

# Philip Gregory Marsh, Ph.D.

dba *Marsh Scientific Services*

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## OBJECTIVE

Technical leadership in complex local projects involving computer solutions, or full time employment in a local business where computer and/or management skills are required.

## QUALIFICATIONS

After earning a Ph.D. in organic chemistry, seventeen years were spent working as a chemistry instructor, synthetic organic and analytical research chemist, mass spectrometrists, and project engineer in eight academic and industrial settings. Last career title was Senior Scientist. Moved to the Silver Valley in January 1993 to explore new lifestyle possibilities. Many lessons have been learned about entrepreneurship since then, along with practical skills involving forest and museum work.

## BUSINESS EXPERIENCE

### Internet Publishing

Currently doing business as *Marsh Scientific Services*. This nineteen year endeavor has evolved to become a website engineering and hosting resource dedicated to the promotion of the local region. Appropriate websites are designed to maximize their usefulness to the widest possible audience while providing sophisticated features to all. This involves the development of server-side includes and perl scripts that do not depend on client configuration, and the selective use of client-side JavaScripts that gracefully degrade on legacy client systems.

*MSS* has hosted *wallace-id.com* on a server located in San Jose since June 1998. This webworks contains over 350 pages devoted to bringing people to Wallace as tourists or as new residents. It provides publicity about festivals and information about businesses in town. The site also provides comprehensive information about skiing and mountain biking recreation opportunities for tourists and locals. Access log analysis of 5,085,944 files retrieved from the domain from 2002 through 2011, showed the average traffic of 4,049 people/month in 2002 increasing to 13,901 people/month in 2006, and falling to 9,202 people/month by 2009. Traffic picked up again by 2011 to average 11,468 people/month.

A separate, much smaller website, *silver-valley.com*, summarizes general and mountain biking information about the Silver Valley, hosts Valley-wide webpages and acts to direct visitors to the larger site.

Another website, *friendsofcdatrails.org*, developed in 2003 and maintained for the *Friends of the Coeur d'Alene Trails, Inc.*, promotes the 72-mile Trail of the Coeur d'Alenes Rails-to-Trails bike path, as well as other bicycle adventures throughout the Coeur d'Alene and Saint Joe River basins. Our current emphasis is on the promotion of a 300 km loop that includes both river systems, Lookout Pass and Lake Coeur d'Alene.

## **Previous webworks include:**

### ***Silver Valley Mining Association, Inc.***

*silverminers.org* was developed in May 2004 to promote the hard rock mining industry and culture of the Silver Valley, and was maintained until May 2009, when the organization ended.

### ***Independence Lead, Inc.***

This 5 going to 45 page websuite was designed and maintained at *wallace-id.com/independence/* from November 2004 to November 2008.

### ***High Mountain ATV, Inc.***

This 16 page websuite was designed and maintained at *wallace-id.com/highmountainatv/* from January 2005 to September 2007

### ***Wallace Chamber of Commerce***

This 22 page webworks was designed and maintained at *historic-wallace.org* from May 2003 to Jan 2004.

### ***Best of North Idaho***

This 13 page Arts and Crafts site was designed and maintained from August 1997 to Jan 2003.

### ***Total REALTORS***

This 14 page Real Estate site was designed and maintained from August 1998 to May 2002.

### ***Sailing Baja***

This 17 page site was designed and maintained from August 1997 to July 1998.

### ***Bat Waves makes Extreme Mittens***

This 17 page site was designed and maintained from November 1997 to September 1998.

### ***The Great Northern Printing Company at The Cobblestone***

The Cobblestone (business incubator) project was carried out from June 1998 to May 1999.

### ***Illusion Records***

This 17 page site was designed and maintained from September 1998 through March, 1999.

### ***The Greater Bitterroots***

This “*Folk Music in Wallace*” concept was adopted by Cogswells Coffee House/Saloon in 2000.

### ***The Parlorhouse Cybercafe***

This 12 page site was designed and maintained from April 1996 to January 1997 as part of the larger undertaking discussed below.

## **Retail Sales**

**Sales clerk** and visitor information services have been provided to the **Northern Pacific Railroad Depot Museum** during the summers of 1994, 1995, and 2002, and to the **Wallace District Mining Museum** from the summer of 1999 to the spring of 2010.

**Rental and Retail Shop Manager** at **Lookout Pass Ski Area** for the 2000/2001 season. Responsible for a friendly and efficient equipment rental experience at this family-oriented ski and snowboard resort. Supervised a part time staff of nine.

**Rental Shop Assistant** at the **Route of the Hiawatha** mountain bike concession on **Lookout Pass** during the 2001 season. Responsible for a friendly and efficient equipment rental experience; often over fifty bikes were rented during the day in this single person operation.

Retail Sales have also been done as **Boomtown Distribution**.

