AN ABSTRACT OF THE THESIS OF


Title: Tales from the Trenches: The People, Policies, and Procedures of Cultural Resource Management.

Abstract approved: __________

Barbara J. Roth

Since the late 1970s, archaeology has grown into an industry whose practitioners work in both public and private sectors. As an industry, modern archaeology is commonly known as Cultural Resources Management, or CRM. CRM emerged from a surplus of employment opportunities made available to archaeologists after the passing of National heritage legislation. This legislation defines the importance of discovering, documenting, and recovering the places and objects associated with people and events important to United States’ history.

As there are many different people who are considered to be important to United States’ history (e.g., past presidents, Native Americans), there are as many different archaeologists seeking to participate in its interpretation, each with various educational and experience backgrounds. While CRM has been successful in partially piecing back together history, its practitioners confront numerous challenges. These challenges are often associated with meeting the standards outlined by the legislation but also include challenges associated with industry personnel. In some cases, the industry’s efforts to meet these standards have led to labor problems.
As a result, many CRM employees today see a separation between industry managers and industry laborers that has made it increasingly difficult to fulfill the goals of the legislation and to ultimately contribute to our understanding of the past.

Primarily, the role and contribution of field technicians to CRM is being debated by many CRM practitioners. This thesis explores the relationship between the two primary CRM personnel parties - the managers and laborers - in an effort to define the labor problems confronting CRM personnel, how they have evolved, and what solutions are available to them (both managers and laborers). To this end, I surveyed industry managers and field technicians to better understand how each perceives the role of field technicians.

Challenges confronting CRM personnel will be shown to partially stem from low industry wages, deficient safety policies and procedures, out-dated academic curricula, and a lack of communication between managers and field technicians. Investigations of the relationship between management and labor provide a unique opportunity to explore a multitude of questions related to CRM employment over the past two decades and in the future.
Tales from the Trenches: The People, Policies, and Procedures of Cultural Resource Management

by

Michele L. Wilson

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I understand that my thesis will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my thesis to any reader upon my request.

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Michele L. Wilson, Author
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I would like to take this time to thank the many people whose patience, encouragement, stubbornness, shoulders, and ears have guided me through to completion. First and foremost, I would like to thank the members of my committee, Dr. Barbara Roth, Dr. David Brauner, and Mr. Karl Marion whose comments and suggestions helped me to narrow my research focus, to create my questionnaires, and to synthesize my data. Dr. Roth’s encouragement to investigate this topic is appreciated as is her diligence in editing the many drafts of this thesis. Dr. Brauner has been a pillar of encouragement and support during this process. He took me under his wing while in school and engaged in discussion with me that, although was at times frustrating, more often was exciting and sublime. He recognized my potential and is responsible for affording many, many archaeology-related opportunities to me. For that, I am eternally grateful. Mr. Karl Marion was vital in helping me to coordinate the safety portion of this thesis. His insights and experience allowed me to explore, with no boundaries, the history, role, and importance of safety in the workplace. He is also to be thanked for taking the time and spending the money to fly back to the “left coast” for my defense.

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DEDICATION

This thesis is dedicated to Dr. James Jordan, my undergraduate professor at Longwood College, Farmville, Virginia. He, with seeming ease and cleverness, took a bored college student and turned her on to life in the sandbox. My eternal gratitude to your sir!
CHAPTER 1. INTRODUCTION

Statement of Problem

Since the late 1970s, archaeology has grown into an industry whose practitioners work in both public and private sectors. As an industry, modern archaeology is commonly known as Cultural Resources Management, or CRM. CRM emerged from an overwhelming surplus of employment opportunities made available to archaeologists after the passing of National heritage legislation. This legislation defines the importance of discovering, documenting, and recovering the places, objects, and values associated with people and events important to United States’ history.

While CRM has been successful in partially piecing back together this history, its practitioners confront numerous challenges. These challenges are often associated with meeting the standards outlined by the legislation but also include challenges associated with industry personnel. In some cases, the industry’s efforts to meet these standards have led to labor problems.

As there are many different people who are considered to be important to United States’ history (e.g., past presidents, Native Americans), there are as many different archaeologists seeking to participate in its interpretation. In CRM, there are managers, such as company presidents and project supervisors, and there are laborers,
such as field technicians, all of whom contribute at some level to the archaeological reconstruction of the past. Each archologist brings with them varied educational and experience backgrounds, and in many cases strong feelings on how history is best interpreted and managed in the context of CRM. As a result, many CRM employees today see a separation between industry managers and industry laborers that has made it increasingly difficult to fulfill the goals of the legislation and to ultimately contribute to our understanding of the past. Primarily, the role and contribution of field technicians to CRM is being debated by many practitioners in CRM.

This thesis explores the relationship between the two primary CRM personnel parties - the managers and laborers in an effort to define the labor problems confronting CRM personnel, how they have evolved, and what solutions are available to CRM industry personnel (both managers and laborers). To this end, I surveyed industry managers and field technicians to better understand who they are, what their individual contributions have been to CRM, and what issues they recognize as being problematic in CRM. Finally, both parties were surveyed to establish how each perceives the role of field technicians in CRM.

The primary problems targeted by CRM personnel (both managers and laborers) and myself include (1) non-standardized and non-regulated wages and compensation packages; (2) non-standardized and non-regulated industry communication; (3) spontaneous and inconsistent ethics in CRM and how they are related to the competitive nature of practicing contract archology; (4) a general lack of non-manual labor responsibilities (including interpretation) assigned to field
technicians; (5) the field technicians’ ephemeral relationship with CRM projects; (6) non-standardized and non-regulated safety controls; and, (7) the non-active role of higher education in preparing students for CRM careers. Before these problems are explored further, it is important to review how and why CRM emerged.

The Emergence of CRM

CRM is a post-industrial adaptation to the American Preservation movement’s vision to underscore the importance of people, places, objects, and ideas important to United States’ history. The first act passed into law that recognized the importance of antiquities to United States’ history was the 1906 Antiquities Act. This act sought to establish a method to manage antiquities because of rampant looting (in the Southwestern United States and in the mounds of the Midwestern United States). The Antiquities Act clearly states that disturbing antiquities on Federal land will result in fines, jail time, or both. It requires that permits be obtained by anyone intending to alter a Federal Government property and outlines who is qualified to apply for a permit (and thus carry out the work).

Overall, however, the act was ineffective. It does not define what an archaeological site or ruin is, or what constitutes “objects of antiquity” (Antiquities Act 1906: Sec. 3). It does not authorize any person, agency, or other governing body to enforce the law. Further, fines and imprisonment were not substantial deterrents for looters: “That any person . . . upon conviction, be fined in a sum of not more than five
hundred dollars or be imprisoned for a period of not more than ninety days” (Antiquities Act 1906: Sec. 3). Other pieces of legislation that were effective in managing and protecting antiquities did, however, emerge in later years. The Great Depression of 1929 precipitated the destruction of the world's economic markets. As a result, many private funding sources were no longer capable of contributing to archaeological projects based out of universities and museums. In an effort to stimulate national economic growth and to provide relief for financially depressed families, President F.D. Roosevelt initiated several programs to provide jobs nationwide. His programs were designed to assist under- and uneducated people living in rural areas (rural areas were affected the most during the Depression, hastened by the Dust Bowl in the Midwestern and Prairie regions of the United States, and unparalleled drought in other geographic regions). Archaeology was viewed as a good way to employ rural citizens as well as academic-based archaeologists.

Roosevelt's Works Progress Administration (hereafter, WPA) funded labor-intensive archaeological excavations in the United States. In addition, architects and historians were also employed by the WPA through the creation of the Historic American Building Survey (hereafter, HABS) and the Writer's Project. These programs also employed local unskilled labor. The 1935 Historic Sites Act was mandated primarily to manage the enormous database collected during the WPA era. There were problems, however, with managing built and buried resources espoused as
being under the protection of this act, and its sequential successor the 1960 Reservoir Salvage Act (which gave birth to the phrase “salvage archeology”).

The concerns that resulted in the development of later legislation began to emerge during this period:

During those decades [1950s and 1960s], hundreds of Federal projects—such as highways, dams, and urban renewal—were completed with little regard for historic resources. As a result, those Federal projects destroyed or damaged thousands of historic properties, to the dismay of local citizens and policy makers. Congress observed this and recognized that new legislation was needed to ensure that Federal agencies considered historic properties in their planning (ACHP 2000).

In sum, archaeologists’ inability to address the problems associated with protecting the enormous number of sites discovered during the era quickly became obvious: “... archaeologists were dissatisfied with salvage archeology’s inability to cope with the accelerated pace of resource destruction during the 1950s and 1960s” (McManamon 1996).

In an attempt to manage salvage archeology’s resources and others yet to be discovered, in 1966 the National Historic Preservation Act (hereafter, NHPA) was passed into law. It has since been amended and strengthened several times, most recently in 1992. This act was a renovation of the 1935 Historic Sites Act and was the genesis of the review process - a process which defines the final stages of CRM investigations today. Archaeologists were not, however, politically vocal during the early and mid-20th century and subsequently the NHPA primarily focuses on the built environment with rare references to prehistoric sites.
Significance of site is defined through the development of four National Register criteria and it is these criteria that determine the "life and death" of archological resources. These criteria are:

- The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or (b) that are associated with the lives of persons significant in our past; or (c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or (d) that have yielded or may be likely to yield, information important in prehistory or history (NHPA 1992: 36 CFR § 60.4).

Cultural resources saw their only protection in this act if they met one or more of the National Register criteria (NIHPA 1992).

The NHPA provided a set of terms and definitions to help clarify the constitutional vagueness of existing heritage legislation (such as in the 1935 Historic Sites Act) (NHPA 1992: Title III, Sec. 301). Other significant features of the NHPA include the establishment of the National Register of Historic Places which is "composed of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, engineering, and culture" (NHPA 1992: Title I, Sec. 101 (a) (1) (A)). The Advisory Council on Historic Preservation was also established in this act and is designated the ultimate arbiter of cultural resources significance attribution (NHPA 1992: Title II, Sec. 211). The State Historic Preservation Office (SHPO), which was established in the Code of Federal Regulations (hereafter, CFR), was charged with administering the State Historic Preservation Program, maintaining
a statewide inventory of historic properties, and "[advising] and [assisting], as appropriate, Federal and state agencies and local governments in carrying out their historic preservation responsibilities" (NHPA 1992: Title I, Sec.101 (b) (3) (A) and (D)).

The most profound impact of the NHPA for archaeology, and later CRM, was Title I, Section 106. Section 106 gives each state the authority to review all proposed development projects on Federal lands within their borders, or projects associated with federally licensed programs, to assess the potential impact the development will have on cultural resources. What Section 106 does not do is give the states the right of total denial to conduct proposed earth-disturbing projects (NHPA 1992). In sum, the NHPA and Section 106 require states to "take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register . . . [and] shall afford the Advisory Council on Historic Preservation . . . a reasonable opportunity to comment with regard to such undertaking" (NHPA 1992: Title I, Sec. 106; Green and Doershuk 1998: 123).

Cultural resources are again mentioned in the National Environmental Policy Act (hereafter, NEPA) of 1969. Of particular importance in this piece of legislation is the mention of using systematic multi-disciplinary approaches to evaluate and to preserve historical, cultural, and natural environments. Inherently, these environments encompass historically and culturally significant places, and therefore, archaeological survey and excavation, and historical reconstruction are required (NEPA 1969: Title I, Sec. 101(b) (4)). Using Environmental Impact Statements (hereafter, EIS), all land
managers are required to address issues regarding significant cultural resources prior to ground disturbing activities within their jurisdiction (NEPA 1969). The degree to which managers "addressed" such issues, however, varied. Archaeological resources were often overlooked, whether by a general lack of definition or by their inclusion within a larger body of cultural resources documentation.

Finally, archaeologists began to lobby congress for the creation of legislation that specifically acknowledged and protected archaeological resources (McGimsey 1985). In response to the archaeological community's outcries to protect prehistoric cultural resources, or the subsurface environment, President Richard Nixon issued Executive Order 11593 in 1971, which sought to protect and to enhance the cultural environment (Nixon 1971). This Executive Order skirted Congressional and Senatorial input and ordered all federal agencies to conduct surveys on federal land by July 1973 (including HABS drawings, National Register nominations, etc.). It was a response to the lack of federal enforcement of the NHPA and the Antiquities Act of 1906. Unfortunately, Nixon's Order did not provide funding for such work.

As a result, some land developers began to peddle archaeological work back to universities in hopes of attracting eager graduate students who may be looking for research projects. They did not anticipate that these students would expect to be paid. Some graduates were hired into salaried positions but most remained out of work even as increasing survey demands overwhelmed federal agencies. It was clear that funding was necessary to accomplish the level of field investigations outlined in previous acts but especially in Executive Order 11593.
In 1974, the Archaeological Historic Preservation Act (hereafter, AHPA) was passed into law. Commonly referred to as the Moss-Bennett Bill (named after the individuals whose lobbying efforts culminated in the act’s passing), this act amended the 1960 Reservoir Salvage Act and was expanded to require all federal agencies engaged in any federally funded or licensed activity (or other earth moving projects) that may potentially destroy or damage the built or buried environment, to conduct a cultural resource survey prior to such activity (AHPA 1974). These agencies were ultimately responsible for all cultural resources under their jurisdiction. The significance of this piece of legislation is that it designated funding (1% of the total cost of a construction project) which was to be provided by the participating federal agency or agencies.

The AHPA changed the face of archaeology. It is responsible for the creation of a sub-subdiscipline within anthropology known as Cultural Resources Management - CRM - which combined the efforts of many skilled “professionals” in the fields of archaeology, architecture, history, and landscapes. At this time, the term “professional” characterized an archaeologist with a Ph.D. or in doctoral standing with a university anthropology department. The need for archaeologists grew so rapidly, however, that many agencies began to hire MAs and BAs to complete their work.

Hiring MAs and BAs resulted in havoc within the archaeological community. Many academicians disagreed that MAs or BAs had sufficient training (which they felt could only be acquired at the Ph.D. level) and therefore were unqualified to engage in or to manage CRM investigations. This debate is still going on today.
 Nonetheless, paid crews made up of all brands of archaeologists (degreed and non-degreed) were brought in and positions were quickly filled. There was still an increasing demand for trained "professionals" - a demand that academia could not meet. As a result, CRM training workshops were organized to introduce agency managers to CRM, so that until "professionals" could be hired, these agencies could conduct CRM investigations and proceed with development. Also, the Society for Professional Archaeologists (hereafter, SOPA) was organized in an effort to define the minimum requirements for consideration as a "professional" archaeologist.

Even though most archaeologists at this time were associated with academic institutions, these same institutions were not prepared to train students in methods for conducting contract archaeology - methods that were defined by the legislation. They were training students to be professors and to protect sites at all costs (McGuire and Walker 1999: 166). During this period, Binford's New Archaeology, or processual archaeology, topped most academicians' research curricula and proving archaeology to be empirical (the basis for processual archaeology) resulted in intensive investigations and research hypotheses. As a result, federal agencies and academic archaeologists were incapable of finding common ground. The agencies needed land for development but their goals were often being impeded by academia's pension for protecting sites at all costs which resulted in site evaluations that insisted the potential for destruction to any site from land development was intrinsic. Therefore, development was slowed down and often halted.
In addition, there were other problems associated with using academicians to complete CRM investigations. Strict time schedules and budgets framed proposed contract archaeological endeavors and research-oriented academic archaeologists were not adept at meeting rigorous deadlines. Multi-disciplinary approaches were also heavily incorporated into research efforts which meant that the completion of a report that synthesized each specialist’s contribution (such as zoologist’s and geologist’s) was unpredictable. In sum, it was impossible to coordinate a budget-sensitive CRM report in a timely manner when several researchers were independently reporting results.

Academia met its greatest obstacle while attempting to manage the breadth of contract projects made available after the passing of the AHPA in 1974. As a result of the overload, project bidding was extended to private consultants. This practice received sorted reviews within academia as many university and museum based archaeologists felt that proper techniques and methodology were being sacrificed by including private consultants. These were individuals that in academia’s opinion were either not rigorously trained to protect cultural resources (a debate similar to the aforementioned Ph.D. vs. MAs and BAs debate) or were qualified but who would be forced to sacrifice the integrity of a site because of the budget and schedule constraints that came with CRM. Ultimately, academia saw their participation in archaeological reconnaissance as being phased out for more desirable cost-cutting private enterprises. Green and Doershuk (1998: 124) note: “CRM rapidly became mainstream archaeology during this disciplinary transformation.”
CRM Today

Precedented by the onus to comply with federal and state preservation legislation, CRM has succeeded in generating the greatest percentile of archaeological work and archaeological publications in North America today (Zeder 1997a: 33; Minor and Toepel 1999). In addition, CRM archaeology receives the greatest funding support because of the presence of the legislation. A recent census conducted by the Society for American Archaeology (hereafter, SAA) revealed that during a five-year period, 650 respondents “reported garnering just over $62 million in support of non-CRM related archaeology” while 302 census respondents “were awarded over $300 million in support of CRM archaeology” (Zeder 1997a: 30).

This sharp funding contrast may be a result, in part, of a growing public concern to preserve United States’ natural and cultural resources. It can be assumed that this growing public concern directly corresponds to today’s governing bodies who have redefined and helped redirect nationalistic goals (i.e., replacing warfare with ecofare). Subsequently, a massive infusion of funding has followed. As Schuldenrein (1998: 33) notes: “CRM [is] driving 85% of the domestic funds designated for archeology.”

It is important to remember that CRM funding is often tied to specific government projects. Since CRM is an offspring of the law and not of traditional university and museum based investigations, an implied cost of conducting archaeology exists. In other cases, such as “domestic” investigations, recent increases
In funding for CRM are limited to state criteria. For example, block grants in support of cultural resource protection are distributed to each state and sensitivity towards cultural resources is dependant upon each state's legislative goals and criteria. CRM contracts are not awarded until a bidding process has been initiated whereby each company or contractor with a reasonable resource base (i.e., capital and hardware), reputation (in part), and qualified personnel bids on the contract. A development agency (e.g., a utility company), for example, then reviews the bid proposals and awards the contract (often times to the lowest bid).

How CRM Companies Operate

Bid proposals are a CRM company's way of increasing their capital and adding to the archaeological resource base. These are not mutually exclusive; rather, turning archaeology into a business has succeeded in meeting the needs of preserving history as well as employing thousands of archaeologists. CRM companies create research designs and appropriate field methodology strategies based on the needs of the project and ultimately the demands of the client.

Many companies will frequently reuse a research design based on its success in helping the company acquire funding, or winning contract bids. Driven by market demands, CRM companies aid the aforementioned industrial-expansion effort by "boiler-plating" successful business philosophies and methodologies in order to secure a contract. They are also securing the capital necessary for the company's survival.
Yet if a company fails, there would undoubtedly be another that would emerge to take its place.

**Arguments Against Archaeology as a Business**

The standard assumption based on years of published work and discussion is that many academicians and museum personnel, who may be ephemerally or directly involved in CRM investigations, do not support CRM investigations because they argue that CRM does little to protect or to interpret cultural resources. They feel that archaeology (and by definition anthropology) is in danger of losing its credibility and its voice in the preservation movement because of what they characterize as CRM’s role in turning archaeology into a business. It may be, however, that it is the American people, and not CRM, who are responsible for “incorporating” archaeology because of their support of the creation of legislation.

Many archaeological sites in the United States are protected by governing federal and state legislation. Whether a site is the subject of an academic field school or a CRM project, the legislation will determine the minimal effort required to document the events of the site, and in some cases, to speculate the potential for future environmental and/or developmental impact. The need for protecting legislation has already been addressed. Yet I should stress that in many cases it is the American people who force the need to protect archaeological sites.

