his own time. Newspapers and a recently published book have perpetuated a myth regarding his activities: in fact, Terman did not loan William Hewlett and David Packard money to start their company.

### 5.5.1. The Early Days

Bill Hewlett and Dave Packard hung around the lean Stanford electronics laboratory talking about "someday" having their own company. Upon graduation in 1934, however, Packard took a job at General Electric in New York, while Hewlett stayed on for a year of graduate study with Terman before leaving for MIT, where he received a master's degree. Hewlett returned to Stanford in 1936 to work on an electrical engineering degree.

"I did a number of little things then to help get their business started," Terman said. A new idea in electronics (the so-called 'resistance-tuned oscillator') turned up. I told Bill, "It looks to me as if you could use this to make an instrument. It would be a lot simpler and cheaper than anything on the market. But you'll have to solve a couple of problems to make it function." Bill came up with an absolutely perfect solution. He designed and built an audio oscillator, a device that generates signals of varying frequencies. To remove serious instability, Hewlett took advantage of the non-linear resistance-temperature characteristic of a small light bulb. The addition of one standard and inexpensive component turned a balky laboratory curiosity into a reliable, marketable instrument.

Money was a problem, but by great effort and a bit of luck, Terman was able to get some money together for the project, including a \$1,000 grant from Sperry Gyroscope. "We spent \$500 for materials and \$500 for Packard's salary. You didn't just get on a plane in those days to hop across the country." In the autumn of 1938, Packard took a leave of absence from his job at GE (which paid \$110 a month) to come back here (for \$55 a month).

Packard and his wife rented the lower floor of a duplex, and the two young entrepreneurs went to work in the small garage behind the house. Hewlett moved into a backyard cottage at the same address. Packard later said that after he'd been back three or four weeks, he knew Hewlett was right and that he'd never return to the East. Terman could always tell how the new young firm was doing: "If the car was in the garage, there was no backlog, but if the car was parked in the driveway, business was good." Their first large order was from Walt Disney Productions. It was for four oscillators to be used in making the motion picture *Fantasia*.

That modest garage shop housed the beginnings of the Hewlett-Packard Company, which was incorporated in January 1939. Today, Hewlett-Packard is one of the world's largest producers of computers and electronic measuring devices and equipment. It currently employs more than 80,000 people worldwide (22,000 in Santa Clara County) and has sales of more than \$6 billion per year.

### 5.5.2. A Fighter From the Start

Born at the turn of the century, Terman was 10 years old when he moved to Stanford with his parents. The rolling foothills of the Santa Cruz mountains were his playground, and he spent his early teens roaming the hills near Stanford University hunting rabbits and looking for butterflies, turtles and skunks. He fished for bass in Felt Lake and learned to swim in Lake Lagunita (on the Stanford campus). Even as a youngster, Terman had an entrepreneurial instinct; during the holidays, he would collect mistletoe in the hills and sell it to Stanford faculty wives, who were deterred by poison oak.

If Terman had not contracted tuberculosis, he probably never would have joined the faculty at Stanford. The stage was set, a young man received his A.B. in chemical engineering and an Engineer Degree in electrical engineering from Stanford. He then headed East to MIT. In those days, Terman recalled, "a serious young engineer had to go back east to put spit and polish on his education." He earned a Ph.D. in 1924 at MIT under the tutelage of Professor Vannevar Bush.

At the age of 24, doctorate in hand, he returned home to the Stanford campus to spend the summer. He planned to join the faculty at MIT in the fall as a new assistant professor. Instead, tragedy struck; he developed a serious case of military tuberculosis.

Terman spent the next year in bed, with sandbags on his chest. There was no specific treatment for tuberculosis, and sandbags were used to immobilize his chest.

Two doctors abandoned his case at one point, declaring it hopeless, but two other physicians fought to save him. His appendix ruptured in the spring, and he developed eye trouble that was to bother him for several years thereafter.