- Six customized computer systems were sold in 1994 to the *Railroad Depot Museum*, *Century 21-Total REALTORS* (4 in network), and the *Wallace Chamber of Commerce*.

- Various North Idaho products and videos were sold through *The Best of North Idaho* newsletter. This newsletter was the culmination of a year long cooperative venture with *G/Video Productions*. The third edition (1995) was mailed to over 3600 out-of-state persons who had expressed interest in the Silver Valley.
- FIVE REAL ESTATE VIDEOS featuring homes for sale in the Silver Valley and Coeur d'Alene area were produced and marketed nationally (with *G/Video*).

## **Business Consulting**

Helped the owner of *The Parlorhouse Cybercafe* establish and manage this unique Wallace business from April 1996 through January 1997. This eclectic shop offered coffee, tea, pastries, salads, local crafts and products, antiques and ambiance to tourists and locals. E-mail, internet and computer services were provided to 173 patrons, including 48 tourists and 22 people associated with the filming of Dante's Peak.

Carried out all computer work having to do with the operation of *The Jameson Restaurant, Saloon and Inn*, from May 1999 through August 2000. This involved all bookkeeping functions including payroll, taxes, accounts receivable and payable, and daily sales summaries. The position also involved internet and desktop publishing, as well as innkeeping and guest hospitality.

## **Other Experience**

Worked in various forest environments as a *trail crew member* for the Forest Service, and as a *forest worker* for the county's **Wildland Urban Interface Fire Mitigation** program, beginning in 2002. Removed excess fuel from forests behind homes using hand and power tools as part of federal grant. *Crew supervisor, 2006 -2011*. Twelve person work crews included two chipper operators and up to four sawyers.

# **PROFESSIONAL EXPERIENCE**

## **Technical Management**

Directed and monitored the work of six subcontractors in accordance with an Army contract to build a *Chemical-Biological Mass Spectrometer* capable of detecting chemical and biological threat agents at subtoxic concentrations. Developed methods to classify pyrolysis mass spectra by feature recognition using sets of equivalent binary rule trees developed from multivariate analysis of MS and MS/MS data acquired on triple quadrupole and ion trap systems.

## **Mass Spectrometer Operation**

Operated ion trap (CBMS Army Test Model), double focusing (MAT 212, VG 7070, and Jeol D100) and quadrupole (Finnigan 3200 and 4500) mass spectrometer systems. Used GC/MS, MS/MS, Pyr-MS,  $\pm$ CIMS, FDMS, FIMS, and accurate mass measurement to solve academic and industrial problems.

## **Organic Analysis**

Analyzed gibberellin growth hormones in dwarf watermelon seedlings, neonatal and adult steroid metabolites in urine, trace additives in competitor's antifreeze, polynuclear aromatics in carbon fiber feedstocks, noxious odors in the neighborhood of a chemical factory, 2,3,7,8-tetrachlorodibenzo-p-dioxin in fish and sediment at 1 to 100 ppt concentrations, and airborne chemical and biological agent simulants in the presence of battlefield interferants.

## Organic Synthesis

Earned Ph.D. in synthetic organic chemistry in 1974. Taught organic chemistry laboratories and carried out radioactive organic synthesis and analysis during next three years. Subsequent medical center and industrial work involved occasional synthesis of model compounds and analytical derivatives.

## PROFESSIONAL HISTORY

### CBMS Technical Director and Senior Scientist

Teledyne CME, Santa Clara, California

November 1987 to December 1991

- ◆ Technical Director of the *Chemical-Biological Mass Spectrometer (CBMS)* Program funded by the Army (\$16M over 4 years).
- ◆ Used statements of work, work breakdown structures, task and resource schedules and cost analysis to achieve technical milestones: Test Models running in MS/MS mode were 100% successful at detecting chemical and biological simulants in the midst of battlefield interferants during outdoor field tests.
- ◆ Handled all technical issues related to the performance of six subcontractors (*Briker-Franzen Analytik, Colorado School of Mines, Tau Corporation, Geomet Technologies, Ohio University and BioDigital Technologies*); technical issues included experimental protocols, evaluation algorithms, neural networks, expert systems, transputers, aerosol concentrators, membrane inlet systems, pyrolysis chemistry, and data handling in MS-DOS, Windows and OS/2 environments.
- ◆ Developed working systems of binary rule trees for evaluation of primary ion and daughter ion pyrolysis mass spectra acquired with triple quadrupole and ion trap mass spectrometers; method implemented in graphical package used with Fall 1991 Test Model.
- ◆ Wrote and delivered the *CBMS Prime Item Development Specification (MIL-STD-490)*, *Software Development Plan (DOD-STD-2167)*, *Program Performance Specification (DOD-STD-1679A)*, *Software Quality Assurance Plan (DOD-STD-1679A)*, *Monthly Technical Progress Reports* and several other formal documents to the Army.

