

Mixing Glamour and Oil



The Comely Young Scientist Digs Out Her Own Samples of Oil-Bearing Rock and Knows How to Check the Details of a Well-Drilling Job.

June King Is Demonstrating That It's Possible to Be a Geologist and Very Pretty, Too

A HARD-BITTEN Southern drill crew listened with magnificent unconcern a couple of years ago to word that a new geologist named J. King would be out soon to help search for oil.

"Just another young squirt fresh from college," growled the foreman. "Well, we've broken in plenty of 'em. Let's get this rig movin'."

The crew's indifference quickly

that she has picked out for herself. She's five feet three inches tall, weighs 118 pounds and loves smart clothes, movies and dancing—after work.

"A brunette Greer Garson," is the description some of her oil colleagues give of the young Indianapolis-born scientist.

"Every time I go to town and see Miss Garson in the movies," one of



E. Allen Driggers

Glamour and Geology

Women in Petroleum Geology and Popular Culture

Standard Oil-affiliated Carter organization, June already receives a good salary and has excellent chances for advancement in the strenuous career

Andrew Comyn Irving, who came within 900 feet of the summit in 1924. When these expeditions failed, hardy Tibetans nodded understand-

Mosquito planes, were caught in the gale and flew for two hours trying to dodge what they described as "a tremendously turbulent storm cloud."

The leading plane was racing along at a supposedly safe 23,000 feet, trying to find its bearings, when a vast wall of snow and rock loomed suddenly ahead.

The straggled pilot bailed at the controls and fought for altitude and the second plane did likewise.

For seconds their fate was in doubt. Then an updraft tossed them over the ugly barrier. Instruments showed the ridge could only be 300 feet high.

On their way home from the summit of their accidental discovery, they had been wearing only tropical gear of khaki shirts and shorts when they coasted over the ice-armor'd peak on whose slopes ice-climbers died in civilization's warmest clothing had frozen to death. Yet they were comfortable because they flew in warm, hermetically sealed aircraft.

Two other planes first crossed the summit of Everest in 1933 after an exhaustive preparation. They photographed the area.

India some months later, causing 15,000 deaths, Himalayan natives were not surprised. The mountain god, they said, was very angry.

Glamour and Geology

E. Allen Driggers

Glamour and Geology

Women in Petroleum Geology and Popular
Culture

 Springer

E. Allen Driggers
Tennessee Technological University
Cookeville, TN, USA

ISBN 978-3-031-64524-2 ISBN 978-3-031-64525-9 (eBook)
<https://doi.org/10.1007/978-3-031-64525-9>

© The Editor(s) (if applicable) and The Author(s), under exclusive license to Springer Nature Switzerland AG 2024

This work is subject to copyright. All rights are solely and exclusively licensed by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, expressed or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

If disposing of this product, please recycle the paper.

*This book is dedicated wholeheartedly to
the most accomplished woman I know:
Dr. Laura Elizabeth Smith*

Foreword: “Cutting Down the Nets”

Readers: it might be a strange start to a book about geology to start with a basketball analogy, but unconventional seems to fit this book just fine. Basketball seems to summarize the mood and circumstances of its creation. In 1983, a college basketball team from Raleigh, North Carolina, had an unconventional run through the National Collegiate Athletic Association (NCAA) men’s basketball tournament and many North Carolinians think of them as the “Cinderella Team.” The meaning of Cinderella team is a sports metaphor for a team that seemed to win, despite their lack of pedigree, traditional team structure, and seemed to win against more competitive opponents. The team from North Carolina State University is most well known for their coach, a charismatic New Yorker and Italian-American named James Thomas Anthony Valvano (or Jimmy V), who seemed to stir up the team. Valvano was an English major who used quotations from literature to inspire the team. Valvano is also remembered for his work in raising funds for cancer researcher through his foundation and his signature phrase “Never give up.” Valvano suffered from cancer himself. He died in 1993, but his mythological status was already transfixed in my mind growing up in the Raleigh-Durham area, as my parents, neither of them graduates of the North Carolina State University, but two persons who became enraptured in the spirit of 83.

When you try to explain major popular culture events that your spouse was not familiar with, given her upbringing in Arkansas, far away from the basketball courts of the Atlantic Coast Conference, you sometimes need moving images and film that explains the significance of something like the 1983 championship. Luckily, the new *30 For 30* film covering the folklore and events of the 1983 was available, entitled *Survive and Advance*, and Laura Elizabeth Smith, my fellow academic and wife, was able to make the connections and see things through my eyes, which is crucial in any relationship.

During 2022, my wife was going on the job market and finishing her Ph.D. Both of these events span the creation of the book, including the beginnings of our dating history. When anyone is either writing a doctoral thesis or being on the job market, or even doing both at the same time, there can be moments where your dreams seem impossible. The same can be said about starting your second book, without an

advisor and balancing the responsibilities of a full-time academic job. Though our future together was certain, our working plans were painfully uncertain. But, she too is charismatic, and recalled the scene from the documentary where at the beginning of the 1982–1983 season, Valvano gathered the team together, at the first practice, and got them thinking about winning the national championship as a goal, which seemed as impossible as two academic jobs in the liberal arts. To get the team focused on realizing that goal, Valvano had them practice everything, including cutting down the nets, which was done at the end of winning a championship.