During his illness, Terman became engrossed once more in radio. As a teenager, he had been a radio "ham" and enjoyed experimenting with the fascinating new "wireless". By age 16 he had his own transmitter, which he used to contact other amateurs as far away as Texas. Lying in bed he had the opportunity to read Morecroft's Principles of Radio Communication from cover to cover. He realized he could improve on Morecroft and set about to do so. While still in bed, he began drafting his first book, Radio Engineering, which was published in 1932. One of his important contributions was the development of "universal" curves for representing the selectivity of radio circuits. This technique made possible a great savings in time, and the approach was adopted in the textbooks that followed.

Terman's former advisor, Professor Harris J. Ryan, the head of electrical engineering at Stanford, offered Terman a half-time teaching job at the university beginning in the fall quarter of 1925. Terman gratefully accepted. He spent most of the year in bed, however, getting up only about two hours a day to go to class.

While convalescing, Terman had to learn to conserve his energy; he developed strong work habits and an exceptional ability to concentrate. His friends noted that he could turn his attention on and off at will. A friend once said of him: "If there are 10 minutes to work on a manuscript, Terman is able to make nine minutes and 50 seconds of it count."

Professor Oswald (Mike) Villard of the Stanford School of Engineering, a former student and protégé of Terman's, once recalled: "Along with enormous energy, Terman always had a clear idea of what he wanted to do and what to do to meet his objectives. He was phenomenal in his self-discipline. After spending a full day at the university, he would go home and work on his books." When asked if he ever pursued a day without working, Terman replied, "why no, how could you ask that question?" Joseph M. Pettit, one of Terman's best students, and currently president of Georgia Technological Institute, once said: "Terman never took a year off to write a book. Instead, he used to say that if he wrote only a page per day, he would have a 365-page book by the end of the year." Terman worked seven days a week and felt no need for vacations. "Why bother", he once remarked, "when your work is more fun?"

Terman's health gradually improved, and in 1927 he was appointed assistant professor of electrical engineering. In 1930 he was promoted to associate professor, and in 1937, at the age of 37, he became professor and executive head (now known as chair) of the Electrical Engineering Department. Beating the Odds.

While reminiscing about the early days in electrical engineering, Terman said: “The Depression years were more difficult than you can imagine. We had nothing, literally nothing, to work with. An accident that burned out a few vacuum tubes or damaged a meter would produce a crisis in the laboratory budget for a month. As an economy measure, I insisted that the laboratory meters be protected by an elaborate system of fuses. Students often chafed at this, because the fuses frequently got blown and it was always difficult to find a replacement of the right size. But the meters survived! The prewar electronics laboratory was in an attic under the eaves, over the electrical machinery laboratory. The roof of the attic leaked, and at times these leaks became quite bad. There was no money to repair the roofs, so they built big wooden trays and lined them with tarpaper and tar. As the trays filled, we walked around them. Our morale didn't suffer. One winter Bill Hewlett added a homey touch by stocking the trays with goldfish.”

At a testimonial dinner for Terman, Edward Ginzton told about his own arrival at Stanford during the depths of the Depression. Ginzton had graduated in electrical engineering from the University of California at Berkeley in 1936. He estimated that out of about 10,000 students who graduated that year, two or three had found jobs. Ginzton had unsuccessfully interviewed with 10 big companies, after which he tried the utility companies. He then started walking the streets of San Francisco, where he was living, trying to find any job, but with no luck. “Finally, the fall came, and I was pretty desperate. I heard that Professor Joseph Carroll at Stanford was looking for an assistant in high-voltage engineering. I came to see him, and he talked to me for a few minutes and realized that even though he had some positions available, I wasn't the right person for his needs.” Carroll sent him to Terman. “I'll never forget the conversation I had with Fred. I was discouraged about life, after walking the streets of San Francisco, and in one hour's time Fred transformed my life from a hopeless, dismal experience to one of excitement and anticipation and looking forward to what might happen in the future. He offered me a research assistantship at \$135 per quarter. That made it possible for me to come to Stanford, and I did. People complain that faculty members don't have much time for their students, that they are always traveling, looking for contract support, or whatever, but Fred spent endless hours with us, his students.”

