

## CHAPTER ONE

# Gender, Geology, and the Oil and Gas Industry

In November 2008, I received an email from the Professional Organization of Women in Earth Sciences, or PROWESS. They needed a statistical consultant and they found me, a University of Texas sociologist who specializes in the study of gender and work. Members of PROWESS had just completed a survey of women geoscientists to find out why they were leaving their lucrative jobs in the oil and gas industry. They needed an expert to help them analyze the results.

Unbeknownst to them, I had no background analyzing survey data.

Unbeknownst to me, I was about to embark on a 10-year journey to answer their question.

The first thing I did when I received the email was to forward it to my colleague Chandra Muller, who really is an expert in survey data analysis. She quickly ascertained that their survey could not address the questions they were asking. Geoscientists had designed the survey after all, not social scientists. They omitted key questions—like “gender,” for example—and they

did not keep track of who responded to the survey. Nevertheless, I was intrigued and got caught up in their quest for answers. The women of PROWESS had opened up a fresh portal into some of the most enduring puzzles in the sociology of gender.

Why have some industries made strides toward gender equality while others remain stubbornly male-dominated?

Why is it taking so long for women to make inroads into scientific careers?

Why do high-paying jobs employ so few women?

What blocks women's ascent to corporate power?

Oil and gas is one of the largest, most lucrative, and most politically powerful industries in the world, yet it employs very few women. The industry lags behind virtually all others in measures of gender diversity. Women make up one-fifth of the industry's overall labor force, and they hold fewer than 15 percent of technical roles and very few leadership positions. In 2018, only one woman occupied the CEO position in a publicly traded oil and gas company, Vicki Hollub at Occidental Petroleum (Catalyst 2019; IHS 2014; Rick, Martén, and Lonski 2017).

The mission of PROWESS was to change that. PROWESS was a "special interest group" of the American Association of Petroleum Geologists, or AAPG. AAPG is a professional association with over 35,000 geoscientists working for the oil and gas industry in over 130 countries. On the AAPG website, the PROWESS mission was stated as follows:

The mission of PROWESS is to increase participation and advancement of women in Earth sciences and the Energy Industry, with an emphasis on education, outreach, support, leadership development, and ultimately retention. PROWESS will interact

with women in Earth Science, their male peers and employers, educational institutions, and professional societies to accomplish this mission.<sup>1</sup>

AAPG cultivates close ties to the “energy industry” (a euphemism for oil and gas). Exxon/Mobil, Chevron, Shell, and British Petroleum—the so-called “super majors”—sponsor the Association, along with a cascading array of national companies (Saudi Aramco, Pemex), independent producers (Conoco-Phillips, Marathon, Occidental), and service companies (Schlumberger, Bechtel). These corporations and many others exhibit at the AAPG annual conventions, where they market their services and recruit geoscientists to work for them.

These companies employ geoscientists to find oil and gas. Geoscientists use computer modeling, seismic data, and historical records to predict the size and location of oil and gas deposits in the earth. In the big companies, they typically work on teams with engineers, who design and build the actual rigs. Geoscientists decide where to drill or hydraulically fracture the earth, but they rarely travel to oil fields or offshore drilling platforms. Most geoscience professionals are office-based, and in the United States, most work out of corporate headquarters in Houston, Texas, the nation’s unofficial oil capital.

To become a geoscientist in the major oil and gas companies requires a master’s degree. Around 40 percent of those receiving these degrees today are women. This is down from 45 percent in 2006, but it is still one of the highest percentages among the science majors. Corporations have committed resources to cultivating girls’ interest in science. A recent effort, called “She Can STEM,” targets 11-to-15-year-old girls with upbeat images of women engineers and scientists. General Electric, Google,

IBM, Microsoft, and Verizon, and a host of nonprofits, are collaborating with the Ad Council on this multimedia ad campaign. The *New York Times* quotes Ad Council CEO Lisa Sherman about the initiative:

When girls don't feel encouraged and empowered in STEM, we see serious consequences not only for girls and women, but also for the future of innovation in our country. If we want women at the forefront of the next generation of STEM leaders, we must show young girls that it is possible. (Levere 2018)

Cultivating girls' interest in science and increasing the number of women STEM graduates are also long-term goals of federal education policy. The National Science Foundation (NSF) identifies the "leaky pipeline" as a cause of women's underrepresentation in science and engineering disciplines. Many young women arrive at college interested in science, but they eventually turn away, or "leak," from these programs, for a variety of reasons. Studies sponsored by the NSF identify several factors—including a lack of women role models, biased college curricula that reflect stereotypical masculine interests, and sexist cultures in academic departments—for young women's declining interest in STEM.