In that same spirit, Laura bought her doctoral gown on the first day she started revising her dissertation and I, too, started writing the forward, preface, and acknowledgments to this book. And though things are way different in 2024 than in 1983, with Caitlin Clark being one of most well-known basketball players, and the game going through more diverse and hopefully inclusive changes, the attitude of hope remains. As I write this, both the North Carolina State University men and women's basketball teams are slated to play in the final four rounds of the NCAA tournament, and they have the opportunity to win the national championship with two more games. Whether you care about sports or not, the spirit of reaching for something that seems so impossible and out of reach never seems to go out of fashion, and perhaps a crucial part to realizing your goals is to practice the whole experience, including how to celebrate them.

Though my goals were comparatively smaller and I had significant resources behind me to achieve them (see the acknowledgments) some of my smallest goals seemed on that same, impossible scale. But writing this book has showed me that with community, support, and a little charisma, you can be pushed into some amazing experiences in life. Women featured in the book are quite frankly amazing, inspiring, and successful, whether they were pushing against the large mechanics of sexism or simply going in and doing their job everyday despite a toxic culture.

Preface: GTT

In the nineteenth century, when persons wanted to escape debts, run away, change their lives for the better, or seek adventure, they often fled states like South Carolina and left a simple note explaining their whereabouts: or left just enough information not to be found. The note often read “GTT.” The abbreviation stood for “Gone to Texas” (Campbell 2017). Writing this book meant all of those things to me and more. One day, at the start of one amazing research trip I left the Facebook status “GTT.” Going to Texas changed my life for the better and it was truly one amazing trip that led to many others.

The narrative arc of my life during that first Texas research trip was trending into an amazing change, and I was moving out of some rather dark rain storms. If you would like more back story, please consult the preface in E. Allen Driggers, *Early Nineteenth Century Chemistry and the Analysis of Urinary Stones* (Driggers 2023). The first time I traveled out to Lubbock, Texas, I viewed it as a place of mystery and excitement. I was going West! I had just met my soon to be wife, Laura Elizabeth Smith, but she had some understandable trepidation about making a commitment with someone who was nine hours and almost six hundred miles away. I saw her and the West as my destiny and embraced the experience, traveling to the archives all day long and talking to her on the phone late into the evening, almost missing my flight from Nashville to Dallas.

Traveling to Lubbock was intimidating, as the flight required multiple plane embarkations and though I had traveled to Europe, I had never gone West of Oxford, Mississippi. However, my undergraduate mentor at North Carolina State University, the highly accomplished plant pathologist Larry Blanton, formerly of Texas Tech University, introduced me to his social network of quite frankly, amazing Texans. I would like to thank Cal and Melanie Barnes, Julie S. Isom, Celeste Yoshinobu, Andy Wilkinson, and many other kind members of the Texas Tech Community, go Red Raiders! I will be a fan of the Red Raiders not because Texas Tech funded any travel, but people who are associated with Lubbock are so damn kind.

In 2019, I was able to return with Laura, convincing her to ride all the way from Tennessee without air conditioning. Both Dr. Smith and I would like to thank Lewis Held of the biology department. After a random run in, where we gave us “Karma

Dollars” to honor our recent engagement, we count him as an awesome friend! Held was encouraging of both book projects.

With the most enjoyable of projects, often historians come to these projects by complete accident. I had developed a conference paper for the Geological Society of America meeting in Indianapolis from the remnants of the personal papers of the geologist Augusta Hasslock-Kemp that were held in Tennessee. I thought it would be my one foray into the history of geology, but a publisher from Springer persuaded me to publish a book on the geologist. I took an amazing trip to Lubbock, Texas, and performed research at the Southwestern Collection. There I found a fascinating newspaper article profiling Kemp and other female geologists working in the oil fields of America during World War II. As a naive, and passionate (tenure track) researcher, I thought I could simply will the book into existence, as I was confident biographical information about these women had to be out there. I got my contract and I was off to the races. I anticipated multiple trips to Texas from Tennessee and that the book would practically write itself. I could not have been more incorrect, but in the best of ways. The COVID pandemic happened and changed the United States in ways that I could not have anticipated, and forced me to re-think through a research project using new to me resources. Newspapers became my lifeline, as well as digitized books. However, the meaning of all of it was unclear, and I wondered how was I ever to finish what felt was a monumental two hundred and fifty pages. I wrote an occasional chapter here and there, but could never get any momentum going toward fully completing the book.

I looked for ways to be re-energized about the project, as the pandemic and online teaching proved to be challenging. Laura Smith and I’s daughter, Millie, also started online kindergarten during the pandemic. Online kindergarten challenged our abilities as teachers at work on our own classes but also making sure Millie had enough support for school. I sat beside her each morning at Laura’s great grandmother’s dining room table and tried to make sense of the research project, sitting in so many pieces, much like a quilt, and looking for an assembling and a coherent strategy for completion. But mostly I simply started reading newspapers and seeing what caught my eye. I also simply prayed that I would be led, in a great leap of faith, to a coherent and interesting story. Sometimes you simply have to read through newspapers, hope, and write. Eventually, the narrative appeared.

Hope was supplied for this project from the confidence that came from the publication of my first book with Springer, *Early Nineteenth Century Chemistry and the Analysis of Urinary Stones*. The publication of a book about urinary stones was a long and challenging process, where many academic publishers at University presses never saw the market for the book. A lot of rejections and near publications eventually gave way to a yes, and I felt that I could do anything after that book came out on July 14, 2023. Laura Smith would not let me give up on that book, as she and Kent Dollar talked me in to continuing to try and find a publisher for the book. When the first book came out, she implied that I could now focus and finish the second book: she was correct and I greatly underestimated my determination, stubbornness, and abilities of a historian. I was able to report to her throughout the summer all the progress I was making by simply going into my office a couple of days

a week throughout the summer and the book simply wrote itself. I am lucky that Laura Smith believes in me all the times I do not, and I hope to have two people (including myself) supporting my next book project.¹ Anything is possible with love.