Ginzton continued, “Working for Fred was an unforgettable experience. He taught us a lot, directly and indirectly. He had meager resources within the department, and only one professor, Karl Spangenberg, whom he had brought in. There wasn't enough faculty to go around, so he encouraged us to create our own seminars, to teach each other. To be working for yourself, by yourself, along with Fred Terman, arguing with him about problems, helping him write his books it was just an exciting period to be a member of his graduate courses an unforgettable experience.”

Terman was instrumental in putting Ginzton in the right place. As Villard remarked, “Terman could have kept him for himself, but instead he sent him over to Professor William Hansen in physics. It proved to be a stroke of genius.” Ginzton had the right combination of organizational and scientific abilities needed to manage technical projects and keep them moving forward.

In March 1939, Ginzton, while still a graduate student, became involved with Hansen and Russell and Sigurd Varian in the development of the klystron tube. He received his Ph.D. in physics in 1940 and spent the war years with the klystron group at Sperry on Long Island. In 1943, when the Varians were making plans to start their own company as soon as the war was over, they invited Ginzton to join them.

In her book, *The Inventor and the Pilot*, Dorothy Varian says: “One of the reasons for asking Ed to join the group was to have him manage the company. At that time, he had two years of experience as a project manager at Sperry and was very successful in working with the men in his department. As plans for the laboratory proceeded, his ideas on how to work with others, the kinds of business incentives that might be desirable, and procedures for organizing the company were important to the basic concepts later incorporated into company policy.” She continues: “As the war neared its end in 1945, Ginzton was offered an appointment as assistant professor of physics at Stanford. He discussed this offer with other members of the group, for his proposed role as manager was a crucial one, but they urged him to accept the Stanford appointment. The laboratory was still a year or more in the future, and Ginzton agreed to serve as a consultant on both management and scientific levels.”

Varian Associates was organized in 1948. For the 11 years that followed, Ginzton divided his time between teaching and researching at Stanford and consulting on the company's technical projects and serving on its board of directors. After Russell Varian's death in 1958, Ginzton became chairman of the board and chief executive officer at Varian. In 1961, he left Stanford to devote his full attention to Varian. While continuing as chairman of the board, he served as president from 1964 to 1968 and remained the chief executive officer until 1972. A tireless worker, Terman's friends describe him as a serious man who knew what he wanted to accomplish and who attended to details with the utmost care. He dressed in conservative suits, wore old-fashioned shoes, and always drove second-hand cars. As one friend commented, "He was not a hale fellow well met," but he did have a sense of humor and an appreciation of odd turns of events. He had no hobbies other than a zestful mania for the doings of the Stanford football team. He was also noted for his keen intelligence. "He was always three or four sentences ahead of everybody else," an admirer once said. "He was always alive and thinking about problems. He would sometimes telephone late in the evening, long after I'd buried myself in a martini."

In 1965, at a dinner honoring Terman, David Packard reminisced: "As a student, I became acquainted with Professor Terman before I enrolled in his course. Among my hobbies was amateur radio and I spent a spare hour now and then in the radio shack in the attic of the Engineering Building. Professor Terman's laboratories were next door. Sometimes he would stop to chat for a minute or two. After several such brief visits, I was amazed to find that he knew a great deal about me. He knew my interests and abilities in athletics; he knew what courses I had taken and what my grades had been; and he had even looked up my high school record and my scores on the entrance examinations.

"At that time, Professor Terman had already developed a broad knowledge of and a personal acquaintance with the business and industry related to his academic discipline. He would often tell us about the corporate history, as well as the current activities, of all the important firms in this newly developing industry. Although he had been teaching only a few years, many of his former students were already making important contributions in their new jobs, and he kept in touch with them."

"The highlight of his course for me was the opportunity to visit some of the laboratories and factories in this area. Here, for the first time, I saw young entrepreneurs working on new devices in firms that they had established. One day Professor Terman remarked that many of the firms we visited, and many other firms throughout the country in this field, had been founded by men with little or no formal education. He suggested that someone with a formal engineering education, and perhaps a little business training, might be even more successful."