Compared to other STEM fields, the geosciences have fewer obstacles to women. Like biology, geology is a success story when it comes to increased gender equality in college enrollment and graduation. However, this is not the case for racial/ethnic diversity. Few of those graduating with geoscience degrees are from racial/ethnic minority groups; in fact, the geosciences have the highest percentage of white students among all the science and engineering majors in the United States (Wilson 2016:47). Thus the vast majority of the women graduates in the geosciences are white women.

The experiences of these white women provide a window to understanding how the oil and gas industry is shaped not only by gender, but also by race. White women have access to the profession of geology and job opportunities in oil and gas companies because of their race privilege, but the stereotypes of white femininity constrain their career development, just as in other STEM professions (Alfrey and Twine 2017).

For these women, attrition occurs *after* beginning their jobs. Those hired into the major oil companies do not last long in the industry. This is unfortunately the case in all the sciences: Within five years, about half of women scientists (compared to a third of men scientists) leave their careers and switch to nonscience fields (Glass et al. 2013). The PROWESS survey intended to find out why women geoscientists were leaving the oil industry. Granted their significant education investment and the lucrative salaries they were leaving behind, it was a good question.

#### *CHERCHEZ LA FEMME*

The PROWESS survey received the endorsement of the AAPG's Corporate Advisory Board, which consists of oil industry executives. The survey was sent to the entire 35,000-member organization, with instructions that only women should answer it. Over 2,000 people responded, including 500 who volunteered for a follow-up interview. The enthusiastic response indicated that PROWESS was definitely on to something important. Everyone agreed that women were leaving the industry and no one knew why.

After 10 years of researching this question, I think I now have the answer. Women leave the oil and gas industry because they are forced out.

This answer finally dawned on me in the eighth year of my research, when the price of oil plummeted. As chance would have it, I was studying the industry during one of its periodic downswings. Oil prices hit a high mark of \$110/barrel in 2014. Skyrocketing prices were fueled in part by the “peak oil” hypothesis—the popular belief at the time that world oil production had reached its maximum and would inevitably decline until the earth’s oil supply was exhausted. That very year, the fracking boom started and mammoth oil reserves were found in the United States. By 2016, the price of oil had fallen to \$24/barrel, a 78-percent decline.

In 2016, nearly all of the major companies were laying off workers, including the company I studied. Hiring and firing in this industry track the price of oil: when oil prices are high, the industry goes on a hiring spree, offers signing bonuses, and implements retention and career development programs. When the price of oil drops, layoffs occur, assets are sold, and companies close down or position themselves for acquisition.

Layoffs are becoming increasingly common in many industries, not only in oil and gas. In the United States, companies face virtually no restrictions on laying off employees. The only federal law restricting employers is the Worker Adjustment and Retraining Notification Act, otherwise known as the WARN Act, which requires large companies to give advanced notice to employees about impending layoffs. Without any other laws to restrain them, major corporations in the United States routinely lay off workers during economic downturns; they also do so when economic conditions are good in order to strengthen stock prices and boost profits (Jung 2017; Vallas 2011).

Layoffs differentially impact women of all races, as well as racial/ethnic minority men (Byron 2010; Kalev 2020). These groups seem to be targeted by employers when companies

downsize. In her study of over 800 US companies, economic sociologist Alexandra Kalev (2014) found that downsizing can increase the percentage of white male managers as much as 10 percent, while decreasing the percentage of white women and men and women of color by 22 and 17 percent, respectively.

The oil and gas industry is notorious in this regard. Following one company over a cycle of boom-and-bust enabled me to observe the impact of the downturn on geoscientists in the industry. Both men and women were losing their jobs, but women were bearing the brunt of the layoffs. Consistent with the national trends (Glass et al. 2013), a third of the men and half of the women exited the company over the course of this study. After years of education policy and diversity campaigns encouraging women to pursue scientific careers, the industry was kicking them out.

In this book I explore what this employment instability looks like from the points of view of scientists in the oil industry. I collected their personal narratives over the period of boom-and-bust for insight into the organizational processes that produce this gendered trend. The survey data reveal that layoffs affected men and women differently, but the interviews help us to understand the organizational forces that generated this outcome, as well as to explain what downsizing felt like for the people going through it. I talked with women geoscientists over the course of three years to understand how their company squeezed them out.