First, the NHPA states that “the historical and cultural foundations of the Nation should be preserved as a living part of our community life and development in
order to give a sense of orientation to the American people” and “the preservation of
this irreplaceable heritage is in the public interest so that its vital legacy of cultural,
educational, aesthetic, inspirational, economic, and energy benefits will be maintained
and enriched for future generations of Americans” (NHPA 1992: Section 1, Part b,
Subsections 2 and 4). It is clear that because of Americans’ interest in history, as
citizens we have called for federal guidance in preserving the same.

And second, as citizens, we vote on proposed development initiatives, and we
sell land to developers. The NHPA states: “...in the face of ever-increasing
extensions of urban centers, highways, and residential, commercial, and industrial
developments, the present governmental and nongovernmental historic preservation
programs and activities are inadequate to insure future generations a genuine
opportunity to appreciate and enjoy the rich heritage of our Nation” (NHPA 1992:
Section 1, Part b, Subsection 5). As long as development, rehabilitation, and
expansion continues in the United States (especially in rural areas), there will be a
need to consult both academic and contract archaeologists. And ultimately,
archaeology will remain a business pursuit.

Outside of CRM’s Scope

CRM has not succeeded in protecting all sites or the entirety of any one site.
Whereas academic field schools will often spend many years excavating a site and
collecting most of the associated material remains, CRM investigations are limited to
surveying and excavating sites which fall within a Right-of-Way (hereafter, ROW).
That is, CRM is limited to investigating culturally sensitive sites that occupy linear corridors of land proposed for development (from a small strip to a large parcel).

Nor has it succeeded in providing the scope of research curricula as have most academic pursuits. As Zeder (1997a: 33) points out, more “parochial focuses in North American archaeology”, such as “hunter-gatherer and historic investigations,” are, however, being marginalized into “an arcane pursuit of increasingly abstruse questions about the past” resulting in “the divorce of the growing business of archaeology from its scholarly underpinnings.” It is important to point out that although determining a site’s eligibility for National Register status is part of both CRM and research-oriented projects (e.g., university and museum based). Both sectors enter the field armed with a research design and to address research questions. The scope and application of those questions, however, perhaps is different.

As previously discussed, CRM archaeologists investigate impact-specific areas. Their research questions, in theory, may be much broader than a research-specific archaeologist’s. Therefore, questions such as “How many different temporal periods are represented at this site?” are likely to be found in a CRM research design. Questions such as “What is the average bore-hole size of tobacco pipes used during the 1850s in Buckingham County, Virginia?” are likely to be found in a research-specific research design.
Academic vs. CRM Archaeology

As will be discussed in this thesis, many CRM practitioners have also voiced disapproval with what they call academia’s outdated methods in training students for careers as archaeologists, many of whom will work as CRM field technicians. They argue that most academic programs lack the basic and fundamental training students need to make the transition into the “real-world” of contemporary archaeology. Many feel that students need to be taught the anthropology and ethnography of the CRM world, along with the law and more technical skills (both archaeological and business). Even though today CRM is more frequently being incorporated into graduate programs, CRM managers maintain that graduate school is not the place to discover the “meat” of CRM for the first time. Rather, they feel it needs to be incorporated into undergraduate curricula.

Few academicians, however, disagree that the institutional environment does need to introduce students to CRM and to provide the necessary training. Yet they argue that CRM, as a result of its budgetary constraints and its ephemeral association with the resource, has redefined the role of the archaeologist - a role many academicians are not willing to adopt. They feel that CRM’s primary expectation of field technicians is to facilitate the removal of spoil and to cull artifacts from that spoil - an activity that requires little to no incorporation of theory and methods (Richard Ross, Ph.D., Personal Communication: 1997). By not requiring field technicians to use formal archaeological theory and methods, many academicians say that CRM has
created a new archologist - one that, in essence, lacks the ability to comprehend the impact archaeological work has on the discipline and on the public.

Others find fault with both CRM and academia. They maintain that in order to be competent in any field, it is essential that an individual knows both the big picture (a traditional academic education) and the little details (CRM). This is explored further in Chapter 6.

The Scope of this Research

CRM has faced and continues to face challenges in today's society. Although there appears to be many contributing factors to the CRM industry's present state of affairs, resolving problems within the industry and between the industry and outside parties (such as academia) is a difficult task. This thesis will argue that one of the most important challenges CRM faces today is improving the relationship between CRM managers and field technicians.

It will also be argued that many, if not all, of the challenges confronting CRM are to be expected when a diverse behavioral discipline such as anthropology is integrated into and justified as the basis for business philosophies. CRM is used in this thesis as an example of a contemporary case study of a divorce of theory and practice. The cause and affect of this divorce are partially related to the methods used by CRM practitioners to manage CRM archaeological investigations. These methods, as some field technicians claim, have alienated field technicians from the archological community.
As this thesis will demonstrate, there is low morale among some field technicians, some becoming apathetic towards being part of the present archaeological community. Many field technicians claim that because practicing CRM is competitive (based on the process of estimating a monetary value for conducting archaeological investigations and then bidding against other CRM practitioners), their value as archaeologists is being overlooked and often ignored. Many field technicians claim that their contribution to CRM has limits because they are often dealt with as “field hands” and not as archaeologists.

As a result, they claim that archaeology today is not focused on providing an accurate picture of the past but instead is focused on maintaining and building an industry based on making money. If true, there would be important consequences to CRM today and in the future. It is therefore important to examine CRM managers’ policies and procedures to delineate the basis for many field technicians’ claims against the industry (that their role is undervalued because CRM managers are primarily interested in making money).

Investigating this topic comes at a time when communication between many CRM industry managers and field technicians is somewhat strained. Some industry managers recognize the low morale of their contract employees but have avoided delineating (in some cases) or addressing (in others) the labor problems (previously mentioned as wage and safety issues, etc.). The industry’s avoidance of these problems may be a partial result of legislative and funding issues that are confronting CRM.
For example, the cost of CRM investigations (paid for in part by the government) has placed CRM at the forefront of Congressional interest. This, combined with fluctuations in United States’ citizens’ interest in documenting and preserving our heritage, has forced industry representatives to engage in extensive lobby efforts to increase the public’s awareness of the Nation’s finite history - one that includes cultural resources. As governing legislation (such as the NHPA of 1966, as amended in 1992) periodically comes up for review in Congress, initiatives have been introduced that seek to reduce the role of or to completely eliminate the Advisory Council on Historic Preservation and SHPO in attempts to reduce the federal deficit or to use preservation’s funding for other things. Efforts to change the historic preservation system may also be linked to the absence of representative literature that focuses on preservation efforts that is made available for the public. If the public does not know about it, how can they justify supporting CRM?

Other issues are contributing to the problems between CRM industry managers and field technicians. Some CRM companies have become increasingly cautious and less flexible in addressing field technicians’ concerns since the emergence of a field technician union, the United Archæological Field Technicians (hereafter, UAFT). The UAFT has underscored what they believe to be problems that exist between management and labor and has, through litigation, forced many CRM companies to redefine the field technicians’ position in modern archæology. The UAFT has also, according to some industry managers as well as field technicians, made it difficult for
non-union field technicians to negotiate for industry-wide improvements and resolution to the current labor problems.

Finally, some company managers and federal agency officials feel that CRM does not need field technicians to complete CRM investigations. By eliminating the field technicians' position altogether, they feel that many of these issues will become moot. Their intent is to replace field technicians with volunteers and avocational archologists (Baker 1997: 58) thus providing CRM with leverage to salvage the industry during the aforementioned congressional budget abatement. McGuire and Walker (1999: 175) add: “CRM companies are in the unfortunate position of selling a product that is mandated by law, not by the economic needs of the consumer. Given current political attempts to free business from the ‘burdens’ of such laws, they worry that an increase in the expense of doing CRM could turn the tide against CRM legislation in the federal government” (ibid).

The purported problems in CRM outlined in this chapter will be critically examined in this thesis using the results of two surveys that I prepared and distributed to industry managers and field technicians, published literature, personal communication, and standard assumptions in the field based on decades long debates relating to the same. I have also provided possible resolution to these problems based on research prepared by and the insight of individuals vested in CRM and academia, on the results of my research, and on my experience in CRM. A formal research design and methods are provided first to illustrate how I gathered the data necessary to approach these problems.
CHAPTER 2. RESEARCH DESIGN, METHODOLOGY, AND SIGNIFICANCE

Research Design

Research Goals and Questions

The primary goals of this research are to define the labor problems in CRM, how they have evolved, and what solutions are available to CRM industry managers and field technicians. Several important items were needed to conduct this research including a sample of field technicians (who are they, what they do in CRM, how they perceive the role of field technicians in CRM, and what problems they recognize); a sample of industry managers (who are they, what they do in CRM, how they perceive the role of field technicians and what problems they recognize); and, a sample of academic curricula.

These items were sought to support my argument that by formally addressing the complaints of many field technicians and attempting to resolve the purported labor issues, and by updating conventional academic programs to include CRM, the relationship between CRM's management and labor personnel will improve. Once these two parties are engaging in healthy dialogue, the archological community can be better represented by including more of its practitioners (e.g., field technicians), ultimately opening the door to forging an alliance. Once united, we can then work towards advancing the discipline as well as campaigning the public to not only keep legislation that protects United States' history but to create new directions for the field.
To complete part of my research, I formulated a series of questions that were presented in two different questionnaires, one for field technicians and the other for industry managers. The questions were constructed to address the problems associated with low morale, that partly define the current labor problems in CRM. As will be discussed later in this chapter, I have worked as both a CRM field technician and as a CRM manager (as defined in this thesis). While employed in CRM, I came to recognize some labor-related problems experienced by field technicians and by industry managers. I came to realize that these problems were rarely addressed by either party in productive or meaningful ways. To this end, I wanted to gain a broader understanding of the purported weaknesses and strengths of the industry manager and field technician relationship. Therefore, using the observations and opinions of many field technicians and industry managers as a guideline, and to a lesser degree my own personal experience, I constructed a list of some of the more prominent labor-related challenges in CRM (highlighted by their reoccurrence in conversation and in print).

To restate, the problems that have been targeted include: (1) non-standardized and regulated wages and compensation packages; (2) non-standardized and regulated industry communication; (3) spontaneous and inconsistent ethics in CRM and how they are related to the competitive nature of practicing contract archaeology; (4) a general lack of non-manual labor responsibilities (including interpretation) assigned to field technicians; (5) the field technicians' ephemeral relationship with CRM projects;
The Usefulness of Existing Field Technician Samples

Little work has been done to assess the purported labor problems in CRM. The work that has been completed is either informal and therefore has not been widely distributed, or it suffers from bias. In a 1999 article, McGuire and Walker describe who is and why they are attracted to archaeology. The authors acknowledge that portions of their discussion which focus on field technicians and CRM are vague and lack significant supporting evidence. They claim that evidence per se can only be acquired through an applied research investigation. They state: “Compiling a picture of the CRM labor force is not easy. A general impression has been formed from the people who have worked on [CRM] projects, and we must use these subjective impressions without apology, since there is little available quantifiable data” (McGuire and Walker 1999: 172).

McGuire and Walker (1999) used data available from two surveys. Both surveys focused primarily on gathering data to create a sample of who archaeological field technicians are and their perceived role as archaeological field technicians. The questions focused on wage and benefit information, years and type of experience, and the expectations of field technicians.

The first survey was conducted in 1993 by Theresa Kintz, a self-proclaimed “professional” archaeological field technician. Kintz edited a small newsletter called
"the underground." She produced the newsletter in its entirety while working on CRM field projects. "The underground’s" readership consisted of primarily archæological field technicians but some CRM industry managers and others also subscribed (to the best of my knowledge the newsletter is no longer produced). The intent of the newsletter was "to provide a forum for discussion of issues related to field archæology and disseminate (sic) information of interest to field archæologists" (Kintz 1994).

The survey results were reported in the November 1993 edition of "the underground." The results characterized the following sample of archæological field technicians:

... we can say that the average respondent ... has been in the field an average of 4 years, ... gets jobs that usually last 4-8 weeks, ... [works 9 months per year], makes $8 per hour, has worked for 2 to 8 different firms, has a BA in Anthropology, ... does not have a staff job, receive no medical benefits, usually has to share a room, ... doesn’t live within driving distance to usual employers, ... and aspires to a supervisory position. Most people reported ... enjoy[ing] being field archæologists! We just need more money and respect, that’s all!!!!!! (Kintz 1993).

The survey results are the culmination of data received from 27 survey respondents. Surveys were distributed in a 1993 issue of the newsletter. The respondents were archæological field technicians (and, by definition, newsletter subscribers) and surveys were sent to any field technician interested in participating in the study. Results were compiled and reported by the editors of the newsletter, including Kintz.

Although the sample size is low and certainly does not represent the entirety of the archæological field technician community (Kintz never offers an estimation of how large the field technician work force is), "the underground" survey marks, to my
knowledge, the first attempt by an individual, organization, or CRM representative to report the pulse of the CRM archaeological labor pool. The efforts of "the underground" survey were constrained due to the production, financial, and logistical limitations of a homespun newsletter.

The purpose of the survey, however, was not intended to be part of any other research project or any large-scale survey of field technicians for any organization, academic institution or party, or industry company or individual. Nor was its intent to further any industry propaganda or to dispel any myths about field technicians. Its stated purpose was to informally present pertinent information regarding the status of being a field technician in CRM.

The second survey that McGuire and Walker (1999) reference was completed by United Archaeological Field Technicians, or UAFT. The following description of UAFT was taken from their Internet website:

The UAFT is the fulfillment of the dream shared by hordes of Field Techs over the past twenty years. Spurned on by shitty working and living conditions, delinquent paychecks, perdiem disputes, disrespect, and crappy field archaeology, the UAFT was born during after hours crew bull sessions (lubricated by dark microbrewed beer when we could afford it and PBR when we couldn't). Working alongside Union Pipeliners on countless jobs in countless states and watching them make six times our annual wage with no one to blame but ourselves for failing to stand together, we decided to do something.

The UAFT was conceived in 1990, and hammered in to shape on Pipeline mitigation jobs in New York, Connecticut, Michigan, Oregon, and Washington. The organization was formally launched in 1991 from its first headquarters in the small town of Palouse, Washington where it operated until the HQ moved to the traditional union stronghold of Weirton, West Virginia in 1993. The UAFT has been steadily growing since 1991 when forty members made up the rolls. Unfortunately the burn out rate of Techs is very high and a good chunk of the membership drops out of the field every year. But, in an industry with an estimated 2000 field technicians we now represent nearly a quarter of them, and we are recruiting new members all the time (UAFT 1999).
The operational goals of their organization and the sample representation to field technicians that the UAFT promulgates is discussed in later sections. Here, time is devoted to analyzing the field technician survey results posted on their Internet site. UAFT reports the following information for archological field technicians:

- Average hourly wage: $8.00 per hour
- Average travel radius from home to work: 300 miles
- Average number of companies worked for per year: 4
- Years in the field average: 4
- Percentage of individuals with a college education: 70%
- Percentage of individuals without health insurance: 90%
- Percentage of individuals who rely on unemployment on an annual basis: 50%
- Percentage of individuals who are trying to make a career as an archiological technician: 65%

The UAFT also provides other statistical figures based on additional questions asked in their survey. Those figures have been culled by me for ease in reporting. The UAFT’s statistics represent a similar focus to “the underground” survey and, in part, some of the data collected for this thesis.

I recognized significant problems, however, that disqualifies the UAFT survey from being included in my research.

Several critical questions arise when reviewing the UAFT survey: (1) Who authored the survey? Was it a union manager, a group of field technicians, or a combination of both?; (2) Who compiled and reported the survey results? Was it a union representative or an unaffiliated outside party?; (3) Who completed the survey? Were all archiological field technicians encouraged to respond irrespective of their union affiliation or was the survey only sent to field technicians who were, at the time of the survey’s distribution, union members?; (4) How was the survey distributed?
Was it posted on their website or were surveys mailed to individual participants, namely union members?; and, (5) If the website was used as the primary method of survey distribution, how did participants respond? Did they respond directly to the website or did they send their responses through regular mail?

The purpose of citing these questions is to point out the overwhelming bias that is built into the UAFT survey. The UAFT has not documented the basic information necessary for any outside party to cite the survey as supportive to a research project. Therefore, using their survey for any research project is inappropriate at this time.

Further, the UAFT (1999) states: “This information is based on recent surveys and interviews of people working in the field from across the country.” Again, multiple questions arise regarding the survey and people interviewed. UAFT has not published the results for public or private consumption in any other format besides their Internet website. In addition, the survey results are brimmed between a multitude of editorialization. For example, they state:

... companies are only concerned about finding billable bodies... little useful field research is accomplished under these circumstances... the harsh reality of choosing work as an Archaeological Technician is that you will be choosing a life of poverty... these conditions are brought about because your employer only cares about winning the contract as the low bidder, and making his profit. These uncaring greed mongers compete for contracts on the basis of the lowest technician wages they can get away with paying... do not expect your employer to care greatly about the archaeology or quality of field work... do not expect humane treatment... you can also expect many employers to jerk you around on your housing and meal compensation... you can also expect to be jerked around at payday... your employer will expect that you do not have a life of your own... your employer thinks you [are] an expendable piece of equipment that can easily be replaced (UAFT 1999).
I have gleaned the aforementioned statements from over seven pages of commentary in their website. The entire link, and most of the website, is devoted to such commentary.

Some of the UAFT's results match, in part, results of my research. I too define the field technician class and illustrate the poor working conditions under which some of them labor. But, to restate my earlier point, using results from rapid assessment surveys such as those provided by the UAFT's as supporting documentation to this brand of research is premature. Until such results can be tested and replicated in similar studies, or, more importantly, until such results are accompanied by documentation that defines the logistics used to prepare the survey, reliance on previous work for the purpose of my research project is limited to published and/or similar documented works.

In the future, if the UAFT can provide the aforementioned documentation that will in essence validate their research results, their findings may prove useful in other research projects that focus on archaeological field technicians. To my knowledge the UAFT's and "the underground's" surveys are the only ones to date that have attempted to identify, define, and discuss the role of archaeological field technicians within the CRM community.
Methods

The Questionnaires: Creating questions, choosing participants, and distribution

Many useful discussions regarding field technicians occur in the field (e.g., hotels, motels, and on-site) during archeology projects and at national meetings. Most field technicians feel at ease in both environments and frequently comment on their perception of the status of field technicians. This may be due, in part, to the fact that they are with other field technicians and sharing information comes easily. In addition, without many project managers present, field technicians feel comfortable discussing problems. Field technicians often feel that problems typically cannot be discussed with management or while management is around because, from the field technician's perspective, they disagree with issues or problems that field technicians recognize. Ultimately, management may view such discussions as detrimental to morale, forcing the "black-listing" of field technicians who discuss these problems or who draw attention to their personal dissatisfaction with company personnel or practices.

Documenting some of these discussions was paramount to this research. To do this, I prepared a questionnaire that focused on the main points expressed during these discussions. Based on conversations engaged in between myself and other field technicians, between my field technician peers, and suggestions made by other field technicians, I created a list of questions that, in part, defined many of the major issues raised by CRM's field labor (see Appendix B: "Field Technicians' Questionnaire"). In
addition, other areas of concern targeted by CRM industry managers, by academic representatives, and by me were synthesized and rephrased as survey questions. The questionnaires allowed field technicians the opportunity to formally express themselves and their observations, criticisms, and critiques of the CRM industry as it relates to field technicians. The results of the questionnaires form, in part, the basis for this thesis.