### Senior Research Chemist

Occidental Chemical Corporation, Technology Center, Grand Island, New York

November 1985 to October 1987

- ◆ Operated and maintained a nine-year-old Varian-MAT 212 high resolution mass spectrometer at optimum performance.
- ◆ Carried out GC/MS, EIMS,  $\pm$ CIMS, FIMS and FDMS analysis of samples originating from organic synthesis research and environmental regulation and remediation programs.
- ◆ Developed a high-resolution gas chromatography, high-resolution selected ion monitoring protocol to quantitate 2,3,7,8-tetrachlorodibenzo-p-dioxin at 1 to 100 ppt in sediment and fish.

### Professional Staff Member

Arthur D. Little, Inc., Environmental Sciences Section, Cambridge, Massachusetts

September 1984 to November 1985

- ◆ Operated Finnigan 3200 and 4500 quadrupole mass spectrometers primarily for environmental analysis.
- ◆ Developed cryogenic trapping, thermal desorption GC/MS protocols, and evaluated state-of-the-art tandem mass spectrometers.

## **Project Scientist**

**Union Carbide Corporation, Central Scientific Laboratories, Tarrytown, New York**

**June 1980 to September 1984**

- ◆ Supervised operation of mass spectrometry resource containing two double-focussing mass spectrometers (VG 7070F and Jeol D-100), and two technicians.
- ◆ Solved over fifty problems using packed or capillary column GC/MS,  $\pm$ CIMS,  $\pm$ FIMS, FDMS, high-resolution mass measurement, peak matching, selected ion monitoring, and organic synthesis of model compounds.

## **NRSA Fellow**

**University of Colorado Health Sciences Center, Department of Pediatrics,**

**B.F. Stolinsky Research Laboratories, Denver, Colorado**

**June 1977 to June 1980**

- ◆ Established optimum GC/MS procedures to detect and quantify all steroid metabolites in neonatal and other urine.
- ◆ Established a library of derivatized steroid mass spectra.
- ◆ Collaborated in the early diagnosis of inborn errors of steroid metabolism, in the design of GC/MS/computer system, and in the elucidation of certain rare endocrine disorders.
- ◆ Studied non-specific illness in normal adult populations.

## **Lecturer**

**University of Colorado at Denver, Chemistry Department, Denver, Colorado**

**September 1975 to June 1977**

- ◆ Taught and supervised all organic chemistry laboratories (120 students).
- ◆ Taught graduate-level synthetic organic chemistry course and supervised independent laboratory studies.

## **Postdoctoral Research Fellow**

**University of Calgary, Biology Department, Calgary, Alberta, Canada**

**Summers of 1975 and 1976**

- ◆ Synthesized radioactive gibberellin plant growth hormones.
- ◆ Studied gibberellin metabolism in dwarf watermelon seedlings using high performance liquid chromatography with scintillation counting of isolated tritiated metabolites.

## **Instructor**

**Blue Mountain Community College, Science Department, Pendleton, Oregon**

**September 1974 to June 1975**

- ◆ Taught organic and general chemistry, both with laboratories.

# **EDUCATION**

***Ph.D.*, Organic Chemistry, University of Montana, Missoula, 1974**

***B.A.*, Chemistry, University of California at San Diego, 1969**

***National Research Service Award Fellowship,***

**University of Colorado Health Sciences Center, Denver, 1977 to 1980**

# Ph.D. DISSERTATION

## *The Reaction between Nitrosyl Chloride and Phenylmagnesium Bromide*

### PUBLICATIONS

- 1** *Semi-micro quantitative analysis of complex urinary steroid mixtures in healthy and diseased states*; A.W. Pike, C. Moynihan, S. Kibler, P.G. Marsh and P.V. Fennessey; J. Chromatography, **306**, 39-50 (1984).
- 2** *Determination and quantitation of steroid levels*; P.G. Marsh and P.V. Fennessey; Proc. West. Pharmacology Soc., **22**, 91-6 (1979).
- 3** *Metabolic steroid profiling*; P.G. Marsh and P.V. Fennessey; Proc. Amer. Soc. Mass Spectrometry, Seattle, **1979**.
- 4** *Synthesis of symmetrical diarylamines*; W.L. Waters and P.G. Marsh; J. Organic Chemistry, **40** (23), 3349-51 (1975).
- 5** *Reaction of nitrosyl chloride with phenylmagnesium bromide*; W.L. Waters and P.G. Marsh; J. Organic Chemistry, **40** (23), 3344-9 (1975).
- 6** *Reaction of phenylmagnesium bromide with nitrosyl chloride*; P.G. Marsh and W.L. Waters; Proc. Montana Acad. Sci., **31**, 141-6 (1971).
- 7** *Ozonolysis of organomercurials*; P.E. Pike, P.G. Marsh, R.E. Erickson and W.L. Waters; Tetrahedron Letters, **31**, 2679-82 (1970).