Cookeville, TN, USA

E. Allen Driggers

References

Campbell RB (2017) *Gone to Texas: a history of the Lone Star State*. Oxford University Press, New York

Driggers EA (2023) *Early nineteenth century chemistry and the analysis of urinary stones*. Springer, New York

¹Jude 1:2 Mercy unto you, and peace, and love, be multiplied.

Acknowledgments

This book was completed though assistance and distraction from Millie Driggers; she's doing a fantastic job growing up! My mother Jean Driggers, inspired my love of history at an early age, and she and my father took me to many historical sites that cemented that interest. Thank you, Sara Smith and Grant Smith, for looking after Millie and the many gifts of used furniture. Thank you to Susan Laningham for the Tuesdays free to work and play racquetball. I hope that Millie Driggers reads this book out loud as many times as she read first book: that was really touching! Thank you to my father, Ed Driggers, resident of the world hereafter, for all of his encouragement.

I received financial support from Tennessee Technological University and the faculty research fund. I have some very good colleagues at Tech that were helpful with the completion of this book: Dr. Kent Dollar, Dr. Jeff Roberts, Dr. Alan Mills, Dr. Troy Smith, and Dr. Laura Elizabeth Smith. In many cases I wanted to end the book project, as I felt overwhelmed or existential and they did not let me give up, much in the spirits of the words of James Valvano. Thank you David Hales for help with images and great racquetball games. Thank you to Amy Foster for copying services and logistical support with getting all those books to and from the library. Thank you, Dr. Ronald Brashear, for a kind word when I needed it. Appreciation to Dr. Ben Gross for his dependability and encouragement. I am greatly indebted to Dr. Laurence Hare at the University of Arkansas, as he has provided crucial support and mentoring. I would also like to thank Dr. Adelheid Voskuhl at the University of Pennsylvania for acting in the true kind-person-scholar vibe of her friend and my mentor, Dr. Ann Johnson. Thank you to Andy Wilkinson at Texas Tech for hospitality when I visited Lubbock. Dr. Lewis Held, thank you for the Karma dollars, Laura and I are investing them in kind persons. Many people at Texas Tech helped and again, I will thank you again: Cal and Melanie Barnes, Julie S. Isom, and Celeste Yoshinobu. Thank you to the Southwest Collection at Texas Tech for image permissions.

I would like to thank my editor Aaron Schiller for continuing my project, as the original editor was called to do different work. He was an excellent advocate, encouraged me, and was patient in my anxious and early stages of the project.

Schiller worked with me through the pandemic and was there for me anytime I needed him; excellent work! I would like to thank Dr. Shirley Laird and Philip Davis for excellent dinners at Nick's, they raised both Laura and I's spirits! He would also like to thank Scott Moss and Gail Moss for their friendship and culinary adventures! Thank you to Troy and Robin Smith for excellent breakfast get-togethers in Sparta.

Librarians at Tennessee Tech and other research institutions were instrumental in getting me resources of helping me track down leads. Holly Mills helped me with sources from interlibrary loan and answered a half billion of my desperate emails. Ashley Augustyniak McDermott at Science History Institute helped me with gathering rare primary sources. Beth Lander, as always, was helpful with encouragement and sources. Dr. David Dangerfield at the University of South Carolina-Salkehatchie helped me find rare geology publications and kept me from quitting the project. I am also incredibly thankful to the staff at the Dolph Briscoe Center for American History for sending me some scanned material during the middle of the COVID-19 pandemic. Thank you to Erin A. Harbour for her assistance in tracking down and double-checking sources. I also prayed for intercession and guidance to Dr. Ann Johnson, formerly of the University of South Carolina, now philosopher of the world hereafter. Again, Dr. Larry Blanton was incredibly helpful establishing my Lubbock connection. I would also like to thank Jim Flis for emailing me out of the blue about Augusta Kemp and getting me re-engaged with my book project. Thank you to Tom Vance for sharing his files and materials about Kemp, I sincerely appreciate it! Again, thank you Robbie Gries for being generous in time and spirit, and helping me with leads and sources. You were kind to talk to me, mail me sources, and encourage me to add another book to the needed histories of women in petroleum geology. Thank you to the Bitgood, Decker, and McCoy families for sharing access to documents and photographs of family members. Again, thank you Robbie Gries for access to transcribed and painstakingly gathered documents and photographs you used for your own book; that was a big help. I hope this book adds to the rich narrative of women in geology.

The largest source of confidence came from my wife, Dr. Laura Elizabeth Smith. She toiled with her own dissertation, teaching load, and then her job market sojourn. She truly took a piece of coal and made it into a diamond, and made it through trials and tribulations that just a single challenge would ruin most people, much less a series of them. She's the best scholar, mother, decorator, craftswoman, and just good buddy that I have ever known and will know. She never let me give up on this project and would gladly defend my honor. Laura truly understands the value of geological prospecting, as it takes only one oil well to truly produce a fortune. And in that respect, I am the luckiest prospector out there. Now, to the delight of many people that I thanked in these acknowledgments, I am off to clean up my office and return all my books to the library, and get prepared for the next project!