Based on field technician observations, it was apparent to me that many of the concerns they have regarding their role in CRM involve individual companies and their policies and procedures. Likewise, the industry is faced with concerns that focus, in part, on field technicians. For this reason, a second questionnaire was prepared and distributed to industry managers (see Appendix C: "Industry Managers' Questionnaire"). Questions were created and incorporated into the industry representative questionnaire based on their relevance to the project research questions and based on responses provided by field technicians in their questionnaires.

Both sets of questions were a combination of forced, or closed-response (i.e., responses based on choices provided for a question) and open-response (i.e., responses fueled by the individual). The field technician questionnaire was divided into two sections: section one solicited personal information about the participant and section two focused on questions relating field technicians to their personal experience in CRM. The industry representative (manager) questionnaire focused on their personal experiences in CRM but primarily on how they perceive the role of field technicians and academia in CRM. Many industry manager questions mirrored those asked in the
field technician questionnaire. This was accomplished to provide a holistic view of the state of contemporary field work. Because the questionnaires involved participation by members of the CRM community (field technicians and managers), both questionnaires were filtered through the Human Subjects Committee at Oregon State University prior to their distribution. They were approved for distribution. In an effort to protect the anonymity and the rights of each respondent, an Informed Consent Agreement (hereafter, ICA) was attached to each questionnaire in duplicate (see Appendix A: Field technicians' and Industry Managers' Informed Consent Agreements). ICAs were signed by the respondents who kept one copy for their records and returned the second copy to me with their questionnaires. The ICA also outlined the focus and goals of the research. All questionnaires submitted to me were accompanied by a signed ICA. Each respondent was assigned a number (which corresponded to the questionnaire they were mailed). Participants were instructed in the ICA that special precautions had been established to protect the confidentiality of participants' responses. Questionnaire numbers were removed once questionnaires had been received by me in the mail. Numbers were used to contact those who had not returned their questionnaires. Questionnaires were locked in a file cabinet until responses had been entered into the database. After a draft copy of this thesis was reviewed by members of my graduate committee (and ultimately statistical analysis was completed on the figures entered into the database), the questionnaires were destroyed.
The Archaeological Field Technician survey was distributed in October of 1997 to 122 archaeological field technicians. A total of 36 (30%) field technicians responded. The questionnaire was primarily sent to field technicians while they were employed on field projects in an effort to capture the most honest (or raw) responses. The questionnaire was also sent to field technicians at their homes. Each questionnaire was accompanied by a pre-paid postage return envelope addressed to me.

Questionnaire respondents were selected based on the following criteria: Respondents must have previously worked or were presently working as archaeological field technicians for a CRM company in the United States (territories included). Names of respondents that were asked to participate in this research were generated using several methods. These methods included personal acquaintances who were archeological field technicians, lists of field technicians provided by two different CRM firms, lists of field technicians generated by archological acquaintances, and word-of-mouth.

The CRM Industry Representative (managers) survey was distributed in March of 1998 to 28 CRM industry managers. A total of 19 (68%) industry managers responded. Questionnaire respondents were selected based on the following criteria: Respondents must be presently working for a CRM company in the United States (territories included) and must serve in a capacity with either directly deals with archaeological field technicians and their employment with the CRM firm (e.g., Logistics Coordinator, Human Resources Manager) or one that is influential in
decision-making for issues that deal with archaeological field technicians and their employment with the CRM firm (e.g., President, Vice-President, Project Director).

Names of respondents that were asked to participate in this research were generated using two methods. First, interest in participating in this research was solicited using the American Cultural Resources Association’s (hereafter, ACRA) discussion list (hereafter, ACRA-I). Second, lists of industry managers were provided to me by personal acquaintances, professional colleagues, and academic advisors.

Research Biases

As with any research, particularly research to which the main author has a specific interest in the results, this project dealt with and continues to confront methods, data, and other information that is discriminatory in nature. Therefore, several potential biases exist in this research.

Potential participants were solicited partly through my own personal contacts. Their responses to the survey questions, however, were their own and were in no way (that is known to me) influenced by me.

Because my research was conducted to fulfill, in part, the requirements for a graduate degree, no outside funds were collected. The results of the responses were collected and entered into a spreadsheet by me (Corel Quattro Pro 8). To control for potential result manipulation which would lead to additional data bias, once I coded and entered the participants’ responses into the spreadsheet program, the data was sent to a colleague, Dr. Michael LeBlanc, for statistical analysis.
Dr. LeBlanc is an Assistant Professor of Psychology at the State University of New York in Oswego and a part-time statistician. He analyzed my data using a program formally known as "Statistical Packages for the Social Sciences" (SPSS). According to Dr. LeBlanc, the name was recently changed to appeal to non-Social Science professionals and is one of the most widely used statistics software packages in academia (Michael LeBlanc, Ph.D., Personal Communication: 1998). Dr. LeBlanc then sent his analysis to me for interpretation and inclusion in this thesis.

Because this research focuses on CRM in the United States, it is best served by including as many views as possible from individuals in as many geographical regions as possible. The questionnaires were sent to any field technician who expressed an interest in participating hoping for a balanced geographic sample but not guaranteeing the same (i.e., no one was turned down because I already had too many field technicians responding from the "Midwest").

As stated previously, the participant selection criteria that I established was liberal. Questionnaires were sent to participants who have previously worked or are presently working as archaeological field technicians for a CRM company in the United States. By keeping the participant pool open to all of these individuals, the results I collected include the ideas and experiences of any person that is or has been a field technician. Therefore, my sample universe is broad and includes field technicians who may or may not be members of a labor union (e.g., UAFT), field technicians who work for as few as one or as many as ten CRM companies per year, both contract and non-contract field technicians, field technicians who live on-site and...
those who commute daily from their homes, and field technicians participating in CRM projects as part of an academic undertaking.

Even though controls were established to reduce bias in this research, these same controls ultimately added bias. Respondents may not have worked as field technicians for over ten years. Their responses thus may not represent the contemporary trends discussed in this thesis. Further, field technicians who are working as full-time employees probably responded differently to questions than did contracted field technicians. In addition, as I mentioned earlier, I am not aware of the union affiliation of any of the field technician respondents. Therefore, it is possible that no union members participated in this research or that the bulk of participants were from a union. Finally, because gender was not a focus of my research, the sex of the respondents was not considered. Although I am not aware of significant differences of opinion regarding CRM policies and procedures between female and male field technicians, it is possible that the sexes perceive the contemporary CRM environment differently and would therefore respond to survey questions differently.

Like any research project that relies on survey information, the interpretations provided in my research only represent data made available through a select number of responses. The responses provided by field technicians and industry managers form the basis of my interpretations. It should be noted, however, that their responses represent a sample of responses, and not the entirety of, or statistically valid number of, either party's population. Other field technicians' and industry managers' insights
who did not participate are integral to this type of research but are not available at this time. Future research would undoubtedly benefit from drawing on their insights.

In addition, due to an oversight on my part, some questions included in the field technicians’ questionnaire were not included in the industry managers’ questionnaire. For example, field technicians were asked questions about ethics in archaeology whereas industry managers were not. In this case, and a few others like it, I supplemented the responses from field technicians with data available from published literature relating to the same (work published by industry managers and others with interests in the discussions).

It should be noted too that I have served in CRM at both the archaeological field technician level and the industry representative level. As a field technician, I have worked for six different firms in the United States. Geographically, this accounts for lands from the Mid-Atlantic United States to Polynesia. In this role, I was hired by industry managers. I was not responsible for any managerial aspects of the projects that I worked on. As an industry representative (manager), I have worked for two different CRM firms in the United States. Geographically, this accounts for lands from the Mid-Western United States and the Pacific Northwest. As an industry manager, I was the Logistics Coordinator for a large CRM firm. In this role, I hired archaeological field technicians for all archaeology and many historic preservation projects that required contracted labor. In the Pacific Northwest, I was the field supervisor for archaeology which included directing the field project and crew.
Because I have worked "both sides," I feel that I have the balanced insights necessary to approach the research questions objectively while recognizing that my interpretations will never be totally without bias. I was careful, however, to insure that I did not "find was I was looking for"; I focused on answering my established research questions when integrating field technicians' and industry managers' responses rather than fitting my questions to those same responses.

In the following chapters, I have highlighted average responses provided by field technicians and industry managers to survey questions. Every participant did not respond to every question. Percentages are provided to illustrate the field technician and industry manager representation to solicited information on the questionnaires. This should be kept in mind when reviewing the reported data.

As I have already mentioned, the questions I selected reflected common themes encountered during field technicians' but also industry managers' discussions. Copies of the Field Technician Questionnaire and the Industry Manager Questionnaire are located in the Appendices (Appendix B and Appendix C respectively).

Evaluating Academic Programs and Field Schools

Field technicians and industry managers both indicated that a baccalaureate degree in anthropology is the minimum level of education expected for job consideration in CRM (see Chapter 6). Yet, both concede that most programs do little in the way of providing adequate preparation for working in CRM environments. To
address this issue, it is important to look at the types of curricula currently being offered to anthropology students whose focus was archaeology.

A full-scale survey of United State's academic programs, however, was beyond the scope of this research. Rather, I decided to outline the curricula of three applied anthropology programs based on their aims to integrate interdisciplinary and "real-world" skills into academic environments. I selected the schools based on recent attention that has been paid to their anthropology programs by some CRM managers as well as archaeological professional organizations (e.g., Society for Historical Archaeology). They include the anthropology programs at the University of Southern Florida, Michigan State University, and Sonoma State University in California (see Chapter 6).

The sample knowingly suffers from bias. First, the sample size is small. Second, other anthropology programs exist in the United States that include applied foci but are not discussed in this thesis. The schools included in my sample have been distinguished as models for "real-world" academic preparation by industry managers as well as professional organizations (Green and Doershuk 1998; Gray 1997; Wheaton 1996; Len Winter, Personal Communication: 1996). The endorsement of these programs by industry managers is important in my research. They are stating that they support the classes being offered and the ability of these programs to introduce students to and integrate them into the archaeology of today.

Field technicians and industry managers also indicated that supplemental to a baccalaureate degree, completion of an archaeological field school is highly desirable
for job consideration (see Chapter 6). It is necessary to look at the methods and techniques included in today's field school instruction. For this thesis, however, it was impossible to complete such a survey. Future research will benefit from surveying field school curricula to assess the practicality of available institutional field training as it relates to the demands of contemporary archaeology.

**Significance**

I feel that this research comes at a crucial time. Since CRM archaeological investigations gained footing during the preservation movement of the 1970s, more people are turning to CRM for employment opportunities (including a large number of newly graduated anthropology majors). There are, however, several classes of people that are employed as CRM archaeological field technicians. Some only work during summers and holidays while others have committed to CRM as a career. The differences in these classes and the skills each brings to the field (both individually and as groups based on experience) is significant and explored in this thesis as they relate to the challenges and problems facing the CRM industry.

A full-scale survey of field technicians and industry managers, as I have attempted to perform for my research, has to my knowledge never been completed. Calls for a full-scale survey of archaeological field technicians is a recent phenomena. McGuire and Walker (1999: 172), in their attempts to qualify the role of field technicians, admit that "compiling a picture of the CRM labor force is not easy [but] a
general impression has been formed from the people who have worked on [CRM] projects."

I embarked on a solicitation campaign and targeted who I believe to be the key players in the CRM community - field technicians and industry managers. Questionnaires were distributed to both parties which sought to itemize, define, and suggest resolve to labor issues. The results of the questionnaires will allow me to provide interested constituents with information regarding the work that they do, information that can support communication between the two parties, and information that future researchers can use as a foundation to accumulate and to interpret additional insights into this topic and others.

This research also contributes to contemporary discussions in anthropology by illustrating how applicable curricula can progress the anthropology discipline toward a consensus. Field technicians are used as an example of the continued separation of theory and practice that exists between conventional academic structure and the expectations of the "real" world, in particular, CRM. Conventional archaeological training will be shown as deficient in meeting the demands of CRM. Also, education tactics will be shown to have offered little in the way of providing the public a coherent explanation of the purpose and efforts of archaeology (Fagan 1984; Leone 1991; Leone et al., 1987), unintentionally allowing avocational groups to be the ones "identifying and exposing instances of neglect of archaeological conservation by business, industry, or government" (Lipe 1977: 25).
Although I support improving training and education, I recognize that education is not lucrative. Most archaeologists "are not altruistic enough to sacrifice [their] here and now careers for the possible benefit of future generations" (Lipe 1977: 25). The question becomes: "How can we teach students and ourselves to create and address questions that both appear to be worth having answers to and whose answers, once in hand, make some difference within society?" (Leone 1991: 235). Leone's question proposes the merging of theory and practice.

Training, whether academic or hands-on, not only brings the practice of conducting archaeological investigations to the public's attention, it provides amateur archaeologists the opportunity to acquire valuable skills that may be directly applied to their work. Many public and private-sector archaeologists feel "that the training they received prepared them poorly for their current careers and that these careers are not consistent with their original expectations" (McGuire and Walker 1999: 171; Zeder 1997b: 17). The training they did receive was through academia which many feel "[was a] failure . . . in training students to recognize and adapt to the changing nature of the archaeological workforces" (Zeder 1997b: 17).

Finally, archaeological safety has been seriously addressed by few in the industry. By providing the results of both industry managers' and field technicians' perceptions about and experiences with health and safety issues and cautionary tales from the field, and by defining why and how safety should be integrated into CRM investigations, my research will provide field technicians and industry managers insight into the importance of providing employees with the assurance that their
personal health and safety are monitored. Industry managers are supplied with a “safety checklist” with which they can develop their own safety plans (see Chapter 7). It is hoped that this thesis will encourage future research by individuals who specialize in mental and environmental health and safety in cooperation with CRM industry managers and field technicians to address the obvious risks archaeological investigations pose to employee health and safety.

In the following chapters, the results of both surveys are reported and discussed. Based on their relationship to my research goals (the problems associated with low-morale, and the larger issue of CRM labor disputes), the results of the questionnaires are integrated into those chapters. The results of both surveys were combined for ease in reporting. Finally, the role of academia, current applied programs, and discussions about conventional programs and educational initiatives are closely analyzed in Chapter 6. But first, a review of literature that is applicable to my research is explored in Chapter 3.
CHAPTER 3. LITERATURE REVIEW

Defining Archaeologists

Research that specifically addresses CRM labor problems and the causes and effects of those problems is limited. Until 1997, contributions to this topic have appeared here and there in various discussions. The most valuable insights have been provided in homespun newsletters, on the Internet, in informal discussions in the field, and during national conferences (McGuire and Walker 1999: 176; Wilson 1997a). The published record is brief and is summarized below. Because there is little to no documented or published literature which specifically addresses my research focus, unpublished and informally cited statements have been incorporated into future chapters. Research into the role of CRM and its reliability in representing the archaeological record, as well as research into the reliability of the "voices" of CRM constituents (or lack of certain voices) has, however, been investigated extensively and is included in this chapter.

In "View from the Trenches," Theresa Kintz provides both a pictorial and editorial critique of archaeological field technicians (Kintz 1997: 48-53). Her discussion is short but, in my opinion, it is a valuable contribution. Kintz focuses primarily on her personal commitment to fieldwork. Her introspection is paramount to this research because the voice of the individual must be understood in order to establish the real goals of the collective - the contemporary archaeological community. While discussing the goals of those with power and the powerless is necessary to
successfully approach the dynamics of contemporary archaeology, it is also necessary
to focus on the individual and their experience. We must establish why an individual
is attracted to archaeology as a career choice in order to understand how the
archaeological community should perform to ensure the enthusiasm of all its members
and to ensure future career interest in archaeology from students.

Recently, a second article has been published that addresses the question “Who
is and why are they attracted to archaeology?”. In “Class confrontations in
Archaeology,” McGuire and Walker argue that most of today’s archaeologists, as well
as their Harbingers, come from the American middle-class and they sought out
archaeology because investigations were and are still today geared towards the same
[middle-class] (McGuire and Walker 1999: 162; Zeder 1997b). Although they
assert that the field has been and is today populated by a specified sample of people
(middle-class), it is fair to assume that that today’s archaeologists are individuals from
various socioeconomic backgrounds and not just from the middle-class.

Further, they contend that our attraction to archaeology is a result of early
efforts to “sanctify the archaeological record [and use it] as a source of knowledge, and
more importantly, as our heritage” which ultimately “[builds] a common identity”
(ibid: 162-164). Because archaeology was born into an academic guild, McGuire and
Walker argue that it continues to be constrained because capitalist systems operate
outside of this realm. CRM, however, “[created] a professional arena that employs the
vast majority of archaeologists in the day-to-day world of capitalism” (McGuire and
Walker 1999: 166).
Class in CRM Archaeology

It is important to define the sociopolitical constructs of class in CRM as it relates to the United States’ economic orientation towards capitalism to better understand the nature of the CRM industry as it relates to the published record. Corporate business, the benchmark of capitalism, is inherently stratified as are the personnel employed by business. For most CRM investigations, and by definition CRM companies, personnel are archaeologists. CRM archaeologists can be divided into distinct classes based on a broader, American socioeconomic trajectory of upper, middle, and lower class.

There are archaeologists who invest capital and manipulate it to obtain individual wealth, power, and prestige, to help spur their company’s growth, and to take part in the business of archaeology. These individuals include Presidents, Vice-presidents, and some Project Directors (e.g., Principal Investigators), to name a few, and are CRM’s “upper-class.” There are archaeologists who, although disenfranchised from invested capital, monopolize the intellectual stocks of a CRM project (which partially consist of site interpretations) by using a project’s commodities (e.g., artifacts, site data) to create project syntheses. They are also using the labor of other archaeologists (field technicians) to fulfill this goal. Then they supply the upper class (who have invested capital) the commodities needed to further manipulate capital, and by definition, the archaeological market. These individuals include some Principal Investigators, Field Directors, and others in supervisory roles, to name a few, and are CRM’s “middle-class.”
Finally, there are archeologists who, after selling their labor to the upper class, amass the commodities (e.g., by excavating artifacts and by recording other site data used for interpretation), and hand them over to the middle and upper classes. These individuals are field technicians, avocational archeologists, and students, to name a few, and are CRM's "lower-class," "working class," or "working poor."

Taussig (1980: 25) summarizes this relationship: "The [working class] uses cash, not capital, and sells in order to buy, whereas the capitalist uses cash as capital to buy in order to sell at a profit, thus adding to capital and repeating the circuit on an ever-increasing scale lest the enterprise die." Because of what some describe as the nature of capitalistic hierarchies and the differences in how the classes participate in capitalistic economy, the principal capital investors (upper-class) can find themselves alienated from the work-force (lower-class, or field technicians) because the work-force rarely, if ever, participates or is acknowledged as participating in the creation of intellectual stock (Taussig 1980: 27). The work-force may feel marginalized because of their ephemeral relationship with the resource and because of (what they describe as) assumed characteristics of their role in CRM. To reiterate, intellectual stock results in project syntheses, and project syntheses are used to build capital for the company, and to build knowledge of the archeological record. As this thesis will attempt to demonstrate, the system described above is considered exploitive by many field technicians (the "lower-class") (Taussig 1980).

McGuire and Walker (1999: 161) state: "The work of the middle class is by and large intellectual labor, the application of formal knowledge or principles,
commonly to tasks that working-class individuals execute." Further: "Working-class ideology tends to resent this apparatus [capitalism's intellectual apparatus] as elitist both because it hinders their own class mobility and because in the work place their experience and skill is usually subservient to formal knowledge" (ibid: 161). McGuire and Walker's and Kintz's discussions initially identify some of the problems that many field technicians are confronted with. Other problems such as personal health and safety problems and ethics also exist.