During the early 1940's, Terman was called upon by Vannevar Bush to head a big defense research project at Harvard University, developing radar countermeasures. The experience put him in the mainstream of government electronic research. The success of the wartime work led him to believe that the government would not allow this work to disappear completely in peacetime. He also felt that it would be appropriate for the government to support fundamental research in universities. There was a widespread feeling at the time that wartime applications had exhausted the supply of fundamental discoveries, and that it needed to be replenished. Accordingly, he set out to expand Stanford's School of Engineering after he returned to the university in 1946 as the dean of engineering. In this capacity, his government contacts helped him to attract federal funding.

As a corporate board member of new young companies and a frequent speaker at industry meetings, Terman took advantage of these opportunities to spread his message. In his words: "I encouraged our new, young faculty members to get out and get acquainted with local industry and with the people in it who were doing interesting and creative things. Likewise, I encouraged industry to know their university by getting acquainted with what was going on at Stanford as it related to their own technical interests, and to make the acquaintance of those university people who had similar interests."

### 5.5.3. Stanford Industrial Park

In the 1950's, the idea of building an industrial park arose. The university had plenty of land over 8,000 acres but money was needed to finance the University's rapid postwar growth. The original bequest of his farm by Leland Stanford prohibited the sale of this land, but there was nothing to prevent its being leased. It turned out that long-



term leases were just as attractive to industry as outright ownership; thus, the Stanford Industrial Park was founded. The goal was to create a center of high technology close to a cooperative university. It was a stroke of genius, and Terman, calling it "our secret weapon", quickly suggested that leases be limited to high technology companies that might be beneficial to Stanford. In 1951 Varian Associates signed a lease, and in 1953 the company moved into the first building in the park. Eastman Kodak, General Electric, Preformed Line Products, Admiral Corporation, Shockley Transistor Laboratory of Beckman Instruments, Lockheed, Hewlett-Packard, and others followed soon after.

In 1955, Terman became provost, and three years later he became vice president of Stanford. He transformed the university's Chemistry Department into one of the best in the country. Two outstanding chemists, William Johnson from the University of Wisconsin, and Carl Djerassi, a University of Wisconsin graduate, who had become vice president for research at Mexico-based Syntex Corporation, joined the faculty at Terman's behest. By bringing Djerassi to Stanford, Terman set in motion a whole new chain of company formations in biology and medicine. Largely at Djerassi's urging, Syntex established a U.S. subsidiary and research branch in the Stanford Industrial Park. Djerassi brought Alejandro Zaffaroni, Syntex's executive vice president, with him. Djerassi and Zaffaroni were responsible for the formation of four new companies Syva, Zoecon, Alza, and Dynapol.

Professor John Linvill, former chair of electrical engineering, credits Terman with attracting him to Stanford. Linvill said, "He had a remarkable way of keeping track of people. He had contacts all over the place. He knew I had gone from MIT to Bell Laboratories to work on transistors, and he recruited me in 1954 to set up a transistor program at Stanford." Linvill started his own company with partial backing from the university in 1971. He is now co director of the Center for Integrated Systems, a research center on campus, funded primarily by corporations, that does basic research in integrated systems.

Terman encouraged William B. Shockley, co-inventor of the transistor, to return to his hometown of Palo Alto. In 1956 he established the Shockley Transistor Laboratory of Beckman Instruments where they produced Shockley four-layer diodes. Shockley, who joined the Stanford faculty as a professor of electrical engineering in 1963, said that the decision was made predominantly because of the Bay Area, the fact that there are more trees in the area than there are in Southern California, and Stanford.

However, eight of Shockley's bright young electronics specialists left in 1957 to establish Fairchild Semiconductor in Palo Alto. This was the beginning of the semiconductor industry; Fairchild became a corporate seedbed as no less than 38 new companies were started by former employees. (Intel is one of the most famous).