Contents

1	Imagination and History: Glamour and Geology	1
1.1	The Glamour of Geology	1
1.2	Newspapers and the Idea of “Glamour and Geology”	6
1.3	Understanding the Patterns and Meanings of Women at Work in Petroleum Geology	13
1.4	Women and the History of Identity	16
1.5	Glamour, Geology, and History: Summary of the Book	19
	References.	24
2	Augusta Thekla Hasslock Kemp: Woman of “Accomplishment” and the Pre-glamour Geologist	27
2.1	Changing Identities	27
2.2	Learning and Practicing Geology in the Pre-glamour World.	28
2.3	The World of Augusta Kemp: Victorian Geology Transition for the Twentieth Century	30
2.4	Geologist and Educator	34
2.5	Educational Experience and Training and Education at the University of Chicago	35
2.6	Women, Geology, and World War I: Analogous Experiences of Dorothy McCoy and Augusta H. Kemp	38
2.7	Being Creative: Framing Geological Work for Children and in Stories	40
2.8	Creativity in Kemp’s Geologic Writing: Exploring Her Master’s Thesis	45
2.9	Kemp and World War II: Forming Communities and the Transition to Glamour Geology.	48
	References.	50
3	“Women Will Win” Geology and Careers for Women in the World Wars	53
3.1	Introduction: Outlook and Openness	53
3.2	Geology and Women in World War I.	54

3.3 The Outlook for Women in Geology During the World War II Era 57

3.4 Training a Female Geologist 63

3.5 “Lady Motorist:” The Working and Driving Woman. 69

References. 73

4 World War II Glamour: The Image of the Female Geologist, and the Newspaper Pin-Up 75

4.1 Wartime Glamour. 75

4.2 “Mixing Glamour with Oil:” Female Geologists and Pin-Up Culture of World War II 76

4.3 Ellen Posey Bitgood, and the Female Geologist Asserting Herself in a Man’s World. 82

4.4 Two Girls as Oil Detectives Dorothy and Doris 86

4.5 Higher Education Meets the Wartime Demands of Petroleum Geology with Female Geologist 89

4.6 “These Women Aren’t Sissies, Either!” 92

4.7 *The Petroleum Engineer: Women, Society, and World War II.* 94

4.8 Black Women and the Lack of Geologic Education 96

4.9 Conclusion 98

References. 99

5 Microscopes and the Post-War: “Women at Work” 101

5.1 Introduction: Women and Microscopes 101

5.2 The Fossil Hunter with a Microscope 104

5.3 The Application of Micropaleontology and the Microscope. 107

5.4 Heroic Women and the Search for Uranium 113

5.5 Women, Narratives, and the Microscope: Jane Gray (1929–2000). 117

References. 120

6 The Pressure of Doing It All: “Glamour Girls,” Imagination, and Identity in Post-War Petroleum Industries. 123

6.1 Oil Companies, Female Workers, and Magazines 123

6.2 Women Within and Connected to the Industry: Desk and Derrick. 126

6.3 Petroleum Peggy 133

6.4 The Petroleum Engineer: Women at Work. 136

References. 139

7 “Mobilogue”: Women, the Office, and the Oil Industry: Women’s Changing Place in the Office. 141

7.1 Promoting Women in the Oil Industry 141

7.2 Women, the Science of Oil, Research, and the Office 142

7.3 The “Oil Woman” 147

7.4 Mobile and the Recruiting of Women 148

7.5	Making Space and Equity for Women in the Gas Industry	151
7.6	Female Geologists in the Office: The Mobile Women’s Discussion Group.	158
7.7	“Good Judgement”: Women, Office Culture, Misogynism, and Fashion	161
7.8	Mobil Pushes Standards of the Housewife in a Story Entitled “Are You a Handicap to Your Husband” and Readers Respond with Frustration	167
7.9	Oil, Women, and Culture	170
7.10	Female Geologists Comment on the Culture That They Live and Practice In	176
	References.	180
8	Identities, Politics, and Culture in Flux: Bodily Autonomy, Political Rights, the ERA, and Breaking from Established Narratives	183
8.1	Introduction: Revolutions	183
8.2	Female Geologists and <i>Playboy Magazine</i>	183
8.3	Women Geologists and the Equal Rights Amendment (ERA) and “Woman Power”	189
8.4	Social Push Back and Critical Comments About Women in Geology and the Oil Industry.	197
8.5	Stories Critical of the Place of Women in Science and Stories Addressing the Problems of Representation of Women in Geology	202
8.6	Conclusions	204
	References.	207
9	Resistance, Discrimination, and the New Glamour	211
9.1	Introduction: The New Glamour	211
9.2	Resisting the System and Female Introspection: Making Their Own Rules	212
9.3	Cultivating Diversity and Celebrating Women in the Petroleum Industry and Positive Messaging	216
9.4	The Importance of Sharing Narratives of Struggle and Moving Away from the Positive Image in Oil.	222
9.5	“Women Learning to Survive” and Taking Their Place in Management.	225
9.6	Discrimination, Economics, and the New Glamour	228
9.7	Personal and Professional Discrimination in the 1970s.	239
9.8	Optimism and Adventure: Periodicals and Positive Narratives	244
9.9	Conclusion	249
	References.	250