Safety and Health in Archaeology

Socially and politically stratifying the members of CRM also effects the health and safety of field technicians. Warr notes:

... statements about social stratification almost always contain some reference to differences between jobs. Furthermore, jobs are compared within a hierarchy which is broadly accepted among members of a particular society, with "upper-class" or "middle-class" jobs being ranked above those which are "lower-class" or "working-class." ... More directly relevant ... are studies of occupational prestige ... Several measures have been developed which aim to rank job titles according to the prestige generally accorded to them within a society. Prestige rankings naturally overlap with assessments of occupational level, but they make some additional discriminations (Warr 1987: 190).

Warr states that several qualities of the job experience need to be assessed in order to define their potential for damaging an employee's mental and physical health. These job qualities include, but are not limited to, environmental clarity, equipment design, and job stability. Environmental clarity is defined as the verbal or written scope of job expectations like those found in job descriptions. Having the ability to foresee the limits of their jobs was determined to be very important amongst field
technicians which they also claim are generally absent in CRM (see Chapter 5).

Warr discusses the importance of environmental clarity:

Environmental clarity: Environments which are both stable and familiar are often likely to be most transparent [for someone to understand what is the case, what will happen, and what is required]. Conversely, rapid changes are likely to reduce both environmental clarity and affective well-being. This is supported by research that shows a rate of change in life events was positively associated with a high level of anxiety (Wan 1987: 145).

Environmental clarity also includes physical geography. Field technicians are transient, moving from job to job and state to state. He suggests that transferring jobs is often associated with "uncertainty and overload when a person moves into a new job or geographical location," and strain increases exponentially with frequency in movement between jobs (Wan 1987: 69). High levels of strain and associated mental and physical health problems have also been documented to be closely tied to "tight deadlines and large quantities of work" (ibid: 67).

Warr (and others) have found that equipment design effects the health of employees, and illness andlor injury associated with the ergonomic design of equipment is now labeled as "repetitive strain injuries." He adds: "The design of equipment... often requires a distorted posture, gives rise to unacceptable physical demands, or is designed in ways which cause errors and associated difficulties in coping with task demands and in building up a smooth work rhythm. Operators may be forced to keep their head and hands more or less permanently in a fixed position. Extreme forms of muscular impairment arising from these deficiencies of equipment design have sometimes been reported, for example under the label "repetitive strain injury" (Wan 1987: 172)."

Wan establishes that job security, or unemployment, severely limits an employee's ability to perform assigned duties while employed and creates health and safety risks. Field technicians are frequently unemployed, being laid off between jobs.
Sometimes an employment lay-off is short and may only last overnight or a few days; in other cases, the lay-off may be several weeks to a few months long. He explains: "...

... a deterioration in [employee] health since job loss [has been documented]. [Problems are typically associated with] psychological health . . . increased anxiety, depression, insomnia, irritability, lack of confidence, listlessness, and general nervousness . . . dermatitis, eczema, headaches, high blood pressure, and ulcers" (Warr 1987: 199). In addition, an increase in substance abuse (e.g., alcohol, tobacco, and narcotic consumption) has been established amongst unemployed people and employees that frequently transfer between jobs (ibid: 203-204).

Unemployed people also, because of a shortage of money, face great personal and family problems. Financial instability forces unemployed people to borrow money from family members (which places pressure on the unemployed person to repay the debt), and weakens their self-esteem. In essence, they feel that they are "one of lower prestige, deviant, second-rate, or not providing full membership of society" (Warr 1987: 218). Unemployed archaeological field technicians may feel removed from American society as well as from the archaeological community which can significantly lower their evaluations of themselves and of CRM.

Finally, Warr acknowledges that mental and physical health are at increased risks if the employee's wages are "low" and if benefits are absent or deficient (even if the opinion is only that of the employee and not of other individuals who are of equal status or who perform the same job) (Warr 1987: 217). He offers compelling evidence that, if applied to CRM, illustrates how some of CRM's present sociopolitical and
administrative institutions are corroding the morale (and health) of field technicians. Wan discusses the impact of employee recognition of harmful features associated with the work they are assigned to complete. He identifies harmful features to include: "time pressures, uncertainty about job requirements, danger of accidents [which are often associated with equipment], dirt and smells, and problems with uneven job flow" (Wan 1987: 67).

In addition, Wan notes that other problems arise if the employee recognizes that their employer has not taken precautions to ensure that the harmful features of their job are being monitored or corrective action has been taken to control potential employee health hazards. He states: "[These hazards were] found to be significantly predictive of workers' reported psychosomatic complaints... being significantly associated with use of medication and visits to a doctor... [and, problems often include] premature myocardial infarction. [These] victims were often overworked" (Wan 1987: 67). Overworking an employee includes not only the "quantity" of work they are assigned but also ill-defined job responsibilities and work hours, frequency of job changes, and awkward or unsatisfactory work relationships with coworkers (ibid: 67). An in-depth discussion of safety and health is offered in Chapter 7.

Ethics in CRM and Internal Bias

It is clear that field technicians face many challenges in CRM, some of which have the potential to affect their mental and physical health. Other variables also
affect field technician morale. These include the individual and professional ethics of archaeo
gical authorities (or "professionalism"), and what some archaeologists have classified as inordinate amounts of subjectivity incorporated into archaeological investigations.

As previously discussed (see Chapter 1), CRM is charged with monitoring the encroachment of development, as evident in the sheer number of CRM-related archaeological projects conducted over the past decade (and as mandated by the legislation). The field has also struggled to maintain its legitimacy within the American preservation movement. As a result of these two elements, industry-wide "professionalism" towards the resource and towards other archaeologists is considered to be inconsistent by some field technicians and by some industry managers.

Archaeological ethics emerged as a major component of and as a watchdog for archaeological "professionalism." If consciously adhered to and strictly monitored, the professional ethics of archaeologists, both scripted (e.g., SOPA, and today ROPA) and assumed, can be used to address many of the alleged labor issues within CRM. Yet, because problems are created when a diverse behavioral field of study (such as archaeology) is merged with business philosophies (as is CRM) and acted out by such a diverse number of people (who are archaeologists), defining the boundaries for what is ethical and what is not is problematized. Ethics are necessarily defined and interpreted differently and individually.

Fowler (1984: 109) offers the following definition of ethics/ethical: “... the study of standards of conduct and moral judgment... conforming to the standards of
conduct of a given profession." For this thesis, archeology, and specifically CRM is the "given profession." The CRM industry presently operates under an umbrella of ethical criteria to which all members of the profession (upper, middle, and lower classes) are expected to support minimally in practice. In a sense, these are criteria that presume protecting cultural resources and fostering the ongoing development of the discipline is every archaeologist's (industry managers and field technicians) priority. These same criteria are often esoteric—found unwritten and implied by the fact that an individual majored in anthropology and therefore has been endowed with an innate responsibility towards cultural resources and the discipline.

Specific ethical criteria are outlined by SOPA (which is now ROPA, or the Register of Professional Archaeologists), and other agencies and organizations such as the SAA that address the duties and responsibilities of the industry's "upper" and "middle" class to the discipline, with insignificant reference to members of the "lower/working" class. In sum, these organizations establish the qualifications for consideration as a "professional" archaeologist but do not account for the role of the CRM's lower class. Therefore, it appears that present ethical criteria are deficient and lack a complete representation for all archaeological constituents.

As previously mentioned, "professionalism," although accounted for and dictated by such codes of ethics, is very subjective. Raab states:

"Despite the pervasiveness of moral ideas, however, we seem headed toward professional and theoretical fragmentation rather than consensus. Calls for tougher ethical codes and professional licensing, reflecting many legitimate interests in archaeology, do not necessarily offer guidance in how to weld disparate values in a coherent professional and ethical structure. The irony is that we could become ever more "professional" while we fragment into insular..."
domains based upon employment. It would be easy to sample codes of ethics and professionalism for the parts that best suit our personal objectives, while ignoring others altogether. Without recognition of a pandisciplinary ethical consensus, that trend seems inevitable (Raab 1984: 60-61).

Furthermore, traditional “academic values of scholarship, objectivity, responsibility to and respect for colleagues and public. are at the heart these codes of ethics and values supplemented by business values of efficient management of the ‘resource base” (Shanks and Tilley 1987: 65).

The federal preservation system dictates strict adherence to its own set of codes—the legislation. Non-compliance with these codes is viewed as “unethical.” The true social structure of CRM emerges from this legislation and, more convincingly, from the fact that contract investigations “are undertaken solely because they are mandated by [this] federal law, not because development companies choose to conduct archeological studies” (Fowler 1984: 109). Furthermore, “...many ethical issues in contract archeology arise from the fact that the compliance process is an adversarial process necessary to enforce the federal mandates” (Fowler 1984: 109). Based on this assessment, one can see how CRM is trapped between the varying interests of the legislation, the public, and contract clients.

Other archeologists have addressed the bias brought to archeological investigations by archeological constituents. In Winter’s (1984) “The Way to Somewhere: Ethics in American Archeology,” he discusses the influence of archeological interpretation on material remains—specifically, how individual values and judgments negotiate preservation efforts. He states: “At the group level, ethics are
the law, more, traditions, and other codes that regulate individual actions and maintain group welfare” (Winter 1984: 37). He adds that an authoritative body usually determines, administers, and controls ethical guidelines. This definition is pragmatically flawed in that “group welfare” translates into protecting the well-being of all associated members. The alleged labor problems in CRM testify to the absence of solidarity within the archological community. Further: “At the individual level, ethics take the form of value statements (e.g., commands, assertions, conclusions) (Fowler 1984: 37) and it is these value statements that determine the quality of life for the community members as well as the preservation of the cultural resources. Archeological authorities in CRM (some of whom acted as contributors to the creation of ethical guidelines purported by SOPAIROPA) and other archeological organizations, however, have dictated what ethics are appropriate for the community as a whole (by definition, this includes a synthesis of value statements offered by members of the party). The archological authorities (which are likely academic and CRM industry managers from both the private and government sectors) are assumed to be “credible voice[s] of a credible constituency” (based on their education and experience) (Fowler 1984: 37) but a constituency no less that assumes the power of representing an entirety of the archological community and their collective and individual issues. It is unreasonable to assume that these same archeological authorities can impartially represent the interests of all CRM archaeologists if no less than a statistically valid representation of the same can be ascertained. This means including a field technician representation in the creation and management of ethical
criteria and any other issues relating to the work that they do and their role in the archaeological community.

Reaching a unanimous archaeological community consensus would in part eliminate the prejudice that is typical in struggles of political economy. Minimally, reducing prejudice is likely if the field technicians’ voices were included more often. In the case of CRM, the “diversified population of people identifying themselves as ‘archaeologists’” (defined here to include field technicians) have not reached any consensus which has “weakened the sense of community among archaeologists” (Knudson 1984: 251). In sum, based on the present system field technicians can be both physically and emotionally alienated from the profession.

The ethical implications of subjectivity are further reaching. The “life and death” of a cultural resource is determined based on ethical imperatives that see “the very inclusion of significance assessments in the legal machinery [as presuming] that not all archaeological resources have equal value” (Dunnell 1984: 65). Translationing the protecting legislation varies. For example, every state is under the federal umbrella of prevailing legislation (not to mention allowable charges) but the state and local affiliates may be more rigorous in their evaluations. This greatly impacts the overall definition of “significance” in that what one state acknowledges as “significant” (e.g., a site) another may disregard as less-significant (e.g., an isolated or fortuitous discovery) which results in their noticeably different treatment within the archaeological record.
The skill-level of the archaeologist also greatly influences the recovery of cultural resources. CRM consistently employs the practice of basing an archaeologist's skill on their successful acquisition of a college degree (minimally, an industry manager employing a crew of BA-level anthropology majors). Yet, as McGuire and Walker state and as Chapter 6 of this thesis addresses:

Today a person must still pass through the academy to become an archaeologist. The BA is usually a minimum requirement for regular employment, and supervisory or managerial positions virtually always require a MA, if not a Ph.D. The academy remains the locus of socialization for archaeologists. In this context, they are taught a reverence for the resource base, to sacrifice economic well being for research, the guild model of hierarchy, and the mental and practical skills of the discipline (McGuire and Walker 1999: 165).

A college degree does not necessarily imply the acquisition of technical (practical) skills nor does it wholeheartedly replace actual field experience. When a degreed archaeologist is placed in a position to determine “significance” without prior or with limited field experience, the absence of “obvious” resources (which most students are introduced to in academia, such as diagnostic projectile points) and the presence of only a few pieces of lithic debris, for example, may influence them to ignore the area - an action that can ultimately endanger a “significant” subsurface resource. Fundamental site determinations are thus made based solely on the capriciousness of the investigator. Dunnell (1984: 63) adds that “virtually all management decisions depend on these admittedly judgmental assessments.”

Winter has found that many archaeologists are concerned with their inherent professional biases that they enter into the field with, which stem from “their own cultural backgrounds” (Winter 1984: 39). Based on his research, Winter concludes:
that no anthropologist or other scientist can escape the influence of his or her cultural values and personal biases. Even the choices of what we study and the research priorities our profession sets reflect these underlying values and much of what is called science in archeology.

Winter is saying that archeology cannot be approached without conflicting interpretations or the acceptance of conflict. He points out that: “the definition of the goals, and the decision as to which goals and methods are appropriate, cannot be made on scientific grounds, since they are based on moral and other ethical values” (Winter 1984: 42).

Winter’s claim that a decision’s appropriateness is made based on ethics can be used to illustrate how the patterns of doing business in CRM have intensified the purported labor issues. On one level, CRM companies formulate a project’s budget based on empirical data. As I mentioned in Chapter 1, based on patterns of successful fund allocation, or profit appreciation, CRM industry managers (e.g., project managers and directors) use previously employed methodological approaches to complete new projects. This can include reintegrating, with few changes, predictive models or research questions from similar projects (a practice referred to by many in the industry as “boilerplating”). This is a common research and marketing strategy used by CRM professionals as well as academicians. This strategy can be considered scientific because statistically the “reused” methods have proven to be successful (in both earning capital and representing the resource), and explains why they are reused. But how the individual
companies (or their project managers) determine where to invest more money in a project is based on values and judgements. For example, if a company decides to invest a majority of their project's funds into computer-based applications or graphic design, they are implying (or making a value statement) that these areas are where they feel the most important focus of their research lies. Other aspects of the project, such as field work and employee salaries, would unavoidably receive less of the project's funds. The process may also be considered in reverse (where field efforts would receive the bulk of a project's funds).

Field Technicians as Exchange Units and the Resource as a Commodity

Other business practices in CRM also have the potential to contribute to field technicians' low morale. CRM, operating within capitalistic policies, regularly practices quantifying field technicians as units of monetary exchange. In preparing budgets for a project bid, industry managers typically lump all field technicians together as "labor" or "labor expense" and calculate a blanket figure for "person hours" or "man hours." This practice has also been called the "principle of market exchange" (Johnson 1993: 331). Market exchange is, in essence, defining human labor as a commodity.

Taussig provides a summary of Marx's aristocratic-proletariat capitalistic trajectory, that can be applied to the relationship between CRM's industry managers and field technicians:

In the case of labor the transmutation in status and meaning that occurs with this shift in paradigm is highly critical. As a commodity, labor becomes the
disguised source of profit to the employer in a transaction that appears to be the equal exchange of values so long as those values are judged as commodities.

But labor is not only an exchange value, a numerical quantity of labor power. What the capitalist acquires in buying the commodity of labor power as an exchange-value is the right to deploy the use-value of labor as the intelligent and creative capacity of human beings to produce more use-values than those that are reconverted into commodities as the wage. The commoditization process conceals the fact that within the matrix of capitalist institutions, labor as use-value is the source of profit. By the purchase of the commodity of labor power, the capitalist incorporates labor as a use-value into the lifeless constituents of the commodities produced. (Taussig 1980: 26-27).

By using human labor as an "across the board" commodity, so that formulating budgets is based on the assumption that everyone is equal, an individual's strengths and weaknesses are not considered and ultimately their role within the archaeological community is omitted or undervalued.

Schiffer (1977: xxi) adds: "before cultural resource management it was impossible to find a single source on estimating the time and manpower necessary to do a highly intensive archaeological survey. Today, hard data are available." Other archaeologists disagree and say that even before CRM archaeologists were regularly creating and relying on pay scales that may or may not match a wage to an individual's education and/or experience level (David Brauner, Ph.D., Personal Communication: 2000). In either case, exchanging individual or crew skills and experience with market prices can prove detrimental to an archaeologist.

The practice of estimating "man hours" has the potential to damage field morale in the sense that field technicians will know that their role was interpreted by industry managers (those estimating "man hours") as primarily performing manual activities (i.e., Schiffer's "manpower"). Their voice is in many cases limited to performing transect surveys and excavation and therefore placed external to the...
multivocal interpretations of the archaeological project. Some "professional" archaeologists agree that unilinear language (e.g., the voice of the researcher) and not multivocality (the voice of the masses) is the only way CRM can successfully operate. They support the direction CRM has taken archaeology into the business world and away from universities and museums. Schiffer adds that because of this redirection "private industries...are now getting their money's worth" (Schiffer 1977: 9).

The implications of rigid fund allocation and "getting [their] money's worth" are apparent. Winter (1984: 43) states: "Kuhn's (1962) proposal that the ultimate authority of science is not so much its rational methodology and rules, but the consensus of the scientific community. . . because the ultimate judge of a paradigm's content and worth, and of the choice between competing paradigms, is the scientific community, Kuhn concludes that this community is the fundamental locus of authority." He adds that many of Kuhn's peers feel that he is condemning science to the irrational but argues that "it is possible to separate values and science" (Winter 1984: 43).

As discussed earlier, CRM presently relies on authoritative bodies and an artificial consensus (one that usually does not include field technicians' voices) to justify their dispensation of funds. If field technicians are part of the larger archaeological community, it is fair to ask where their voices were during the CRM industry's formulation of acceptable business philosophy as it relates to cultural resources and as it relates to the sociopolitical structure of CRM. And if field technicians were part of the process, to what extent? Finally, has the CRM
environment changed enough since its emergence to warrant a restructuring of business philosophy?

The reality of CRM is that it is business and with business comes a division of labor, wages, and the allocation of responsibility because someone will always have a greater investment of capital than others. McGuire and Walker, however, provide a compelling defense for including field technicians in broader CRM decisions:

These changes have transformed archaeology as an occupation. Today [a] split economy exists in both the academy and in [CRM] with increasing numbers of archologists trapped in class positions that do not pay them a living wage or grant them the respect that their mastery of the craft of archaeology deserves. In both of these professional situations this denigration of archaeological labor threatens a deterioration of standards and quality in the archaeological product (McGuire and Walker 1999: 167).

The compound result of archology's transformation from an academic research-based endeavor into a corporate market is what many field technicians and some industry managers claim to be an exploited labor force and resource base. Taking all of this into account, it is reasonable to conclude that field technicians would not invest as much time or effort in their jobs (and ultimately the resource base) or be willing to act as part of a community when they think that they and their "use-value" are traded and peddled like commodities on Wall Street. As a result, political economy assumes a primary value within the field technicians' social organization, replacing and at times ignoring the importance of archological resources in the big picture. As they try to justify their role and subsequent worth, many field technicians have begun to create comparisons between their job responsibilities and salaries with those of more lucrative professions.
For example, field technicians often compare their employment with that of construction workers' (as previously described by the UAFT in Chapter 2). Itemizing the typical responsibilities expected and executed on most CRM projects, many field technicians (including non-unioned ones) have concluded that in general they must only bring to the project manual dexterity and physical fitness (for shoveling dirt and hiking uneven terrain for long hours), which is characteristic of many construction jobs. They argue that many construction workers, however, do not have a college degree but are earning salaries often double that of field technicians. And construction workers receive compensatory packages (e.g., medical and retirement benefits) and protection from exploitive business practices from labor unions.