Professor Dean A. Watkins was director of the electron devices laboratory and co director of the Stanford Electronic Laboratories. Terman recognized qualities in Watkins that he knew would make him a good businessman. When people from the Kern County Land Company let it be known that they wanted to invest in a military electronics enterprise based on microwave tubes, Terman told them he had just the right man and introduced Watkins to them. That was the beginning of Watkins-Johnson, which was founded in December 1957 by Watkins and H. Richard Johnson. Watkins continued on the faculty of electrical engineering as a professor until 1964, and then as a lecturer until 1970. Johnson was also a lecturer in electrical engineering from 1958 until 1968.

The atmosphere for growth became contagious; Terman continued to encourage his graduates to start their own companies, and faculty members continued to participate in the consulting, investing, and founding of new companies. The Honors Cooperative Program Early in the 1950's, at the close of the Korean conflict, the managers of several local firms asked Terman to permit their employees to continue their education on a part-time basis. In 1953, Terman decided that it was possible to accept some additional graduate students without increasing costs greatly. Companies in the area were notified that they could send qualified employees to regular daytime classes; the workers would be released from their company duties during this time. The response from industry was dramatic, and classes were quickly overloaded. Tuition covered less than half of the actual cost to educate a student. The result was overflowing classrooms and the underpayment of costs.

To solve the problem of maintaining the quality of education, Terman then Dean of the School of Engineering originated the Honors Cooperative Program, in the autumn quarter of 1954. Under this program, four companies (Sylvania, Hewlett-Packard, SRI International, and General Electric) agreed to select a number of qualified employees for enrollment in graduate work at Stanford. The companies signed five-year agreements specifying that they would pay double tuition for each student. This arrangement essentially covered the full cost of educating the Honors Cooperative students. The matching funds were transferred to the departments in which the students were studying and were used to hire additional professors to handle the increased teaching load.

#### 5.5.4. Conclusion

Once when fruit orchards predominated, it was called the Valley of Heart's Delight; it is now called Silicon Valley. Today semiconductor chips, made of silicon, are the principal product of the local high-tech industries. The term Silicon Valley was used occasionally, mostly by easterners who would mention making a trip to Silicon Valley, until 1971 when it was popularized in a series of articles, "Silicon Valley USA", written by Don Hoefler for Electronic News. Quite likely it was the first time the term was used in print.

Silicon Valley radiates outward from Stanford University to the adjacent cities of Palo Alto and Menlo Park; northwest to Redwood City and San Carlos; southeast to Los Altos, Mountain View, Sunnyvale, Cupertino, Santa Clara, Campbell and San Jose; and is gradually expanding to Alviso, Milpitas and Morgan Hill. It is contained by the San Francisco Bay on the east, Santa Cruz Mountains on the west and the Coast Range to the southeast.