10 Glamour Returns: Images, Heroics, Dolls, but Far from an Ending 253

 10.1 Far from an Ending 253

 10.2 Crafting Their Own Glamour 262

 References 264

Index 265

List of Figures

Fig. 1.1	Wilson working in her laboratory (Painesville Telegraph 1950)	5
Fig. 1.2	<i>The Pressure of Beauty for Women</i> (McLeod 1940)	6
Fig. 1.3	Pin-up style images of June King from <i>The American Weekly</i> . . .	8
Fig. 1.4	Women using X-rays in petroleum exploration	11
Fig. 1.5	Advertisement from <i>Life</i> promoting cars to women working in oil technology (<i>Life</i> 1950)	12
Fig. 2.1	<i>Naticopsis</i> plates. (Kemp 1957a, b)	36
Fig. 2.2	Two portraits of Kemp (1853–1974). (Courtesy of Southwest Collection at Texas Tech).	44
Fig. 2.3	Kemp and women working in geology during World War II. (Wichita Daily Times 1947).	49
Fig. 3.1	Image from <i>Outlook for Women in Geology</i> . (This image is likely from <i>Glamour and Geology</i>)	59
Fig. 3.2	The quality overdrive transmission for working women. (<i>Life</i> 1950).	70
Fig. 3.3	Sexism and female motorists. (Klein 1961).	71
Fig. 3.4	Glamourized female motorist. (Klein 1961)	72
Fig. 4.1	June King on the job (The American Weekly 1945)	76
Fig. 4.2	King in the laboratory (The American Weekly 1945)	77
Fig. 4.3	Greer Garson (<i>Life</i> 1943, pg. 92).	81
Fig. 4.4	Ellen Bitgood working onsite with microscope. (Photo courtesy of Robbie Gries and Bitgood Family)	82
Fig. 4.5	Jung and Malkin pictured working “a geology problem.” The headline appeared slightly below the picture (The Decatur Herald 1941)	87
Fig. 4.6	Image attached to the Standard Oil Ad that ran in the <i>Spokane Daily Chronicle</i> March 20, 1945, proclaiming that “ <u>These women aren’t sissies, either</u> ”	93

Fig. 4.7	Picture of Williams (unnamed) in <i>The Employment of Women</i> (pg. 1–59)	98
Fig. 5.1	“Women Geologists at Work:” from <i>Careers for Women in the Physical Sciences</i>	102
Fig. 5.2	Cartoon of a female geologist from <i>The Leaflet</i>	103
Fig. 5.3	Image of Valerie Newell (Edmonton Journal 1948)	110
Fig. 5.4	Doris Zeller (Florence Times 1955)	113
Fig. 5.5	“Geiger Counter Obsolete? Weeds Can Count, Too” (Smith 1955)	116
Fig. 5.6	Dr. Jane Gray (Rakish 1965)	117
Fig. 6.1	Women’s work in oil was actively promoted in magazines like <i>Life</i> (Life 1951)	124
Fig. 6.2	Virginia Dupies was profiled in <i>Dallas</i> as a woman working in oil (Thompson 1953)	129
Fig. 6.3	Column image for the Petroleum Peggy Column (The Frederick Press 1956)	134
Fig. 7.1	Image from “Women at Work” section of <i>The Petroleum Engineer</i>	142
Fig. 7.2	Whitehouse pictured in <i>The Petroleum Engineer</i> (The Petroleum Engineer 1955, pg. E-11)	143
Fig. 7.3	“Women at Work” featured working women (The Petroleum Engineer 1954a, pg. E-36–E-37)	143
Fig. 7.4	Francis Oldham pictured in <i>The Petroleum Engineer</i> (The Petroleum Engineer 1954b)	145
Fig. 7.5	Ngram results from 1940 into the 2010s	148
Fig. 7.6	Ngram results when they are focused from 1940 to 1970	148
Fig. 7.7	This might be an image of Rosalie Armistead Higgins (Robb 1953)	156
Fig. 7.8	Newspaper advertisement for women’s clothing (The Tuscaloosa News 1972)	163
Fig. 7.9	Article explaining the controversies about miniskirts (Stratas 1967)	164
Fig. 7.10	Image from <i>Cosmopolitan</i> (MacHarg 1921)	172
Fig. 7.11	Mason portrayed as vulnerable on the right and then advocating for support for her company in the panel on the right (MacHarg 1921)	173
Fig. 7.12	Steve Roper cartoon that features a geologist (The Racine Journal Times Sunday Bulletin 1962)	173
Fig. 7.13	A constructive narrative of the Barbie arc in <i>Steve Roper</i> . (I looked at cartoons from May 1962 to around late July 1962) (Roanoke Times 1962a, b; Lubbock Avalanche-Journal 1962; Citizens-News 1962)	175
Fig. 7.14	Dr. Lentin at work in the lab (Gilchrist 1974)	179

Fig. 8.1	Kymerly Herrin. (Huessy 1981).....	187
Fig. 8.2	Martha Thomsen. (Sallquist 1980).....	188
Fig. 8.3	Atwood running. (Ferguson 1979).....	193
Fig. 8.4	Gwen Rowley images from article. (Pedersen 1977).....	194
Fig. 8.5	A cartoon that parodied the discussion of power in marriages. (Miller 1966).....	201
Fig. 8.6	Kitchen posing with geologic samples. (Kerstetter 1959).....	203
Fig. 8.7	Cartoon from the AAAS publication satirizing women in science (New Scientist 1979).....	205
Fig. 8.8	Dr. Dianne R. Neilson. (Pope 1979).....	206
Fig. 9.1	Cartoon that appeared above the story about Theilen and in the story “Beautiful woman recognizes self”. (The Southeast Missourian 1971).....	213
Fig. 9.2	Illustration from <i>Beauty Is No Big Deal</i> . (Lawson and Conon 1971, pg. 124).....	215
Fig. 9.3	Second illustration from <i>Beauty Is No Big Deal</i> . (Lawson and Conon 1971, pg. 132).....	216
Fig. 9.4	Williams working in geology. (White III 1984).....	219
Fig. 9.5	Williams working in the field. (White III 1984).....	220
Fig. 9.6	Williams giving a presentation at Mobil. (White III 1984).....	221
Fig. 9.7	Fitzpatrick and the eye-catching headline. (Fitzpatrick 1986, pg. 18–19).....	222
Fig. 9.8	Adele S. Greenfield. (Alama 1966).....	227
Fig. 9.9	Butler at work with maps. (Davis 1976).....	231
Fig. 9.10	Gardner appearing near equipment in the field. (Merdecial 1972).....	233
Fig. 9.11	Higgins pictured at work with maps and with colleagues. (Ocala Star-Banner 1970).....	236
Fig. 9.12	Catherine Arie. (The Evening News 1977).....	241
Fig. 9.13	Collage of pictures of female scientists working under the sea. (Life 1970).....	245
Fig. 9.14	Mary-Lou Hill at work in the field. (The Leader-Post 1976).....	246
Fig. 10.1	Cooley and the gas explosion (Geesey 1982).....	255
Fig. 10.2	Vicky Johnson wearing one of the space suits (The Lewiston Journal 1980).....	257
Fig. 10.3	Return to June King (The American Weekly 1945).....	263