Further evidence exists that supports many field technicians' claim that the CRM industry views their role as strictly manual. They argue that field technicians are in general not given interpretive responsibilities. The use of their voice typically does not extend beyond identifying resources and completing a myriad of paperwork. Yet, CRM employers seek out individuals who have completed the anthropology and ethnography of academia. If these are the primary job responsibilities of field technicians, it is fair to ask of industry managers why a degree is important at the field technician level.

Because paperwork is one of the few venues field technicians are offered to voice themselves, it is important to define the types of paperwork they use. One of the primary recordation devices employed by CRM companies is the form. The form has been classified as symbolizing "order, rationality, bureaucracy, [and] organization"
(Berger 1989: 159), and thus can be interpreted as too narrowly defined (since similar information is constantly asked for) and generally mundane. Because the majority of contemporary CRM efforts concentrate on survey investigations and not excavation, the variety of forms available to field technicians is limited and will vary only if features are discovered or if they work for different companies. Even during excavation, level and feature forms remains generally the same. They necessarily are engaging in a repetitive activity.

To recap, the issues highlighted thus far have resulted in levels of low morale amongst many CRM field technicians (e.g., safety, ethics, interpretive vs. manual responsibilities, mundaneness). The commoditization of labor has resulted in part in a loss of identity for the individual. Drawing on Ruskin’s (1925) assessment of exploited labor, he states: “[labor is] divided into mere segments of [individuals] - broken into small fragments and crumbs of life, so that all the little piece of intelligence that is left in [an individual] is not enough to make a pin, or a nail, but exhausts itself in making the point of a pin or the head of a nail” (Ruskin 1925: 162-163). It is important to point out that by assigning interpretive responsibilities to field technicians additional bias is inevitable. Therefore, the lead researcher (industry manager) would be hard pressed to reckon all of their voices because the risk that a project would become overwhelmed with data and be unmanageable in the context of CRM increases.

At the same time, by not including their voices (one or all) it is implied that other interpretations (that emerge from the “professional” sample) are more reliable
and accurate. Most CRM industry managers bring years of educational training and certification as well as managerial and field experience to archaeology. From this, they have earned the acceptance of their peers and other CRM contemporaries and the authority to interpret the archaeological record within and at times outside of accepted or known business and anthropological practices.

But as Schiffer notes “... by asserting that one’s own goal should become the exclusive goal of all archaeologists in all investigations, is to flirt with intellectual fascism” (Schiffer 1988: 478). While most field technicians bring limited educational training (that of a four year college) and varying levels of field experience to archaeology, it seems a daunting task to manage the integration of the voice of the masses. To be logical and to fairly represent all participants of an archaeological project perhaps is impossible and unreasonable. Yet, managing the breadth of interpretations offered by a manager’s equal, or their contemporaries, is also a labor-intensive task that many “professional” archaeologists must contend.

Observerity and Subjectivity in the Archaeological Record

Achieving objectivity has been a goal [and the source of much criticism (Shanks and Tilley 1987)] for archaeologists for years. Processual archaeologists see objectivity only fundamentally accessible through working with raw data or “facts” (Hodder and Shanks 1995: 4). In other words, “to attain objectivity ... [there must be a] controlled perception of those empirical traces remaining of what happened” (Hodder and Shanks 1995: 4).
Postprocessual, or postmodern, approaches were developed in part as a response to processualist edicts. Hodder notes: "Since the late 1970s issue has been taken with most of these tenets of processual archeology: the character of science and aims of objective explanation; the character of society; and the place of values in archeology, the sociopolitics of the discipline, its contemporary location as a mode of cultural production of knowledge" (Hodder and Shanks 1995: 4). Postprocessualism attempts to determine the social climate of archeology today and places considerable weight on deconstructing interpretation. At the same time it seeks to create interpretations that are based on "multivocality."

Although "interpretative archeology" does not necessarily "celebrate subjectivity" its philosophical basis encourages the practice of critical analysis and redefining the boundaries of traditional interpretation (or unilineal interpretation). It looks to ingrain the idea in archeologists that they should be looking for predictable results and not absolute answers (and that these are two different things). Hodder outlined an interpretive objectives "constitution" to include: (1) that archaeologists sufficiently defend the basis for their interpretations; (2) that archaeologists realize that their interpretations are inherently based on data and ideas previously interpreted by other archeologists; (3) that archaeologists realize that future archeologists will discover new insights into today's investigations and will offer their own interpretations of that data and of our interpretations; (4) that archeology's intent should be not to look for absolute answers but to find predictable results, and to offer explanations that are both logical (applying Occam's Razor) and meaningful in the
and (5) that archaeologists should expect and embrace the inclusion of multiple constituents' ideas and experiences, including any person who has or "expressed [interest] in the material past" (Hodder and Shanks 1995: 5).

When applied to CRM and its client-satisfaction infrastructure, Hodder’s "constitution" is problematized. While engaged in contract projects with development clients or agencies, CRM companies act as a voice of authority in determining whether their client can proceed with development plans, based on their research, field, and laboratory investigations (and on previous archological investigations in the area). CRM companies are expected to produce definitive accounts of the past. Simply put, the client wants a finished product that defines in relatively absolute terms the history of and potential for damage to cultural resources located in the ROW and other impact situations. If CRM companies were to attempt to incorporate multivocal interpretations (defined here not to include the research of specialists like zoologists and geomorphologists, but those of the masses including field technicians) development agencies would reject the final reports and demand more rigorous detail. For example, the author of a project report inherently must act as the lead voice, particularly when they are constructing project conclusions and recommendations. Specialists’ voices, such as lithic or zoological analysts’, may be part of a report but their work is synthesized into the main author’s project interpretation.

One of the few instances where outside voices are incorporated into a report other than the author’s or specialists’ is in literature reviews or background sections.
If the author recommends that “no action is needed at this time but my colleague disagrees and feels that immediate action is necessary” the report would probably be rejected by the SHPO and the client and the company’s reputation would be damaged. In sum, CRM companies are expected to produce absolute answers, albeit often conditional absolutes (because archaeologists do not always agree), while all along their interpretive obligations to the industry are dictating the results. As Raab notes, this practice reflects the “different ethical and professional obligations” of the private sector as opposed to those efforts of “pure” researchers’ (Raab 1984: 51).

One of the primary components of interpretation is dialogue. Successful dialogue “tries to understand, to make sense” and inspire new dialogue. It attempts to “move forward to a consensus” thus providing the potential for a “learning experience” for the participants (Hodder and Shanks 1995: 6). For a learning experience to occur, each party must “take into account [the other’s] objections and views, even if neither is won over” (ibid: 6).

The level to which the field technicians’ voice is presently included in dialogue compromises Hodder’s “learning experience.” Their voice is circuitous in that because they participate in excavating a site and recording data they are minimally included in dialogue. Their voice, however, is often overlooked by CRM’s upper and middle classes (respectively, those individuals who specifically design research hypothesis’ and methodology, and those specifically charged with the duty of managing or interpreting the results). It is important to point out that because field technicians are contracted job-by-job they are necessarily unavailable to participate in
most aspects of the field project outside of field work. Yet the separation between the classes can enlarge because as McGuire and Walker (1999: 161) add: “The work of the middle class is by and large intellectual labor, the application of formal knowledge and principles, commonly to tasks that working-class individuals execute.”

Hodder’s goals for archaeology essentially builds upon the relationship of individuals (field technicians) to a system (CRM). Field technicians are a component of the CRM system and their purported exploitation has a dramatic effect on the whole. Even though a component (field technicians) may not be functioning in unison with the others, “the unrest must be acknowledged and addressed” (Shanks and Tilley 1987: 53) but with the assurance that the unrest will eventually lead to another state of equilibrium (or to the satisfaction of CRM community).

Marx, however, argued that to expect a state of equilibrium is unnatural and that change is intrinsic. An analysis of the social climate of the years leading up to the integration of private-consultant archaeology into the archaeological community testifies to the tenets of this philosophy. For example, national campaigns to protect American cultural heritage intimated social reinforcement of values contemporary with emerging legislation during the better half of this century. Thus, it is fair to assume that the labor issues witnessed today in CRM can only be resolved to the satisfaction of the whole of the archaeological community when social philosophy spurs it. That is, changing the present CRM system is, in part, dependent on a majority CRM contingent supporting a rehabilitation movement.
The capitalistic framework that governs CRM investigations also serves as an explanation for the diversity of interpretations amongst archeological authorities, many of which evolve into popular theoretical positions. Hodder notes that even the most menial task involves choice and judgement leading to an interpretation (Hodder and Shanks 1995: 8), and those interpretations will eventually be reused and embraced by other archologists and treated as "hard facts." He uses the term "black-boxed" to refer to interpretations that are accepted as empirical. Inherently, this practice creates flaws in data in that the reliability of the data is rarely questioned since "hard facts" have seemingly been created. The CRM milieu thus runs the risk of becoming its own black-box (Schiffer 1988) if "basic "leaps of affirmation" that require no validation or verification continue to be utilized in research endeavors (Knudson 1984: 245).

In order for the past to be understood in its appropriate context and subsequently interpreted, "work has to be done in the sense that the remains of the past have to be incorporated into projects" (Hodder and Shanks 1995: 13). Hodder provides a strong definition of the archological project:

An archological project involves the mobilisation of many different things or resources. Landowners are approached, funding needs to be found, labour hired, tools and materials convened, skills operated to dig, draw and photograph, computers programmed and fed with data, finds washed and bagged, workforce kept happy, wandering cows chased off site. This is a great and rich assemblage of people, things and energies which achieve what are conventionally termed data. An archological project is a heterogeneous network (Hodder and Shanks 1995: 13-14).

Hodder uses "the project" to differentiate between a system and a network. By classifying archology as a network, problems arise because "the system's" boundaries are too defined. The heterogeneous network on the other hand has no
limits. One of the most important aspects of the "desirable" Postprocessual archological project is that all elements are equally weighted in their function including "interests, moneys, .. [and] landowners" (Hodder and Shanks 1995: 14).

Attempting to illustrate the variability of the network's components meaning can be arduous. In theory, weight should be democratically dispersed throughout the network both in practice and in the reporting stage. In practice, it may prove to be an impossible task because most contract personnel (e.g., field technicians) move on after the field season is over and prior to months of analysis. Ultimately, the final interpretation will inherently rely on the creative ingenuity of the interpreters (e.g., CRM managers).
CHAPTER 4. COMPENSATION AND COMMUNICATION
Results, Part 1 of 4

As will be discussed, the occurrence of field technicians' low morale and their growing apathy towards working as part of the archaeological community are a result, in part, of two of the targeted labor problems: (1) non-standardized and regulated wages and compensation packages, and (2) the lack of non-standardized and regulated industry communication. Based on survey responses, discussion is provided in this chapter that focuses on the relationship between industry managers and field technicians as they relate to these two problems.

I will explore what action has been and is not being taken by both parties to respond to the variety of skills, experience, and education brought to CRM investigations by the various people who are archaeologists. Also, the types of compensation offered to field technicians are discussed in relation to the same. These include wages, per diem, vehicle maintenance, job security, and medical and retirement benefits. A general profile of field technicians and industry managers is supplied below to better understand the CRM demographic.
General Profile of Field Technicians and Industry Managers

Field Technicians

Based on responses to the questionnaire, the average age of field technicians is 26 to 39 (72%) with an age range of 18 to over 40. Most have been working in CRM for 1 to 3 years (53%, n=19) with service ranging from less than 6 months (8%, n=3) to more than 20 years (3%, n=1). Forty-five percent (n=16) have a college degree from a four year program while 42 percent (n=15) obtained a graduate degree or took classes at the graduate level. Field technician hourly wages ranged from $8.00 per hour (8%, n=3) to over $10.00 per hour (45%, n=16).

The majority of respondents are employed in the Northeastern, Midwestern, and Mid-Atlantic regions of the United States but many rotate employment between these regions and the Pacific Northwest, California, the Great Basin, the Southwest, and Polynesia. No respondents indicated working in Alaska, the Plains, or the Southeastern United States. The average field technician works for four companies per year, with some working for as few as one and some working for as many as seven companies in one year. The average distance traveled, one-way, for a field project is over 200 miles from their home base (45%, n=16), and the average yearly non-reimbursed job-related expenses incurred for all respondents is $817.00.
Industry Managers

Industry respondents were asked to describe their official position title. Presidents and Principal Investigators (hereafter, P.I.s) made up the largest pool of respondents (26% each, n=5 each). Other personnel included Field Directors (21%, n=4), Vice-Presidents (5%, n=1), and Project Coordinators (5%, n=1).

Seventy-four percent (n=14) are directly responsible for hiring field crew. The remaining 26 percent (n=5) indicated that they were influential in hiring decisions.

Because an evaluation of the role of CRM archological field technicians is the primary focus of my research, it is important that industry representative participants be in a position to accurately evaluate field workers. For example, accountants, historic preservation specialists, environmental specialists, and/or lithics analysts would not, in my opinion, meet the criteria for evaluating the role of field technicians in CRM or their performance. They may indirectly, or at times directly, work with field technicians but personnel who coordinate or perform archeological field investigations are better suited to participate in this line of research.

Principal Investigators, Project Managers, Field Directors, and other supervisory personnel meet my criteria. It should be noted that some supervisory personnel rarely see or meet with field technicians. This is dependent on each company and its infrastructure. Some companies only send field directors and crew chiefs into the field, while other companies send P.I.s. At times, depending on the company size, company presidents and vice-presidents also supervise work crews and therefore are active in day-to-day relations with field workers (e.g., many "mom and..."
"pop" companies include personnel who act as accountants but who also perform field work and would therefore qualify).

For this research, all archaeological management personnel responses were included in the survey results. Provisions were included in the questionnaire to ensure that the respondents were, at some level, influential in hiring decisions (which, by definition, means that their voice is active in field technician relations).

Most companies were small to medium size, with personnel ranging from one to five employees (16%, n=3) to over 25 employees (31%, n=6). Respondents were asked to describe the type of organization that they are affiliated with, because CRM investigations are completed in various environments (e.g., establishments that devote the entirety of their research foci to CRM or companies that engage in multiple tasks, such as environmental and engineering firms). Forty-eight percent (n=9) indicated that they were affiliated with a company that is devoted to strictly CRM investigations. University-based CRM investigations (academic institutions that incorporate contract archaeology into their programs as curriculum addendums and/or supplemental income) represented 26 percent (n=5) of the responses. The remaining 26 percent (n=5) included federal organizations, individually run contract companies, multi-disciplinary firms (such as environmental firms), and other (not clearly defined in the responses).
What are Field Technicians' employment criteria?

Field technicians expect employers to meet specific criteria prior to accepting employment positions. These criteria include: a competitive wage (a wage which reflects the field technician's experience and/or industry wage trends) (75%, n=27); treatment of field technicians as professionals (giving them a voice in the field) (58%, n=21); several word-of-mouth recommendations from fellow field technicians (31%, n=11); communication skills between supervisory personnel and crew (25%, n=9); competitive per diem rates (a rate which reflects the regional standard of living for the project’s location and/or industry per diem trends) (25%, n=9); a good reputation for the treatment of cultural resources and employees (11%, n=4); suitable housing accommodations (8%, n=3); and, a working, friendly relationship with Indian groups (5%, n=2).

It should be noted that some field technicians waiver some or all of these criteria if they are in a period of economic hardship, especially during “lean” periods in the winter where work is limited (8%, n=3). In addition, a few noted that the length of a project will often influence their acceptance or refusal for employment (8%, n=3). These criteria are explored below and in later chapters.

Compensation and Communication

Field technicians were asked to describe what they perceive to be the most important issue they face in contemporary CRM archaeological investigations. Several respondents listed more than one issue but because “the most important issue” was
solicited, only the field technicians’ first response was included in the following figures. Thirty-six percent (n=13) of field technicians indicated “low wages.” “Low wages” was noted by more than thirteen field technicians as an important issue, but it was not their first choice and is therefore excluded.

Likewise, other compensatory deficiencies were reported by field technicians. Insufficient medical benefits (28%, n=10) and retirement benefits (3%, n=1) were highlighted. Twenty-two percent (n=8) feel that job security is a major concern. Other issues reported include the treatment of field technicians as non-professionals (3%, n=1) (see Chapter 5), the inability to maintain a family life due to the nomadic nature of CRM field technician work (3%, n=1), and a lack of a pan-discipline ethics (3%, n=1) (see Chapters 3 and 5).

Industry managers were asked what they felt was the most important issue facing field technicians. The responses are as follows: insufficient medical benefits (33%, n=6); inadequate academic preparation (28%, n=5); low wages (22%, n=4); insufficient retirement benefits (6%, n=1); personal on-the-job safety (6%, n=1); and, intradiscipline competition (6%, n=1) (defined here as the practice of underbidding budget proposals to receive more contract awards).

How closely does the industry perception of critical issues match the field technicians’ characterization of the same? With slight statistical variations, field technicians’ and industry managers’ responses were very similar. Both targeted low wages and insufficient medical and retirement benefits.
As previously reported, field technicians earn hourly wages that range from $8.00 per hour (8%) to over $10.00 per hour (45%). Industry managers were asked what hourly rate they pay field technicians. Hourly rates ranged from $8.00 per hour (22%, n=4) to over $13.00 per hour (11%, n=2). Thirty-nine percent (n=7) pay $9.00 per hour. Based on what field technicians reported, it is apparent that field technicians earn more on average than industry managers report paying (if only slightly higher). This is likely due to regional fluctuations and differences between companies, as mentioned earlier. In sum, field technicians reported earning between $9.00 and $11.00 per hour.

Intimations for a “living wage” are current in many fields, including CRM. The call for increasing wages by and for field technicians also directly coincides with the field technicians’ perception that industry managers view their role in CRM as non-skilled manual labor (see Chapter 5). In essence, they believe that because they are not valued as archaeologists they are paid low wages.

It is important to compare CRM field technicians’ wages to national wage standards to have a basis for evaluating what is considered low and what is not. In 1994, U.S. News and World Reports published a list of “Entry-Level Salary Ranges for Jobs Requiring a Bachelor’s Degree” (U.S. News and World Reports 1994). Their list included the average yearly salaries, accompanied by a per hour rate, for 18 different jobs including architecture ($27,000/year or $11.88/hour), chemical engineering ($43,900/year or $21.11/hour), primary education teaching ($20,800/year...
or $10.00/hour), and environmental lab/field technician ($21,000/year or $10.10/hour) (ibid). The article also provided other average yearly salaries and per hour rates. Using the field technicians' average hourly rate reported earlier ($9.00 to $11.00/hour), field technicians have the potential to earn on average between $18,720 and $22,880 per year. These figures are based on a 2080 hour work year, but as later statistics will show (see “Job Security,” this chapter), field technicians are usually employed seasonally so the yearly income figures will be lower.

Standardized Wages

Industry managers were asked if the hourly rate that they pay field technicians is fixed (so that all field technicians make the same hourly wage) or tiered (so that individual education and experience are considered prior to assigning a wage). An overwhelming ninety-four percent (n=17) of industry managers who responded use a tiered hourly wage and the remaining six percent (n=1) use a fixed hourly wage.

Since CRM archaeological investigations gained footing in the preservation movement in the late 1970s and early 1980s, more people, primarily newly graduated anthropology majors, are turning to CRM for employment opportunities. There are, however, several classes of people that are employed as CRM archaeologists (see Chapter 3). Moreover, there are different types of field technicians. Some only work during summers and holidays while others have committed to CRM archaeology as a career. The differences in types of field technicians and the skills each brings to the
field, both individually and as groups based on experience, has effected the industry managers’ and field technicians’ relationship.