Women geoscientists in the oil and gas industry make up a tiny number of elite professionals. They are privileged on every dimension—race, education, income—except for gender. But despite their rarity, I believe that their experiences can illuminate why equality in the corporate world remains an elusive goal. An industry that only admits women who are white, and

then targets them for layoffs, will not make progress achieving diversity. In the cyclical oil and gas industry, disproportionately laying off the women means that companies can revert to virtually all-white male bastions after every downturn. As layoffs become an ever more accepted and normal business practice throughout the economy, this form of discrimination will spread unless new rules are implemented to prevent it.<sup>2</sup>

To reach this conclusion, I have used almost every tool in the sociologists' toolbox. I conducted almost one hundred in-depth interviews. Working with my colleague Chandra Muller, I helped design and administer a longitudinal survey of the multinational oil and gas company that we call "GOG," or Global Oil and Gas (not its real name). I attended conferences and networking events around the country. I visited geoscientists at work in some of the world's largest oil and gas companies. I have been an invited speaker at the industry-sponsored Women's Global Leadership Conference, and at the professional meetings of petroleum geologists and geophysicists, where I have shared my findings and received feedback along the way.

Looking back at my work over the decade, it fascinates me that the answer to the question "Where are the women?" eluded me. Even some of the PROWESS women had been laid off previously in their careers. Why couldn't I see what was plainly in front of me from the very beginning? From my vantage point today, I feel like I was gaslighted.

Gaslighting is usually understood to be a form of psychological manipulation and emotional abuse in intimate relationships. The term comes from the name of a classic film in which a man convinces his wife to question reality and her own sanity. In this book, I argue that organizations can also engage in gaslighting. Organizational gaslighting is when companies intentionally

deny the facts and blame others for the problems they generate. Corporations attempt to puff up their own image while denying evidence of their malfeasance, enabling them to escape culpability for the systemic inequalities they produce. For instance, they commonly use these tactics to make it appear that they support diversity:

- State a commitment to diversity in their mission statements
- Feature images of men and women from different racial/ethnic backgrounds in publicity and advertisements
- Donate money to organizations or programs promoting equality that do not interfere with or challenge their normal business operations
- Implement diversity programs, such as unconscious bias training, that do not alter the composition of the workforce

The white male-dominated oil and gas industry does all of these things. Companies claim that they value diversity, but the employment policies they implement to achieve greater diversity do not disrupt the systemic sexism and racism, and other forms of social inequality, that are built into their organizations. Instead, they attempt to throw critics off the scent. This is the essence of organizational gaslighting. One of the goals of this book is to understand why I was misled and to encourage others to recognize organizational gaslighting when it happens to them.

In the early stages of this project, I spent my time looking for nuanced and subtle processes that reproduced the white male domination of the industry. I focused on how annual evaluations, promotion criteria, and organizational charts favored these men and qualities associated with elite masculinity (Acker 1990). I also explored the ways in which women might be holding themselves

back. This study overlapped with “Lean In,” a popular corporate-sponsored leadership program that encourages women to overcome their internalized sexism (Sandberg 2013). Thus, I wondered: Were women less motivated than men? Did they hold themselves back from pursuing management positions? Did their ambitions at work collide with their desired level of engagement in family life?

These are all important factors for understanding male-dominated industries. But these subtle processes are not what drive women away. I am now convinced that women do not leave high-paying professional careers unless they are forced out.

#### SEXISM AND THE OIL CURSE

Whenever I broach the subject of sexism in the oil and gas industry, people roll their eyes at me. Well, yes, of course, the oil and gas industry is sexist. “It’s a man’s world,” they remind me. Drilling for oil is dirty, physical, dangerous work. The global hunt for oil is a lawless search for pirates’ treasure for which women are neither suited nor welcome.

Few other industries are so closely identified with sexism. Those that are have been called to account in recent years, thanks in part to the #MeToo movement. In the last decade, we have seen such white male bastions as Hollywood, technology, and academia challenged on their abysmal records on diversity. But not so the oil and gas industry, which is headed by a global elite that is virtually all male (see figure 1).

Sometimes the industry is held accountable for the harm it causes to women *outside* the industry, particularly to women in the global South. In 2013, the World Bank published a study that found that women in developing countries rarely benefit, and