List of Tables

Table 7.1 List of inappropriate clothing at Mobil (Exxon Mobil 1917–1985)	162
--	-----

About the Author

E. Allen Driggers is an Associate Professor of history at Tennessee Technological University. The last nine years or so have been a wild ride, but have produced the best of circumstances, such as his wife Dr. Laura Elizabeth Smith. He has published one book about the history and chemistry of urinary stones at the turn of the nineteenth century entitled *Early Nineteenth Century Chemistry and the Analysis of Urinary Stones*. He has published scholarly articles in *Critical Philosophies of Race*, *Water History*, *The Journal of Medical Biography*, *The South Carolina Historical Magazine*, and *The History of Psychiatry*. With his co-author Laura Elizabeth Smith, he has published articles on the nature of race and the history of science in publications like *Earth Science History*, *Journal of Sleep Research*, and *Baylor University Medical Center Proceedings*. He is an affiliated researcher with The Whiteside Museum of Natural History in Seymore, Texas. Driggers is excited for his next trip to explore Texas! He is working on two new book length projects on the history of medicine and scientific societies in India and a history of the chemistry of inflammation. He lives with his wife Laura, their daughter Millie, two dogs, and one cat in the former capital of the state of Tennessee: Sparta.

Chapter 1

Imagination and History: Glamour and Geology



1.1 The Glamour of Geology

Women geologists were portrayed as *glamorous* during World War II and after, though the notion of glamour changed over time. The job more or less made women locally famous but put a lot of pressure on them to conform to societal standards and expectations. Women were portrayed as stylish, glamorous, heroic, intelligent, but humble and grounded. The female geologist was portrayed as adventurous and romantic. Women geologists were praised for their good looks and movie star style, and their experiences working in the petroleum field were promoted in newspapers that circulated around the United States. The acknowledgement that there were not many female geologists working in fields like petroleum exploration became attached to narratives about these working women. But there was a message of opportunity for women to enter this exciting field and to be exceptional. The door to access education and jobs in petroleum geology seemed to be open to any woman, as advertised in print media like newspapers. Though in actuality, these doors were only open to certain groups of women and often excluded African American working women (Morris 2021). The oil industry, in the twentieth century, advertised that there were not only opportunities for working female geologists but women who could advertise, translate articles in foreign languages, write promotional stories about the oil industry for the newspaper, and work in supporting roles like childcare and oil transportation (Ponton 2019).

Petroleum geology was a dirty job. But newspapers advertised the practical glamour in the everyday workings of women in geology and petroleum. Both the industry and sometimes the women themselves fueled and created the image and narrative of a woman working in the glamorous field of petroleum. However, women's experiences working in geology and the petroleum field were not perfect and not as romantic as portrayed in newspaper ink. Women had to adhere to a

hyper-feminized image of women working in petroleum and geology to justify their place in their jobs and science (Meyer 1996; Honey 1984; Williams 2021).

Newspapers continually ran stories from the late nineteenth century into the 1980s about the daring and hyper-feminized working woman geologist. They were often portrayed as above-average woman, doing amazing work in a mostly male-dominated field. These women were portrayed and described by the standards of physical beauty at the time, and some even appeared in the pages of men's magazines of the 1970s, like *Playboy* (Pitzulo 2011; Dyhouse 2010). Scholars of the postwar period noted in similar studies that women had pressure to adhere to the feminization of jobs that became open to women as the need for labor increased during World War II (Milkman 1987; Meyerowitz 1994). In this study, I argue that women also felt pressure to be portrayed in these *glamorized* terms and hyper-feminized language to advance and increase their participation in petroleum geology, roughly from the Victorian era to the 1980s (Gorham 1982; Stone and Sanders 2021).

The pressures that these women experienced must have been extreme and unique from those of their male counterparts. Women in geology, who appeared in newspapers, seem to not overtly fight against the image portrayed in the press until the 1970s. The outside social changes and larger social movements likely inspired some women to fight against the *imagined* image of the female geologist working in petroleum (Cobble 2015). There was evidence that women pushed back, including objecting to imposed clothing and fashion expectations at work or trying rewrite the image of the female geologist, such as in the case of Kathryn Sullivan, an astronaut in the NASA space shuttle program (Foster 2011). During the second women's rights movement in the 1970s, women tried to assert themselves into the *imagination* of what a female geologist would be perceived by the public and tried to have more agency and input into what the *image* of the female geologist would be from the 1970s onward.