Based on informal discussions between field technicians, industry managers, and my experience (at both levels), I propose that field technicians who rely solely on CRM for their income have a more intimate knowledge of CRM and more refined field skills than individuals who occasionally work on projects during vacations or weekends. Working with management regularly and witnessing daily the logistical, methodological, and legislative aspects of running a CRM archaeology project arms full-time field technicians with a working knowledge of field work investigations.

At what level each field technician understands these aspects is directly related to the role of academia and training offered to prepare CRM archaeologists (see Chapter 6). It is clear that many full-time field technicians may not have accomplished academically what some of their peers have. Depending again on training acquired within or outside of academia, some part-time field technicians bring to the field an enormous theoretical knowledge of and research base for contemporary archaeology, including CRM, that their full-time peers lack. Individuals, their employment status, and their training can be mixed and matched differently and can vary as slightly as shades of green in a forest. Working in CRM “full-time,” however, as in any field, instills a level of proficiency in field technicians that can only be ascertained doing the job “hands on” (e.g., outside of academia and in CRM) and on a regular basis.
Although a majority of respondents reported paying field technicians based on experience (or “tiered”), it is my experience that other firms do not. Instead, many field technicians are usually treated as equals, irregardless of their level of expertise. By definition, they are all usually paid the same wage. Some companies have taken steps to formally recognize the different levels of experience that their contract employees bring to the field. For example, Gray and Pape, Inc., a large CRM firm located in the Midwestern and Mid-Atlantic United States, created a tiered pay scale for all contract employees including field directors, crew chiefs, and field technicians. Based on experience, education, skills, work history, and intracompany project evaluations, field employees earn different hourly wages (Wilson 1997b). As an individual acquires additional skills and experience, their rate increases. Gray and Pape’s compensation plan recognizes the uniqueness of each field technician that they employ. Other CRM companies pay all field technicians the same wage. Carter attempts to explain applying commensurate wages to all field technicians. He states: “As with any business, supply and demand are balanced. The employee available is too often inexperienced people with little more than a BA degree” (James Carter, Personal Communication: 1997). Others agree with Carter and add that field technicians should be grateful that they have jobs because ultimately CRM is a career with little to no recognizable value for the general public. King states: Railing about how unfair it is for archologist (and other CRMers) to get paid so little — whether it’s because of academic competition or history or whatever — may not be the world’s most politic (sic) thing to do at this particular point in time. I think we need to remember that society may not perceive itself to need
us quite as much as it does plumbers, carpenters, or even psychoanalysts (King 1996).

These two approaches (Gray & Pape's, and Carter's and King's) represent common attitudes by industry managers to qualifying the compensatory worth of field technicians.

Per Diem

Field technicians and industry managers were asked to calculate another form of compensation that they provide to field workers - per diem. Field technicians reported being paid per diem that ranged from as low as $16.00 (13%, n=2) to over $40 dollars (25%, n=4). Most industry respondents indicated paying between $21.00 and $25.00 per diem to field employees (31%, n=5). Sixty-seven percent (n=12) of industry managers indicated that their per diem rate did not cover lodging expenses because they paid for lodging directly to the hotel/motel. The remaining 33% (n=6) indicated that their per diem rate included money to cover lodging.

Generally, per diem is distributed by companies to each field technician (and others working in the field). It is intended to provide employees who work away from home an allowance to spend on food. It can also be used to provide the same employees money for lodging. Therefore, the amount of per diem money distributed to field employees varies depending on each company; the latter being a higher rate to compensate for the additional lodging expense.

Because per diem is considered a form of compensation (outside of salary and tax-free), and because the adequacy of compensation is being analyzed in this thesis, a
discussion of the role of per diem in CRM is necessary. As mentioned earlier, per diem compensation is intended to cover meal expenses while working in the field. Without access to refrigeration and cooking appliances, field employees are forced to eat outside of the home, in restaurants, or to purchase food that is "ready-to-eat," which by definition, is often expensive. Per diem helps ease the financial burden of feeding oneself outside of the home. Field technicians, however, have grown dependent on per diem to supplement their income.

Based on my experience and that of field technicians acquaintances, per diem is typically used for other expenses. For example, many field technicians use their per diem for personal hygiene products (e.g., toothpaste), dog food, vehicle maintenance and gas (when the company does not reimburse for those expenses), tobacco and alcohol products, and field supplies. Some field technicians carry portable kitchens with them (e.g., small refrigerators, electric cook-tops, toasters, and portable microwaves) because "eating in restaurants, like many in small towns where the greasy spoon becomes your breakfast, lunch, and dinner, eventually eats a hole in your stomach. you begin to want to eat stuff that is better for you, something home-cooked" (Matthew Steinkamp, Personal Communication: 1999). One benefit of cooking for yourself is that inflated restaurant prices are eliminated, as well as gratuity. Per diem is therefore also spent on food prepared by the field technicians. Money is saved and used for non-food items.

Usually, per diem is paid directly to the field technicians. Depending on the client and the company, some projects require field technicians to provide the
company with receipts for their food expenses. If field technicians cannot provide receipts that match their allotted per diem, they often have to reimburse the company for the money not used. This practice of reimbursement may also effect the manager-technician relationship, particularly if field technicians depend on their per diem for expenses other than food.

For example, in 1995 I worked for a company that paid per diem weekly. The company has a good reputation for compensating employees, including providing documentation-free per diem (i.e., not requiring receipts for food purchases). Towards the end of one project, the client informed the company that they would no longer pay a flat rate for per diem. Instead, they asked the company to require their field technicians to provide receipts for all meal expenses for the remainder of field work. By definition, if the field technicians could not provide receipts for their food expenses, or if those expenses were less than the allotted rate, they had to reimburse the company for unused funds.

The field crew was incensed and initially refused to cooperate. Many threatened to walk off of the job if the company did not rescind the new changes. They felt that changes made to policy in the middle of a project were in violation of their employment contract, which included paying per diem weekly and free from receipt documentation.

Members of the company's management attempted to explain their position to the crew and in the end, the field crew provided receipts for food expenses. They did
so, however, in a creative way. Most field technicians purchased receipt books, created their own meal tickets, and turned those in to the company.

The field technicians on this project were acting out against the company, and what they classified as a form of “domination” over them (“John Smith,” Personal Communication: 1997). Anthropologists refer to this type of behavior as antihegemonic discourse, or closed resistance. Hegemony was a concept developed by Antonio Gramsci (1971) to describe “a stratified social order in which subordinates comply with domination” (here defined field technicians complying with the CRM company’s mid-project change) “by internalizing its values and accepting its ‘naturalness’” (Kottak 1999: 232). Further, hegemonic ideologies usually infer that “existing order is in everyone’s best interest” and often promises are made (i.e., “things will get better if you’re patient”) (Kottak 1999: 232). Hegemony is also a primary method used by those in power positions to curb resistance from those without power.

The project described here illustrates an example of both hegemony and antihegemonic discourse. The field technicians openly resisted by voicing their dissatisfaction and by threatening to walk off of the job. If the field technicians had left the project prior to its completion, the company may have placed them at the bottom of their future-hire list, or even “black-balled” them from future projects. Because open resistance is typically followed by severe repercussions, individuals who feel “oppressed” or “dominated over” often engage in antihegemonic discourse. That is, they will individualize or disguise small acts of resistance, which usually
incorporates gestures and actions against those with power (Kottak 1999: 253). For field technicians, their "small act of resistance" (or antihegemony) included fabricating receipt vouchers. The significance of not allowing field technicians to use per diem at their discretion is that they may chalk it up to "another way the company screws you" ("John Smith," Personal Communication: 1997), and moreover add to some field technicians' feeling undervalued. It is important to point out that in this case, the client initiated the change and not the company. As later discussions will illustrate, this is one of many challenges that CRM companies face and in this case, it affected the field technicians.

Vehicle Maintenance and Gas

Industry managers were asked if they compensate their field technicians for intracompany project-to-project travel expenses. An overwhelming 94 percent (n=16) provide some form of compensation. They itemized what their compensation package includes as follows: a mileage rate (i.e., $ .30 / mile) (69%, n=11), gasoline (6%, n=1), and overnight lodging (63%, n=10), if more than one day of travel is needed to reach the next project's destination. No companies paid for maintenance expenses (e.g., oil, blown tire, etc.). Instead, maintenance was built into their mileage rate.

As I have demonstrated, field technicians have grown dependent on per diem to help pay for domestic and job-related expenses. Included in their expenses is vehicle maintenance and gas. Because field technicians are transient, they usually...
work for different companies consecutively (traveling from one project to the next without taking a break in between). Many CRM companies prefer to rehire reliable and experienced field technicians for their projects. Sometimes, projects for the same company are scheduled so that crew members from one project are transferred onto another project, thus meeting the field technicians' need for employment and the company's need for logistical continuity and a reliable work force. Transferring field technicians to other projects often means that they must travel to a new location, which can be as close as the next town over or as far away as a few states. In most cases, field technicians accrue travel expenses during the transfer.

Job Security
Field technicians were asked to supply a calendar of their employment for the year September 1996 to August 1997. This was intended to illustrate possible patterns in field technician employability. Once tabulated, their responses were grouped into four categories including length of unemployment, length of CRM field technician employment, length of other employment (outside of CRM), and length of time spent in school. On average, field technicians were employed for six months during the 1996-1997 calendar year. Six months employment represents time devoted to CRM field work but does not necessarily define a full-time employment stretch. They justified their time by enumerating the total number of jobs worked during the year, including the number of days or weeks devoted to each job, and then those days and weeks were added together resulting in the six-month interval. So, six-months of
CRM employment should be interpreted as jobs that lasted three days to three weeks to three months.

Field technicians also worked outside of CRM. Based on their responses, on average two months was devoted to employment outside of CRM (i.e., working for temporary agencies), two months was spent in school (i.e., in some cases this meant taking classes to complete a baccalaureate degree in anthropology or in another discipline, but overall, time in school was devoted to graduate level or post-baccalaureate classes), and finally, one to two months of the year was spent unemployed. Compensation for unemployment was acquired from family loans and/or unemployment funds supplied by the government. Although these averages surficially represent eight to ten months of employment for field technicians, a two to four month period was spent unemployed. It should be noted that periods of unemployment are expected in many regions due to poor weather conditions typical during winter months that result in “down-time” for companies.

In sum, year-round CRM employment did not exceed six months for any survey participant. As previously reported in this chapter (see “Wages”), using the field technicians’ average hourly rate ($9.00 to $11.00/hour), and based on a 2080 hour work year, field technicians have the potential to earn on average between $18,720 and $22,880 per year. Yet since they reported working on average six months per year in CRM, their CRM earnings amount to less than that, approximately between $9,360 and $11,440 per year. As the U.S. News and World Reports article (1994) indicated, $12,800 per year is considered to be “around the poverty level.” Therefore,
the field technicians’ yearly salary in CRM is, according to these figures, below the poverty level.

The instability of work in CRM, which is closely related to seasonal and funding fluctuations, has ramifications for field technicians. Their mental and physical health are at increased risks when they are unemployed, and also when they are employed because they will be anticipating unemployment when the project ends (see Chapter 3).

On average, the companies surveyed hire between 10 and 30 contract field technicians annually. Some companies hire as few as 1 or 2 technicians (10%, n=2) while others hire as many as 60 or more (10%, n=2). But, how many of those field technicians are repeat hires? According to survey results, the number of field technicians who are rehired annually by the same company include: 1-5 individuals (28%, n=5); 6-10 individuals (16%, n=3); 11-15 individuals (16%, n=3); 16-20 individuals (16%, n=3); and finally, 20 or more individuals (24%, n=4). These figures indicate that some field technicians and company representatives have established good working relationships.

The benefits to a CRM company of rehiring field technicians on as many projects as possible during a work season are high. As noted earlier, this practice resolves the field technicians’ need for employment and the company’s need for logistical continuity and a reliable work force. Companies, however, never really know how many field employees they will need in a year’s time because they are constantly bidding on new projects. With the exception of contracts that negotiate
several field projects and inherently call for a specific number of field personnel to work over a specific period of time (i.e., Indefinite Delivery Contracts), most CRM companies are unable to anticipate their staffing needs. Weather, project scope changes, illness and injury, discovery, and other unforeseen variables all have the potential to affect a company’s labor needs. Most companies have a database of field technicians, some of whom can be called on at the last minute.

Field crew are coordinated by companies using different methods. Of those companies surveyed, 60 percent (n=11) have a permanent field technician staff or use in-house permanent staff to fulfill their field project needs, and 40 percent (n=8) hire field technicians for a fixed-term, such as project-to-project employment. That is, field technicians, upon hire, obligate themselves to work on a single project for its duration. Other methods include, but are not limited to, hiring field technicians on a contract basis for an extended contract (i.e., they are hired for six months and are assigned to different projects for the duration), hiring field technicians full-time (i.e., they are employed full-time, and are considered part of the company’s permanent staff), and using staff internally to complete field work projects (i.e., non-technician company personnel).

Some companies offer field technicians who are experienced and who have a proven record of excellence within their company and proficiency in archaeology the opportunity to be promoted to supervisory positions (e.g., crew chief, field foreman, field director). Industry managers were asked the following question: If you were hiring for a supervisory field position (i.e., crew chief or field director) outside of
permanent, in-house staff, who would you consider first? Would you consider a technician whose performance was outstanding, who was familiar with your company policies and procedures, and who could, in your opinion, handle the job but who had no supervisory experience; or, a person whose resume indicated supervisory experience but who had never worked for your firm? An overwhelming 90 percent (n=17) said that they would promote the field technician.

Even though in my survey question I did not expand on promotion opportunities outside of project-to-project employment, it can be assumed that the same industry managers would also consider a qualified field technician for a permanent staff position as a field supervisor if it became available. Clearly, there are situations where a company would not because they prefer promoting from within the company or could not because realistically there are not enough supervisory positions to go around.

Usually promotions are fixed-term, only lasting the duration of one or two projects, and when supervisory positions are not available on other projects, the individual is demoted back to a field technician. Assuming that most field technicians view their position as temporary and expect to “move up in the ranks,” a field technician rotates between their position and a supervisory one until a full-time supervisory position becomes available. Other companies, however, will not provide field technicians the opportunity to be promoted and instead look outside of their employee pool to meet their staffing needs.
The majority response to this question is good news. Because 90 percent (n=17) of these companies consider the field technicians’ contributions to archaeology and to the company valuable enough for possible promotion, they are placing a value on the individual. In doing so, they are supporting the professional development of field technicians by providing them with the potential for personal and educational growth and development within the company. They are also providing the opportunity for the exchange of ideas as well as initiating dialogue with their field employees. Field technicians realize, in essence, that eventually their efforts can be rewarded.

Once a field technician has been promoted, however, s/he is no longer confronted with the same issues that other field technicians face. Rather, they have become part of the company’s infrastructure and have permanent job security. In my opinion, however, they are still mentally constrained by their previous field technician status. As a field technician, allegiance is formed within their class the “lower/working” class. Strength and comfort are found in expressing problems to one another and in finding others who have experienced situations similarly. Can a field technician ever completely break away from this allegiance once they move up through the ranks, or should they be expected to?

This question may be best answered by offering the following example from my personal experience as a field technician who “moved up the ranks” into a management position. I found that my experience as a field technician significantly aided me in my role as a permanent staff member because my position was heavily couched in day-to-day field technician relations. Because I had once been a field
I found myself constantly challenged to provide field technicians with the best field experience that I could and that the project budget would allow. As a supervisor, however, I was unable to sever my connection with field technicians. Based on some of my experiences in the field and those experiences of my peers, I was able to use my supervisory position to make improvements for the company and for field technicians who worked for the company. It can be argued that a person in my position loses their objectivity by consistently purveying to the wants and demands of field technicians. But it can also be argued that by becoming immersed in a supervisory position, removed from the day-to-day problems that characterize field work (and by definition that characterize the experiences of field technicians), the chance of losing one's objectivity is also great. It is important to state that my experience may not represent the majority of people who “move up in the ranks.” Others may find that their transition is different.

In sum, field technician job security is reckoned by several mitigating factors previously discussed. Whether seasonally employed or employed full-time, job security is a variable form of compensation (because earning money is implied). But there are other forms of compensation that some field technicians consider deficient and that have heralded numerous complaints from field technicians. These include medical and retirement benefits.
Other forms of compensation are defined as medical benefits (including paid sick leave), retirement benefits, and paid vacations and holidays. As discussed in this thesis, field technicians feel that the most pressing issues for them aside from “low wages” include health (28%, n=10) and retirement benefits (3%, n=1).

Presently, these vary from company to company. Industry managers were asked to itemize the types of benefits they offer to field technicians. The benefits include: medical (33%, n=6); retirement (33%, n=6); weekend lodging (for individuals who qualify to stay in hotels during the weekend for projects that extend over into the following week) (50%, n=9); weekend per diem (same) (39%, n=7); crew parties (22%, n=4); dental insurance (28%, n=5); paid sick leave (33%, n=6); paid holidays (55%, n=10); paid vacations (50%, n=9); and other forms that were not enumerated (28%, n=5).

Most of these benefits, if not all, are only made available to field technicians while they are employed with the company. Also, on occasion field technicians must have also worked for the company for a probationary period prior to receiving these benefits, and/or must have worked for the company for a specific number of days during the year prior to receiving these benefits (i.e., four months out of twelve months). Therefore, many field technicians will go without company paid or reimbursed benefits during a significant period during the year, specifically medical benefits.
Field technicians noted that, on average, they could afford to pay $563.00 per year for a medical benefits package and $578.00 per year for personal retirement plan. These figures do not represent the true financial feasibility of most of the respondents because two respondents indicated that they could pay as much as $2000.00 per year each for both medical and retirement benefits because they are presently employed full-time. If the $2000.00 per year figures are eliminated, the average declines to $150.00 per year that field technicians can pay for each benefit package.

The level of compensation outside of salary given to field technicians is dependent upon many things including the size of the company, the types of contracts awarded to them, the employment status of field technicians within the company, and ultimately, the value placed on temporary employee compensation by industry managers. Some companies offer one form of or a combination of medical, dental, and retirement benefits to field technicians. Others do not. Because most field technicians work as contract employees (on a project-to-project basis), companies often view providing these benefits as logistically impossible based on scripted company charters, and often, the limitations of their insurance policies that preclude them from covering part-time, contract employees. This is likely the case for any business where employees are typically contract or seasonal.

In 1994, during a regional conference in the Midwestern United States, a meeting was held to discuss the feasibility of organizing CRM companies in the United States into a trade association (now known as ACRA). Trade association organizers, CRM managers and company owners, members of the UAFT, and other
interested parties were in attendance. One topic discussed during the meeting was the feasibility of providing temporary employees, namely field technicians, with health care benefits. Most of the people in attendance felt very strongly that field technicians needed to have access to these benefits but were unsure how to create provisions for coverage. Today, members of ACRA are still trying to resolve the issue (W. Kevin Pape, Personal Communication: 1999). Again, depending on the limitations present within each company, compensation varies.

One industry representative offered the following example of the limitations his company faces:

I know from personal experience that one of the greatest roadblocks to providing benefits to temporary staff is not cost but administration - trying to keep track of all of the forms and applications for staff on a temporary project as well as potential long term follow up for COBRA etc. is simply not feasible for a small company without substantial increases in administrative staff. However, there must be outlets which can provide such services. The notion of temp services has been raised before - I wonder if it might be feasible for [the] SAA to establish a hiring service that would provide benefits to enrolled members while charging CRM firms established, realistic wages and a per hour cost for benefits like insurance (Joseph 1998).