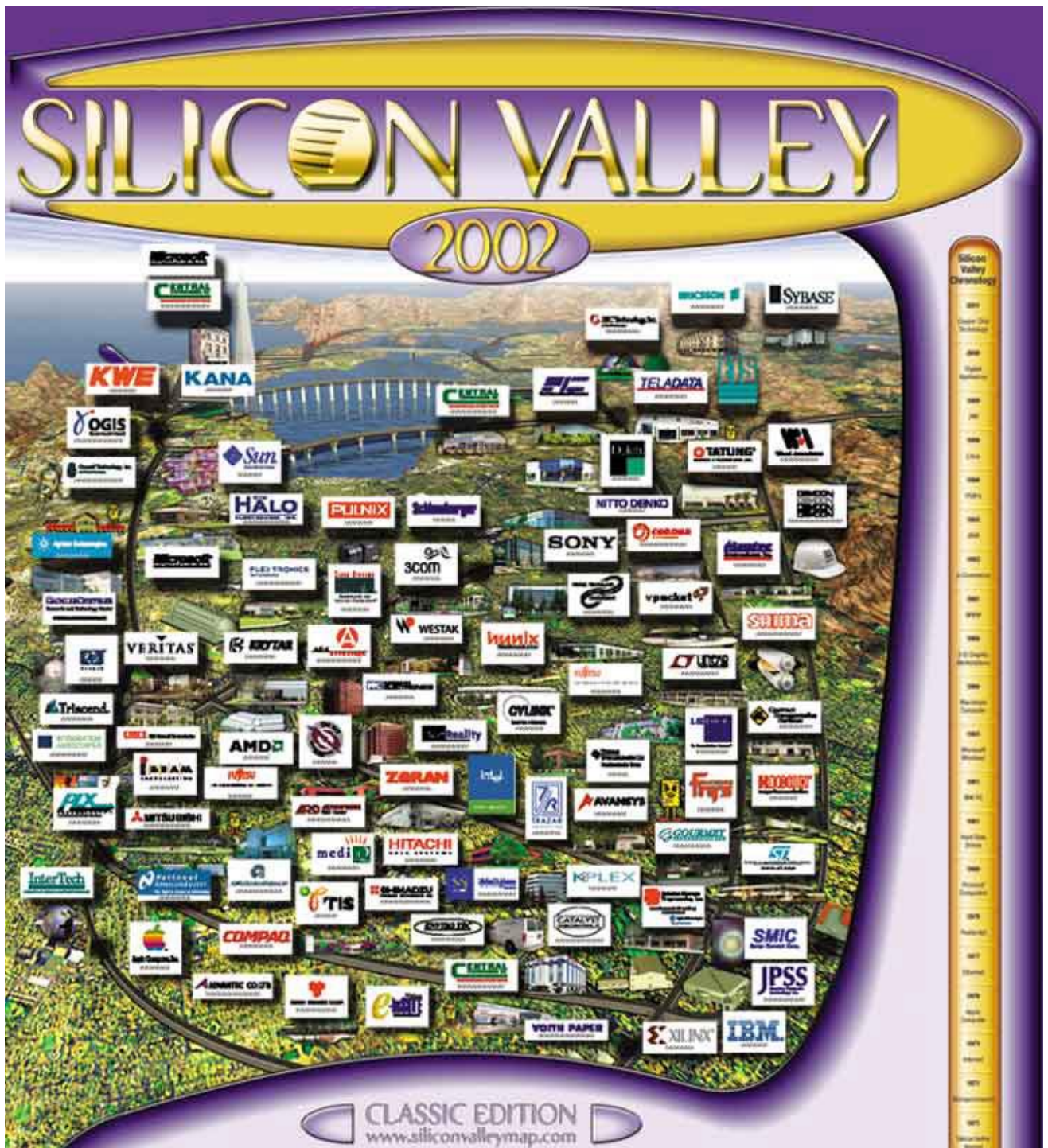
Approximately 2000 electronics and information technology companies, along with numerous service and supplier firms, are clustered in the area. The valley contains the densest concentration of innovative industry that exists anywhere in the world, including companies that are leaders in such fast-expanding fields as computers, semiconductors, lasers, fiber optics, robotics, medical instrumentation, magnetic recording, and educational and consumer electronics. Some are branches or subsidiaries of bigger corporations that felt obliged to establish research facilities in the area, even though their headquarters may be located elsewhere. Most of the new industry is home grown, however.

Terman once said, "When we set out to create a community of technical scholars in Silicon Valley, there wasn't much here and the rest of the world looked awfully big. Now a lot of the rest of the world is here." Terman had long believed that the academic community and the business community could and should work together for the benefit of both. Once Terman had attained a position of influence and power at Stanford, he practiced (and preached) a principle that he called "steeples of excellence". Its cardinal rule was to go for the best. "Academic prestige depends on high but narrow steeples of academic excellence; it is not possible to cover all the bases."

Terman, who died in 1982, never took credit for the development of Silicon Valley, but it is interesting to note in retrospect that a young man who fell ill at the age of 24, and who assumed that he would be unable to fulfill his destiny in the East, instead brought the world to his doorstep.

It has been said that an institution is the lengthened shadow of one man. Inasmuch as Silicon Valley is an institution Fred Terman is that man the Father of Silicon Valley.

5.6. The Silicon Valley Company Map



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