I argue that aspects of the romantic *image* of the female petroleum geologist remained in perceptions of the *Oil Woman* and in toys for young women, such as *Barbie*, well into modern memory. Women now have much more control over the image of the female scientist and far more availability to advocate and craft their own trajectories in science, but *aspects* of romantic images and ideas are still evoked in narratives that focus on the "trailblazing" female scientist and in the female scientists that were fighting against the inherent sexism, classism, racism, and other inequities of science. Often, narratives forget the everyday woman working in science who goes to work every day or does not consider herself a radical fighting against the larger patriarchal system or resists the system in more subtle ways. Who will tell those stories?

The challenge of a lot of histories written about women is that, though they explain a lot of bravery and struggle of women in science, there are too few biographies of average, working women in science. Women fighting inequality in science are important and should be taught in classrooms at all levels, but it needs to be balanced with the stories of everyday women who made their mark, even though those writings might not exist or be preserved in anthologies of women's lives, such

as on Wikipedia or in print. The narratives of women who found themselves confused or ambivalent about the larger social changes going on in society or science also matter as they flesh out the total female experience in geology. Acknowledging the difficulties of women's lives in science at all levels shows the sufferings of inequalities. These narratives are also important in exploring and witnessing struggle, and they are important in historicizing science.

If people perceive women who study science as always having to be exceptional, the pressure to excel might be a deterrent in and of itself. The pressures to be first or the most exceptional have been examined by psychologists and found to be detrimental to the undergraduate experience (Ebony 2020; Arredondo et al. 2022). Men who enter science, or even history, lack the pressures to make lasting and forever contributions to their field and have the freedom to write books that will likely not win awards or gather great acclaim (Stewart-Williams et al. 2021). I include myself as I strive to write books to be the best that I can, but I am not under the pressure of writing a National Book Award-winning book. I am free to make my career in any way that I please, and I think writing more histories of everyday working women in science and the humanities would be helpful to women aspiring to pursue higher education in all its forms (Driggers 2023). I would argue that *everyday exceptionalism*, or women who were working and free to pursue their own interests and their own research questions, would encourage more equity in the sciences, in addition to salary increases, better access to facilities and programs, as well as better representation.

This book, in many ways, is an *exploration* of women the reader is likely not familiar with but who were considered *newsworthy* in their own times. Newspapers make up a lot of the resources that tell the narrative of the book because they illustrate the *imagination* and *glamorous* images of women in geology, often involved with the petroleum industry. Newspapers were consumed by many different parts of American, Canadian, and British society, though this study focuses mostly on the United States (Wallace 2005). The common consumption of newspapers by many people in the past gives historians a pulse of intellectual and popular ideas very similar to social media platforms of today. Newspapers also included images and pictures, which give readers insight into the literal image of the working woman geologist from the Victorian period until the 1980s (Brenned and Hardt 1999).

“Glamourizing” the female scientist was not unique to the geosciences or the oil industry, but the synergy between the two fit war ends, nationalism, and the ends of some female scientists. In another field, such as physics, the newspaper became a vehicle for the promotion of women in science as a triumph against Cold War Russian forces (Kitch 2001). The *Painesville Telegraph*, published in Painesville, Ohio, published *Personality Portraits*, which profiled the life of Dr. Mabel Wilson, who was a professional chemist and researcher. Like many of the female geologists profiled in this book, especially those during the middle part of the twentieth century, Dr. Wilson was described as a high-achieving scientist, as well as a physically attractive woman:

Part of the important team of research chemists in Research and Development Laboratory of the Diamond Alkali Co is Dr. Mabel Wilson of 63 Chestnut St. In

charge of the instrumental laboratory, she holds a responsible position and is well-known in her field as a capable scientist (Painesville Telegraph 1950).

The article then described her physical appearance, “When the tall brunette walked into the Diamond Research Building, December 1938, she was the first woman chemist employed by the Diamond Alkali.” (Painesville Telegraph 1950). Ultimately, she was accepted because she transcended the skepticism of her male colleagues, according to the article, because of her strong will:

The reception from the masculine chemists was strictly formal and distant but after she proved her outstanding ability, she was readily accepted as a scientist and not merely as a woman (Painesville Telegraph 1950).

In the same manner as the female geologists profiled during the war, her hobbies, as well as her characteristics as a mother, are also profiled in the write-up of her work, “Striving to further knowledge in chemistry, Mrs. Wilson, the mother of two youngsters picked up her books and returned to Michigan State College where a dream of the past final came true.” (Painesville Telegraph 1950). She was into knitting as well, “Away from the laboratory and in her home, Mrs. Wilson enjoys knitting and has made very known color combination of argyle socks for her son, Jack, 19. Television doesn’t interfere with her knitting at all, she claims. She watches a program knits along as nicely as you please. Another favorite past-time of the lady chemist is gardening.” (Painesville Telegraph 1950). The article ended with an emphasis on her real and lasting contributions to the world as a chemist, “Dr. Wilson might not have the income a medical doctor as she would have liked to have been but she and her fellow research workers are making contributions daily to help humanity and make life easier, healthier, and safer” (Fig. 1.1).¹

Though this profile is similar to many of the geologists that will be discussed in this book, it does not strive for the heroic or pin-up glamour that newspaper profiles will emphasize in the 1930s until the women’s liberation movement in the 1970s. The profiles of female scientists, especially those of female geologists, are at the intersection of women entering the scientific field professionally while having to navigate the standards of beauty and cultural expectations of womanhood (Cogan 1989).