Others agree that medical and retirement benefits are lacking for field technicians but are unsure how to integrate them into CRM (James Carter, Personal Communication: 1997).

Based on the survey results reported in this chapter, field technicians and industry managers are in agreement on several compensatory issues, but disagree on others. Both targeted low wages, and insufficient medical and retirement benefits as areas that need to be examined and better managed. It is my opinion that defining the role of field technicians is in order and to accomplish that, it is necessary to explore
the other labor problems in CRM. It is important to ask why some perceptions exist (i.e., field technicians' claim that the industry views their role as manual labor) and how they were constructed. These questions and others are addressed in the remaining chapters.
As previously discussed in Chapters 1 and 3, CRM industry managers place a priority on the market value of conducting archaeological investigations (here defined as contract funds) because CRM is a business industry where competition is integral. Some field technicians have claimed that because of this, their contribution to archeology is undervalued because they are viewed as manual labor and "commodities." This chapter explores three of the targeted labor problems related to this claim including spontaneous and inconsistent ethics in CRM and how they are related to the competitive nature of practicing contract archeology, a general lack of non-manual labor responsibilities (including interpretation) assigned to field technicians, and the field technicians' ephemeral relationship with CRM projects. Field technician and industry representative responses to survey questions that address these problems are incorporated into the discussion.

**Non-manual Labor Responsibilities**

**Field Technician Job Responsibilities**

As a field technician, respondents were asked to list their primary on-the-job responsibilities. Responses included data collection (70%, n=25), shovel excavation (44%, n=16), mapping (36%, n=13), getting along with coworkers (31%, n=11), being organized and dependable (25%, n=9), expediency in survey and excavation (22%,...
n=8), artifact recognition (22%, n=8), and shovel testing (22%, n=8). Other responsibilities included feature recognition (20%, n=7), equipment maintenance (11%, n=4), soil and stratum analysis (using a Munsell and differentiating between soil horizons) (11%, n=4), and screening soil and backfilling units (8%, n=3).

When asked if they were given interpretative responsibilities as field technicians, 50 percent (n=18) of respondents indicated that they had, at some level, been asked to contribute to the non-manual aspects of the field project. The non-manual, or interpretative, responsibilities include, but are not limited to, identifying and locating sites (16%, n=6), determining site significance and National Register eligibility (14%, n=5), field note documentation (14%, n=5), suggesting a different approach to field methodology (11%, n=4), identifying and describing features (11%, n=4), detailed photographic documentation (6%, n=2), and report writing (3%, n=1). Others remarked that their insight was only solicited if the volume of work was greater than the number of supervisors on site (8%, n=3). The remaining 50 percent of respondents indicated that they were never asked to contribute to the project outside of performing manual labor (which includes completing forms). In sum, field technicians indicated being included in “interpretation” 50% of the time, and usually only if the “supervisor’s ego allowed” (16%, n=6).

Industry managers were asked to describe the primary skills they expect their field technicians to possess. Again, in order based on popularity of responses, the following skills were reported: artifact recognition (74%, n=14); hand excavation (68%, n=13); ability to get along (68%, n=13); feature recognition (58%, n=11);
mapping and profiling (53%, n=10); compass skills (32%, n=6); screening soil (26%, n=5); landform recognition, or basic geologic concepts (21%, n=4); feature identification (16%, n=3); survey experience (16%, n=3); mapping and orienteering (16%, n=3); artifact identification (11%, n=2); equipment maintenance (5%, n=1); and, soil analysis (5%, n=1).

Some skills that initially appear to be the same thing were divided into two categories because they represent distinct skills. For example, feature recognition and feature identification are listed separately because having the ability to recognize an anomaly in the soil or soil discolorations is different than having the ability to identify the same as a fire hearth, bulldozer scar, or grave. Likewise, artifact recognition and artifact identification are listed separately for the same reason. A field technician may know upon initial inspection that a rock has been altered by a human. They may not, however, know whether that same rock is a tool or weapon, what temporal period it is associated with, or if the artifact is really an artifact and not a geofact.

A comparison of field technician and industry representative responses for the above illustrates that both groups expressed similar field expectations. The value placed on certain skills, however, is different. Field technician responses illustrate a possible trend in CRM archaeological investigations that favors less-intrusive and conservation-minded approaches to cultural resources - approaches that recognize the archaeological record as a finite resource.

Skills such as shovel excavation (limited to testing), survey, and orienteering suggest that survey and testing are the most common types of projects that field
technicians work on today. This may also represent the types of projects that field technicians who participated in my research study engage in. But, as Shuldenrein (1998: 32) states: “[Students need to be disabused] of the notion that there is always a research topic under every project umbrella. The conservation ethic stresses conservation; preservation in place is the objective of most projects and cannot be compromised in the interests of an archaeologist’s pet research topic.”

Even though implementing less-intrusive methods helps to preserve the archaeological record, the skills required to complete a standard CRM survey do not force field technicians to rely on more than their physical endurance and organized data collection and recordation techniques. I am not suggesting that more sites should be intensely excavated to allow field technicians the opportunity survey less or to record more “interesting” types of information. But because field technicians are not typically afforded the opportunity to rely on disciplinary theories or to create site interpretations (as reported by the other 50% who responded), their relationship with the industry is mundane and lacks the level of intellectual exchange that is present between the middle and upper classes in CRM. In sum, even though having the ability to “identify artifacts” (as reported by field technicians) illustrates a level of competence in the site interpretation process, the level of interpretation integrated into the majority of day-to-day responsibilities is being questioned by some field technicians.
What is a "Professional" Archeologist?

Because field technicians "ground-truth" the existing literature base and add to it each time they serve on a project, they are an intimate part of CRM. Why do they feel detached from the process? That is, why do they feel that their contribution is considered less valuable and less "respected" than others' contributions are on a project (Kintz 1993)? To answer this question, a brief summary of the expectations about a career in archæology that field technicians brought (and by all accounts continue to bring) to CRM is relevant.

Many field technicians trained in academia enter the workforce perhaps with the impression that their years of training have prepared them to participate CRM - as "professional archæologists" or in-training to become "professionals." Having "professional" status in the global marketplace does not always mean that an individual must acquire an academic education beyond a baccalaureate degree, or that they must serve as a formal apprentice. Within academia, however, it often does (McGuire and Walker 1999). But, based on responses provided by field technicians, it appears that many graduating archæologists who go on to become CRM field technicians are not aware of these conflicting requirements. Many graduating archæologists form the impression that their undergraduate education will be supplemented by job-specific training outside of academia and will one day allow them to identify themselves as "real" or "professional" archæologists. By becoming "professionals," many assume that they will have a degree of autonomy in the decision-making process.
There are, however, conflicts between academia's and the industry's interpretation of "professional" status and that of recently graduated archaeologists. The recent graduate's idea of being a "professional" archaeologist combined with many Americans' perception of capitalism (climbing corporate ladders and reinventing oneself to highlight individual achievement) has helped to create a CRM labor force that at some level is faced with challenging hierarchy systems and feeling insignificant. Many industry managers and academicians argue that to be a professional, archaeologists have to have a graduate degree in archaeology, anthropology, or closely related field, a specific amount of "full-time professional experience" in the field, and a specific amount of experience as an industry manager (such as a "Field Director" or "P.I.") (Winchell 1999). Even more important to this discussion is the legislation which establishes criteria for consideration as a "professional" archaeologist (see Chapters 1 and 3). Even from Winchell's description, it is clear that the term "professional" can be interpreted broadly (this example describes having worked as a "professional" to become a "professional"). Because of the contradictions in how field technicians, industry managers, academicians, and the legislation define who can be a "professional" archaeologist, it is likely that once working in CRM the field technician will quickly understand the different attitudes towards their contribution and role. For example, without being afforded the opportunity to review draft or final copies of reports for sites that they have worked on, field technicians never really know to what extent they, or their peers,
have contributed to the project aside of collecting data (as reported earlier in this chapter).

They do not know, for instance, if the maps that they constructed of features and sites were used as originals or as prototypes for other graphical representations in the final report. They may wonder if their material or feature discoveries were integral to the project—did they add to an existing cultural record or did their discovery contribute to changing opinions about the same? Or, did the client decide to cancel the project in favor of a more cost-effective strategy, subsequently making all of the work that the field technicians completed relatively moot until another project is planned for the area.

Logistically, however, the feasibility of keeping a project’s field crew “in the loop” through the reporting stage is close to impossible. A draft report may not be prepared for months after field work has been completed. Most field technicians have rotated out of the company by this time and are likely working for other companies.

Summary of Field Technicians Role in CRM

Industry managers outlined a similar description of what they feel constitutes the day-to-day responsibilities of field technicians. The responsibilities, however, were weighted differently by both parties. Both agreed that field technicians should be able to proficiently recognize artifacts (industry 74%; field technicians 22%) and cultural features (industry 58%; field technicians 20%), and should, at some level, have the ability to identify certain types of features (industry 58%; field technicians 20%) .
Both underscored the need for getting along with co-workers (industry - 68%; field technicians - 31%).

In other areas, they reported different expectations. Industry managers indicated that hand excavation is important to field technicians’ work (68%) while field technicians indicated that shovel excavation was important (44%). Perhaps the clearest difference in their interpretations of what is most important in field technicians’ work is reflected in industry managers’ indication that artifact recognition is most important (74%) while field technicians indicated that data collection constituted the bulk of their work (70%).

Given some of the differences in both parties’ interpretations of the role of field technicians, several important points need to be clarified. Field technicians’ descriptions were based on the activities they have performed while in the field. Industry managers highlighted the activities they expect field technicians to perform as well as responsibilities they have seen shouldered by field technicians during field work. The differences in their descriptions relates to the importance placed on field activities by each party as well as being based on what they typically do.

For example, stating that one of their primary duties as a field technician includes data collection (70%, n=25), many field technicians explained that they spend a good deal of time recording extensive information - creating lists of data. These lists often exclude field technician interpretations. That is, using field forms for recording data, information is forced to “fit” the form. When field technicians have comments to make outside of what is asked on the form, there is typically no space provided. Or,
Field maps are drawn quickly and lack detail because little time is budgeted for activities outside of excavation. Many field technicians expressed that they have grown to resent the repetitiveness of their jobs, often characterizing it as "mundane." With this, field technicians feel that industry managers are redefining their jobs so that, at many levels, they can be performed by individuals with little to no background in archology. Yet, it is important to point out that because of the growth of CRM in the last 20 years (which is directly tied to an increase in earth-disturbing activities related to development) the variety with which data are collected is necessarily limited by the type of site and by the minimal level of effort mandated by law (because spending the least amount of money is desirable for clients).

Industry managers also indicated that data collection was an important skill that field technicians must be armed with to complete field work investigations. Yet, they interpreted data collection to include recognizing and identifying artifacts, cultural and geologic features, as well as some soil analysis. Some industry managers also noted that field technicians are often afforded the opportunity to receive additional or specialized training while working on their projects.

For example, many companies have begun to regularly incorporate the use of high-tech field equipment to supplement other field methods. Global Positioning System (or GPS) equipment has recently been heavily integrated into field investigations for its ability to provide archaeologists with the use of satellites to document the precise position of survey areas, site boundaries, and the location of
diagnostic artifacts and features, in relationship to sites located in the vicinity. Laser
transits are replacing “antiquated” dumpy levels and ground penetrating radar has
found its way into many archaeological projects, replacing in some cases what some
characterize as haphazard subsurface testing initiatives such as digging holes around
artifact concentrations (when, theoretically, they may only be surface concentrations
with no subsurface affiliate).

Since many high-tech items are tested while a project is in the field, according
to the industry managers field technicians will at least be introduced to them and many
field technicians will have the opportunity to operate them. They are indicating that
field technicians’ jobs may be “mundane” to an extent but that overall, many field
crews are afforded opportunities to learn new skills.

The Implications of relying on “Professional” Archaeologists to manage the
archaeological record

The legislation outlines who is qualified to manage and to interpret an
archaeological site, citing specifically “professionals” (see Chapter 1). Within the
archaeological community, guidelines have been established (that were born from
legislative criteria) that outline the methods for acquiring “professional” status as well
what obtaining this status obligates the archaeologist to while a member of the
discipline (including ethical obligations) (see Chapter 3). Academic training is an
archaeologist’s first step toward achieving this status. It was also listed by both
industry managers and field technicians as important to the professional development
of field technicians, or at least a prerequisite for hiring.
Industry managers were asked if they expect field technicians to make site determinations (defined here as being able to recognize a site when they encounter one and to apply state criteria in determining the same). Of those who responded, forty-two percent (n=5) expect field technicians to be able to identify sites; the remaining 58 percent (n=7) do not. I conclude that the 58 percent who do not expect field technicians to be able to identify sites rely on supervisory personnel to make those determinations because in all likelihood the project supervisor(s) have experience in this area.

If field technicians want their contribution to CRM to extend beyond data collection and to include more hands-on work with the interpretative aspects of the project such as making site determinations, must they always follow the steps to become a recognized “professional” in the discipline or can their interpretation be integrated into managements”? In essence, the criteria for being a “professional” archaeologist allocates a level of autonomy for management. Yet, can it be assumed that apprentices (M.A.s), or mentors (PhD.s) are the only members of a project’s crew who are qualified to interpret the past or minimally, the context of a site in broader behavioral patterns? Or can “non-professionals” (e.g., field technicians) contribute to the interpretation of the past?

The question becomes: how “skilled” does an archaeologist need to be and is the archaeological record guaranteed adequate interpretation because of the archaeologist’s education preparation? Answering these questions may shed light on
the benefits of integrating the field technicians' voices into archeological interpretation. These questions were approached, indirectly, during a survey project in southwestern Wyoming. In 1983, in the Seedskadee Wildlife Refuge, a team of archeologists tested the accuracy of contemporary field survey investigations using experimental archeology. Inadvertently, they tested the individual abilities of each crew member and how successful they were at discovering and recording surface artifacts (which is often a primary indication of subsurface resource affiliates). They were also attempting to prove their hypothesis that there are many inconsistencies in survey methodologies which further create a “fabricated” prehistoric past - methodologies which incorporate “imagined constructs” as opposed to “middle-range concepts” (Wandsnider and Ebert 1983: 214).

The authors discuss the inherent problems associated with artifact and site discovery including context, artifact shape, artifact color, and environmental quality (e.g., lighting and bugs). They also noted “other factors” including, but not limited to, “eyesight capabilities, degree of boredom, hunger, thirst, [and] bodily discomfort” as contributing to the “seeing ability of the surveyor” (Wandsnider and Ebert 1983: 217). Ultimately, these factors influence at varying degrees the discovery of artifacts and reflect the categorical differences in field archeologists.

They make an important point in their analysis of surveyors. “Seeing ability” and “conceptual biases” are paramount to the interpretation of archeology. They recognize that their crew members will bring to the project variances, if only slight,
that will undoubtedly bias, confuse, and in some manner, enhance their reconstruction of a site's history. More importantly, they allow for multiple voices in that reconstruction, including the field archologists' voice (lower-class), and do not limit communication to that which occurs between field supervisors, P.I.s (middle-class), and project managers (upper-class).

The Seedskadee crew's experiment included “seeding” modem artifacts in twenty-five, 500 x 500 meter parcels alongside prehistoric in situ artifacts. Three teams of archaeologists, each charged with a different task and each described by the authors as having been chosen for their “several years of...” experience,” surveyed the parcels to locate artifacts and artifact clusters (“sites”). The details of their experiment can be found in the project report (Drager and Ireland 1986) but it is their results that apply to this discussion.

Sixty-six percent of the seeded artifact clusters (or “sites”) were recovered during the survey. To the authors surprise and alarm, only 22 percent of the individually placed artifacts (or “isolates”) were recovered. Based on an analysis of the results, the authors concluded that “color and type [had] a small effect on artifact recovery” and “the density of artifact distribution [was] positively related to the percentage of artifacts recovered for [a] cluster” (Wandsnider and Ebert 1983: 217, 221). The archaeologists factored many variables into their site reconstruction including temperature, terrain, and artifact density. They concluded that archaeologists “are programmed to look hard for artifacts in the near vicinity of any artifact [they] happen to see and decrease the intensity of...
search as artifacts become scarcer" (Wandsnider and Ebert 1983: 221). Further, they conclude that “site-oriented” survey has dominated archaeological efforts for too long and without an inventory of every artifact (including clusters and isolates), reconstructions of the past will remain couched in the imaginations of scholars.

Agreement with the authors’ conclusions rest solely on each archaeologist’s experience and theoretical position. Whether or not an archaeologist, here to include field technicians, chooses to include isolates in their inventories or look “hard enough” to find them is dependent on their skill and training as well as Wandsnider and Ebert’s aforementioned “other variables.” Whether or not a field technician agrees that an isolate represents loss, abandonment, or another form of secondary deposition (either natural or cultural) has some consequences for archaeology. More importantly, because it is often field technicians who recover cultural material, they are interpreting the importance of the material for the archaeological record by opting to inventory or to pass-over (either purposely because they do not understand their importance or unintentionally because they simply missed them). Supervisors’ and principals’ subsequent interpretations of a project’s material remains in relation to one another and broader regional contexts is therefore dependent upon what the field technicians provide them in the way of cultural remains - what they can and do identify as relevant.

Based on the results of the Seedskadee project, “experienced” surveyors still missed many of the “sites” and most of the “isolates.” Given the “other variables” such as “seeing ability” and “conceptual bias” noted by the authors, it is clear that all
Archologists have the potential to recognize and to miss cultural remains. Therefore, it is premature to speculate that a higher-level education benefits an archeologist's ability to contribute to findings of fact. One academician argues: "The idea that it takes 20 years of field experience to make a PT [or field supervisor] is silly. [We would be forced to choose from a restricted pool of candidates] (Jeske 1998). Others would disagree and argue instead that education and skill-level must be evaluated and prioritized prior to building a field crew and to charging an archologist with management responsibilities (David Brauner, Ph.D., Personal Communication: 2000). If the quality of an archeologist is based on their experience and education (and therefore assumed) the results of the Seedskadee project provide one example where neither assured adequate treatment of the resource base. Based on my experience in the field and conversations with supervisory personnel, and based on informal discussions between supervisors at all levels in the industry (Principal Investigators, Project Managers, Field Directors), field supervisors typically have more work than one person can handle (including client meetings, organizing crew, personnel management, implementing field methodologies, photography, playing mom/dad, etc.). By expecting supervisors to shoulder the responsibility of also making site determinations, or to minimally ground-truth all "alleged" sites discovered by field technicians, their work load not only increases but their ability to maintain control over the project is hindered. Therefore, by not expecting the field crew to help in the site determination process the integrity of the project (and its associated cultural material) can be compromised.
More importantly, if field technicians are not expected to recognize sites, how will sites, namely small clusters, come to be included in "findings of fact?" Should the field supervisor be expected to ground-truth every transect or unit every time a field technician "thinks" that they have discovered a site? Finally, should not field work be considered "professional development" - an opportunity to educate field technicians and here specifically to recognize sites? Even with budgets and time constraints, I believe that training efforts in the field are realistic. Ultimately, field technicians will have the opportunity to add to their knowledge base and move one step closer to becoming a "professional" (defined as how field technicians want to be treated by the industry and not as 36 CFR 61 Appendix A(b) defines the same).

The argument in favor of relying on field supervisors is that they have (proven) record of skill and experience recognized by the company. And, by having one person in charge of identifying and designating sites, continuity is controlled. Because most field technicians are transient, hiring companies can only rely on vitae and references to define the abilities of their field crew (until they become familiar with each field technician and their individual skill level).