An old argument, but a good and important one, is that woman in twentieth-century society were forced to master the technical and professional while being perfectly put together and perfectly made up. Most anyone would admit that those standards are still at play today. Female geologists during the early to mid-twentieth century were forced to be both the perfect scientist and the perfect homemaker. Figure 1.2 is a cartoon reminder for career women who need to maintain high standards of beauty and the household while still working and succeeding at a career. As my advisor Ann Johnson always emphasized, scientists both worked and lived in society and culture (Johnson 2009). This study shows how female scientists are affected by the culture they live in but also, in some cases, use those cultural values to fight for their place in petroleum geology (Dear 1995).

¹This was transcribed as best as possible, as the print was faded.

Fig. 1.1 Wilson working in her laboratory (Painesville Telegraph 1950)



This study is not comprehensive, unlike Robbie Gries or other scholars, because I wanted to give the reader a thematic discussion of the role of women in both the culture of science and the overall culture they lived in (Gries 2017). Because of the proliferation of the Internet, social media, and more electronic-based portrayals of women geologists, this book could span thousands of pages. This book seeks to tell the first half of that story: the origins of the glamour narrative and its practice through the wars and into the end of the twentieth century. I hope that this book continues to open up more avenues for other scholars to pursue female scientists in social media into the present day. More books will likely be needed by other scholars to historicize the transitions of the new images of the working female petroleum geologist and the complex story of those individuals who identify as women. I also wanted this study to be useful for undergraduate history and science classes, as well as engaging for scientists, while being a manageable length. The book likely leaves out stakeholders and is not a comprehensive study, nor is it truly possible to write histories that are so comprehensive that they tell the whole story. Book-length histories are an attempt to tell an *aspect* of the story, and I would encourage curious readers to examine many of the other studies named in this book or write their own.

Fig. 1.2 *The Pressure of Beauty for Women*
(McLeod 1940)



There simply cannot be enough of these books, as there are a multitude of stories out there. Other historians avoid scientific topics at their own peril and stick their heads in the sand. Historians need to write for historians but also for STEM audiences, as STEM audiences value history.

1.2 Newspapers and the Idea of “Glamour and Geology”

Many newspaper articles and narratives from the 1940s to the 1970s promoted the exciting image of the female geologist working in the field, often with a pickaxe, microscope, or rugged pair of dungarees. Women experienced many periods of transition. These transitions were captured in the pages of newspapers, periodicals, and scientific literature as women became an increasingly important part of the petroleum industry and geology in the United States. Portrayals of women in newspapers and especially trade periodicals made them larger-than-life figures and almost transcendent, but slowly women began to add accounts of sexual harassment, discrimination, and exclusion from science and industry. They had a type of superhero image portrayed to readers of newspapers and trade presses in the oil industry, and those heroes eventually added their own narratives, though the typecasting must have been exhausting, as women found themselves subject to expectations of the oil

industry and larger society—to be beautifully dressed and simultaneously possess technical expertise in the field or geological laboratory.

The idea of what I will call the “oil woman,” was a product of many different groups and stakeholders, including female geologists, the petroleum industry, the United States Armed Forces, and journalists. The concept of the oil woman remains as the literal title of a trade publication that features women working in the petroleum industry and is currently being published today. Major newspapers promoted the ideas of the glamorous, intelligent, and feminine geologist at work in the oil industry, and aspects of those ideas remain in the culture of science and the oil industry today.

Newspapers promoted women like June King, who they described as a “pin-up” and discussed her confidence, with her quotations reflecting her attitude about being a woman in a profession dominated by men: “A woman can do everything in geology that a man can do[.]” (*The American Weekly* 1945). King’s likeness included in the article was in the pin-up style of photography of the time; see Fig. 1.3 (West 2020). She was portrayed as a “pin-up,” and this portrayal reflected larger ideas about the roles and places of women in society, as female geologists and women who worked in the petroleum industry were affected by cultural, social, technological, and political changes occurring in the United States (Hegarty 2008).

Historically, I will argue that the concept of the oil woman had a type of duality that enshrined itself in the American mind, or imagination, during World War II. The woman working in oil prior to World War II was a woman moving into geological work because of wartime necessity but also drawing on skills that were deemed appropriately female, as geology was an educational subject that woman “of accomplishment” studied prior to the twentieth century, in addition to languages, mathematics, history, and other sciences. Geology was something that was popular and deemed feminine.

Kristine Larsen wrote in her study of women in the nineteenth century that women “...contribute[d] to the scientific endeavor[s] during this [nineteenth] century, in meaningful, if not less visible ways. Women were about to carve out well-defined niches for themselves, especially in the biological rather than physical sciences.” (Larsen 2017). Larsen pointed out that there were many women who participated in botany, to the extent that it became a “feminized science.” Female botanists received a lot of pushback when men tried to professionalize the field, as women were major contributors to the field as writers and collectors. Most of the middle-class gardens of pleasure and educational opportunities were open and cultivated by women. In fact, many science books in the nineteenth century, such as those written by Jane Marcet, were aimed at both women and children (Bahar 2001; Pandora 2009). Like botany, geology was accessible to women, according to Larsen, because it drew on the drawing skills women cultivated in their education and botanical pursuits. Field trips made for proper activity for women, as they served as a companion for a father, brother, or husband. Changes in fashion allowed women more opportunities and ease for participating in fieldwork, such as the advent of the “divided skirt or bloomer” (Larsen 2017: 18–19). Gathering rocks, even fossils, was seen as non-strenuous and acceptable amusement. Some middle-class women like