As I previously discussed in this chapter, field technicians do "interpret" significance when they inventory cultural remains (i.e., "I found x") and when they complete low-intensity subsurface investigations such as shovel tests and auger probes (and fill out their associated forms). Other interpretive responsibilities outside of itemizing, classifying, and briefly describing recovered materials (the standard data collection process) are likely manageable for some companies to allocate to their field
Minimally, field technicians may better understand the work that they do and that management recognizes the significance of their contribution to the project. In addition, the archaeological record will be supplemented with crucial data that can be used to support or refute existing interpretations.

The Relationship between Contract and Full-time Employees

Integrating Field Technicians into the Company “Family”

As reported earlier in this chapter, both field technicians (31%) and industry managers (68%) placed importance on having the ability to get along with coworkers. Clearly, both recognize that in archaeology as well as in most professions, the individual efforts of many result in the success of the whole (but still recognizing the individual’s contribution). In essence, the fact that a majority of industry managers who participated in my survey recognized the inherent need for working rapport between crew members (management and field technicians) demonstrates their recognition of the importance of field technicians to the archaeological project.

The extent to which their relationship develops is, however, viewed differently by field technicians and by industry managers. Should a rapport be pursued only while they are in the field (which lends itself to each party only operating on a “need to know” basis with respect to company policy and procedure as well as getting to know each other) or should field technicians be treated as a member of the company’s “family” even though their employment is temporary?
Field technicians indicated that on average 35 percent of the companies that they work for or have worked for in the past provide some form of employee orientation. This included the distribution of a company handbook, a tour of the office, or over the phone during hiring (a statistical breakdown of each form of employee orientation is not available).

Ninety-five percent (n=18) of industry managers stated that their companies provide a form of employee orientation. The types of orientation included distribution of a company handbook (78%, n=15), tours of the office (68%, n=13), orientating field technicians about the company over the phone (55%, n=10), and sending managers and other non-project related personnel to the field (50%, n=9).

Most field technicians, when searching for employment at a CRM firm, indicated that they contacted a human resources manager, principal investigator, or field director. Thirty-six percent (n=13), however, indicated that they rarely have the opportunity to meet the owner of the company or the project manager (if these are separate individuals). An overwhelming 83 percent (n=30) of field technicians indicated that meeting company owners and project managers was crucial to the success of a field project. Most felt that without a physical connection between field labor and office representatives, the crew tends to be less willing to supply a company with 100 percent effort.

By meeting managers, crew felt less obligated to perform and were more inclined to participate as a team (because faces could be attached to names). I should stress that most field technicians said that they always try to do their jobs well, but to
ensure a healthy morale which ultimately ensures good field methods (and the continuance of a good company reputation), field technicians want to physically “connect” with as many project or company personnel as possible. And, in the event that few company representatives are able to meet crew, field technicians appreciate relayed messages that reinforce the value of their contribution to the project and ultimately to the success of the company (in the form of phone messages sent through field managers or symbolic in the form of salary bonuses and crew parties).

In addition to meeting project and company personnel, field technicians placed importance on having their insight solicited and more importantly, having a platform to express their concerns and opinions. Field technicians indicated that CRM companies solicit feedback on their policies and field procedures from field technicians on average 22 percent of the time and usually in the form of suggestion cards or comment forms. When companies do solicit suggestions, field technicians indicated that companies make changes based on their suggestions on average 23 percent of the time.

Of the industry managers who responded to the survey, 90 percent (n=17) indicated that they offer field technicians the opportunity to make suggestions. Industry managers described the methods they use to solicit feedback to include: informal meetings during the project such as talking during breaks and lunch (83%, n=15), formal in-field meetings such as organized sessions during projects to discuss existing problems or anticipated ones (33%, n=6); and the distribution of project...
comment forms where field technicians can express in writing their feelings regarding the successes, failures, and “if you had to do it again” of the project (22%, n=4).

The benefits of soliciting feedback from field technicians is that it helps to create a team spirit. In addition, many suggestions come from field technicians who have a broad experience base. Since most field technicians are transient, moving from project to project and often, company to company, they will have acquired a sense of “what works best” with respect to field and employee policies. Especially for “seasoned field veterans,” this experience base affords them the opportunity to learn about, to apply, and to make suggestions regarding field methods used on most projects. In essence, they are strategically aligned to advocate known working solutions to in-field methodological and logistical problems, including problems with which the field supervisor has little or no experience.

Some field technicians feel, however, that companies are not interested in their opinion and when they have tried to offer suggestions, project personnel ignore their input, or view it as disruptive to crew morale or to a project’s goals and schedule. These same field technicians sense that their suggestions are interpreted as attacks on management’s experience or on the goals of the company which often means that field technicians’ concerns or opinions are ignored.

Soliciting field technician feedback is one way to initiate and to improve communication between field technicians and industry managers. Many field technicians feel that even though companies solicit their comments they rarely implement changes based on those comments (23% of the time). Industry managers
stated that they acknowledge the participatory role of field technicians, and will, at times, use their suggestions to improve certain aspects of their work. The frequency of acknowledging changes varied between companies: 77 percent (n=13) of companies incorporate field technicians' feedback between 2 and 25 percent of the time; 12 percent (n=2) incorporate their suggestions between 26 and 50%; and, 12 percent (n=2) rarely, if ever, incorporate technicians' suggestions (0 percent of the time).

After several projects with different firms, field technicians come to prefer working for specific firms. Typically, they will find one or two companies with whom they have established good working intercourse, and who employ personnel policies and methodological plans that the field technicians find favorable. They may only work for those companies, remaining loyal to them irregardless of employment security, or they may solicit work from other companies only to cover "down-time." By the same token, field technicians are attracted to companies that solicit their feedback on how effective the company's existing policies and procedures are and what, if any, changes should be made. This ultimately allows the field technicians to feel that they each have a mitigating role on the project and their opinions matter if the project is to run smoothly and if future projects are to succeed.

It can be assumed that companies will base their decision to make changes depending on the nature of the suggestions. Not all suggestions will make good business sense nor will some suggestions benefit the company, the employees, or the project. Some changes may be, for example, methodologically or financially impossible for a company. For those companies that use field technicians' comments...
when revising their policies and procedures, industry managers clearly showed that certain changes are viewed as feasible and are regularly incorporated. These changes include: logistical, such as field vehicles and hotels (77%, n=13); field equipment, specifically incorporating “the right tool for the job” rather than “making do” (65%, n=11); field methodology (65%, n=11); field forms (59%, n=10); wage increases (6%, n=1); and, benefits including paying field technicians for holidays, project-related personal vehicle use reimbursement, and some stipulated medical expenses (6%, n=1).

Based on reported results, changes to a project’s logistics and changes in field equipment appear to be the most manageable aspects for companies. This is likely the result of the short-term attention required to make them. The changes may not always be as “cost effective” as previously utilized forms and may force in-house staff to confront the often arduous task of fully investigating alternative options. Decisions to change these aspects, however, can be made quickly with limited coordination between company personnel.

For example, field equipment changes operate to increase a company’s efficiency by providing field technicians with reliable and effective tools with which to complete their work. Room and board changes provide cleaner, safer, and more hospitable places to call “home.” Ultimately, crew will be healthier—both physically (because they have the right tools) and mentally (they needn’t worry that roaches or burglars are running around their rooms at night). For the company this means that the project runs smoother because field technicians will know that satisfactory attempts
were made to look out for their well-being (as reported in Chapter 3 of this thesis by Peter Warr).

Other changes, however, require extensive coordination between company personnel and can take several months to ameliorate. Field forms and field methodology, for example, require input from several company personnel including, but not limited to, field supervisors, project managers, P.I.s, and laboratory supervisors. Likewise, wage and other compensation decisions involve the coordination of project managers, accountants, and clients (i.e., can the client be billed at a higher rate or will the company have to appropriate a portion of their capital to cover the wage increase as the "cost of doing business")?

Although field technicians will have acquired an experience base useful for evaluating different approaches to archaeological investigations and for "what works best" with respect to field and employee policies (as discussed earlier), the archaeological project cannot be completely standardized because there are unique circumstances associated with every job. Nor can projects be standardized continentally because regional variants such as climate, terrain, vegetation, and proximity to ethnic groups are also unique to every job. Most states have their own set of guidelines that companies must follow and criteria that they must meet in order to conduct archaeological investigations. These guidelines and criteria reflect those developed by the Federal Government and managed by the Secretary of the Interior, and incorporate regionally-specific criteria that is more austere.
Where permitted, however, approaches to the more testable processes (those which should be replicable) or approaches to field work that are governed by the uniqueness of each site benefit from company to company regulation. Using the field technicians' critiques in making these types of company changes not only personalizes the project for field technicians, it also creates a team spirit.

The Role of Field Supervisors in managing the interests of Field Technicians

Since field supervisors (e.g., Field Directors) are the people that field technicians interact with the most while working on a project, I felt that it was important to not only delineate the nature of their relationship (i.e., integrating field technicians into a company's "family") but also the characteristics of successful work relationships. In 1933, an educator named Hilda Smith outlined the "Attributes of Effective Teachers" (Lenz 1982: 7). Smith was prominent in the labor movement and according to Lenz (ibid) "she was concerned with [students who] were working people who saw education as a means of improving their economic position and helping them realize the American dream."

As this chapter has explored, working in a "professional" environment is considered to be very important to field technicians. And as Chapter 6 explores, most graduating archaeologists consider education to be the primary vehicle for "realizing their American dream." Therefore, I used Smith's "attributes" in both questionnaires because of the relationship between field technicians and field supervisors and
between education and becoming a "professional" American employee (see Appendices B and C).

Field technicians were asked to apply Smith's (1933) "attributes" to describe their "dream" CRM field supervisors. The attributes were ranked by field technicians in order of importance as follows: knowledge of the subject and an ability to communicate it; knowledge of [training archeological] techniques; intellectual integrity; interest in [technicians] as individuals and a belief in their desire to learn; a willingness to learn from [technicians] an ability to relate to them as individuals; have a sense of humor; broad cultural perspective free from prejudice; and, have a warm, sympathetic personality.

I asked industry managers to rank the same attributes. In order based on popularity of responses, they ranked Smith's (1933) criteria as follows: knowledge of the subject and an ability to communicate it; intellectual integrity; knowledge of [training archological] techniques; broad cultural perspective free from prejudice; a willingness to learn from [technicians] and an ability to relate [training] to their experience (realizing that as a supervisor that there is always something to learn); have a sense of humor; interest in [technicians] as individuals and having a belief in their desire to learn; and, have a warm, sympathetic personality.

Field technicians' and industry managers' ranked responses similarly. It is clear that both parties value a command of the discipline and effectiveness at relaying their knowledge to crew. Field technicians placed a higher value on their own role, however, than did industry managers. As the reported results illustrate, field
technicians value field supervisors who incorporate training initiatives during field projects and who actively take an interest in the experiences of field technicians. Industry managers ranked these two criteria much lower. This is not to say that industry managers do not value these elements; rather, field technicians view these things as essential to a project's success whereas industry managers perhaps view them as supplemental to more important agents.

Ethics in Archaeology

As this thesis has discussed, a tremendous amount of intradisciplinary competition emerged from contracting archaeological work out to private consultants (see Chapter 1). Today, hundreds of CRM finns compete for archaeological contracts in the United States. This competition has resulted, in part, in driving the bidding price of contracts to low dollar amounts. Subsequently, some unethical work practices have emerged. Both industry managers and field technicians expressed concern about the impact of varying interests within the archaeological community, and their impact on archaeological investigations (6% of responses each to the question “what is the most important issue facing field technicians” reported in Chapter 4). They are indicating that under the present operating system in CRM, resource protection is not considered to be the primary reason modern archaeology is accomplished; rather, they argue that some academic and CRM representatives are fulfilling their own personal interests.
As the following discussion of "Ethics in Archaeology" illustrates, many academicians and some industry managers are also in agreement regarding the impact that contract archaeology has had on the anthropology discipline. This includes, but is not limited to, the impact on archaeologists (both non-academic and those that work under the auspices of CRM within the university); the impact on the validity of research questions which is often underscored by the professional responsibilities espoused by SOPA/ROPA and the SAA; and, the impact on the resource. Members of both institutions (academia and the private-sector) have criticized the other, as well as against each other within the separate institutions (e.g., academician vs. academician). Others charge that the CRM industry has become a dysfunctional arm of anthropology.

How Field Technicians perceive Ethics in CRM

Field technicians were asked to pinpoint what ethical issues in CRM they feel are the most important. Because more than one issue was asked for, field technicians' responses were consolidated into categories based on the themes of their response. Therefore, all responses are considered in the following summation.

The ethical issues include: the quality of field investigations (47%, n=17); the treatment of field employees, including wages, job stability, and overall delegation of tasks (36%, n=13); "placing the needs of the client before the resource", or interpreting archaeology as a "business first and as an investigation of culture second" (36%, n=13); "low-balling" project bids to get a foot in the door or to simply secure jobs.
(17%, n=6); rapport with Indian groups, including a general lack of sensitivity towards their cultures and compliance with legislation, and the overall intertribal-interagency-consultant relationship (17%, n=6); “arrogance” in reporting, or writing for other professionals in the field rather than for the public (17%, n=6); poorly constructed research questions/topics (15%, n=5); “using unqualified personnel to complete CRM field investigations,” including volunteers (8%, n=3); uncompromising reliance on sampling and modeling, leaving little flexibility in research design (8%, n=3); the “vast conundrum of gray literature” (5%, n=2); the inclusion of CRM archaeological investigations in multi-task environments, which is viewed as a “self-serving venture” (3%, n=1); and, finally, the manipulation of data (“square data in round holes”) (3%, n=1).

This list illustrates that field technicians recognize ethical problems associated with the personal interests of managers, the business of CRM, and the legislation. Many of their concerns match issues that I have discussed in this thesis, and others tempered by academicians and industry managers.

Others’ Perceptions of Ethics in CRM

Industry managers were not polled in the questionnaire about ethics in CRM. In lieu of a sample response, the following discussion is based on the published record related to ethics in CRM.

Voellinger summarizes the perceived ethical effects CRM as an industry has on the anthropology discipline:
Cultural resources sites cannot be treated like purchased materials or construction service, and to do so only cause poor quality work, divisiveness in the professional community and unethical behavior.

The government has tried to caveat its contracts with archologists by making them bid on cubic meters of excavation, numbers of sites found during a survey, and often determining National Register eligibility of sites that have not even been recorded yet. But this effort, although intended to enable an apples-to-apples comparison of proposals, encourages poor archology, because we still do not know the variables (Voellinger 1997: 1).

Voellinger is essentially saying that by treating archeological resources as a product, the significance of the work that archologists do in the broader scheme of historic preservation becomes lost, and usually results in unethical business as well as scientific practices.

Others disagree and feel that his sentiments are not a realistic reflection of CRM. Del Cioppo (1997) argues that because CRM is oriented in a business market, and because most CRM practitioners are trained to compete within an academic environment and not a business environment, this does not qualify CRM as an "unethical" venture for archologists. He adds that just because an archaeologist is employed by CRM does not imply that they are not a "real" archologist. Instead, Del Cioppo feels that CRM and academic archology should be judged based on their own merits and not compared (since they are "two quite different critters") (Del Cioppo 1997).
Seventeen percent (n=6) of field technicians indicated that the practice of “low-balling” contract bids is a serious ethical issue. “Low-balling” refers to the act of bidding on projects to which a company is ill-equipped to manage (lacking adequate resources such as “experienced” or “professional” personnel) and/or to which budgets are unrealistic. Voellinger argues that “the selection [of a CRM company to complete a contract] . . . on the basis of lowest bid places a premium on incompetence” (Voellinger 1997: 1), citing the Texas Professional Services Procurement Act as an example of “legislative” disapproval of archology as a business (or CRM). Other archologists agree (Minor and Toepel 1999; Green and Doershuk 1998).

Companies that “bite off more than they can chew” (Schuldenrein 1996a) by underbidding all other companies and, by definition, those companies who are better suited to conduct the work, are not only acting “unethical” but are also making an “unethical” statement about CRM. They are stating that the stewards of archological resources (personnel’s time and contributions in managing project data) and the resource itself are insignificant to the project. In essence, the stewards’ efforts are undervalued and the time needed for discovery and management of the resource are undervalued when “low-ball” contract proposals are created. Further, “low-balling” underscores the acquisition of contract funds as being more important than any other aspect of CRM.

Schuldenrein (1996a) and others (Minor and Toepel 1999) add that “low-balling” has also increased an awareness within the discipline (both at the academic
and private-sector levels) of the number of “unqualified practitioners” competing for
CRM contracts and the aggressive role that contract clients play (such as utility
companies). He says that because contract clients tend to prefer CRM companies that
can do equal work for less pay (but usually just less pay), CRM continues to be
fraught with unethical business and scientific practices. Schuldenrein (1996a) calls for
a “code of ethics” that will standardize and regulate archaeological work and an
“enforcement body” who can “police” the same.

Voellinger (1997: 1) suggests that “low-balling” is “the most serious ethical
problem facing cultural resources management because it is often the impetus for
[other ethical misconduct in the form of employee relations, and the application of
inappropriate archaeological methods].” Further, he argues that the quality of work to
be expected from any CRM contract venture is directly related to the how much
money is awarded (ibid).

Other Ethical Considerations in and Implications to CRM

One field technician in my sample (3%) (reported earlier in this chapter)
indicated that they view the integration of CRM into multi-task firms as unethical.
Joel Klein and other private-sector and agency representatives agree. According to
Shuldenrein (1998: 32), while speaking at the PANYC forum Klein called for the
integration of a class on ethics in CRM into the industry to address many of the ethical
issues discussed in this thesis but specifically to arm less experienced CRM
practitioners with the knowledge of how many multi-task firms treat cultural resources.

Klein targeted multi-task firms as the largest threat to cultural resources because often cultural resources are secondary or tertiary priorities to the firm’s “larger ticket items” (Shuldenrein 1998: 32). Green and Doershuk (1998: 137) also agree and conclude that “MegaCorps” (a term used by them to describe multi-task firms) are allocating “a considerable portion of the money paid for archaeo logical services” to “support nonarchaeological endeavors and corporate infrastructure.”

SOPA certification was key to ensuring the “professional” (and therefore, qualified) status of individuals who wanted to embark on archaeological careers in the mid-1970s when CRM came into its own. Today, in theory, it seeks to represent the “standards and regulations” Schuldenrein describes by requiring that archaeologists meet specific criteria in order to manage and to interpret CRM investigations.

Because the practice of “low-balling” is still commonplace for an undetermined number of CRM practitioners, as are other practices perceived as “unethical,” it is clear that a different means for addressing ethics may be necessary, or that a more rigid enforcement of existing ethical standards and regulations is needed. Del Cioppo (1997) suggests that even though an archaeologist is SOPA certified, there is no guarantee that they will provide a “superior” or “acceptable product” nor that they will behave ethically. SOPA certification does, however, according to Del Cioppo (1997), “hinder ‘uncertified’ but possibly qualified archaeologists from making a living.”
In reaction to Del Cioppo’s accusations against the legitimacy of SOPA certification, Carlson (1997) argues that “SOPA is about accountability” and not about being “a member of the club.” He adds that the main purpose of SOPA was to establish a formal, responsible, and respectful process for regulating “professional” archæologists’ work (Carlson 1997).

The “Non-judgmental” application of Ethics in CRM

Two of the ethical issues targeted by field technicians (as reported earlier in this chapter) are especially worthy of discussion because they are issues raised by archæologists for over twenty years. These include “the overall treatment of field employees” (36%, n=13) and “using unqualified personnel to complete CRM field investigations” (8%, n=3).

Fitting felt in 1979 that a major ethical issue lies in the relationship between archæologists, and subsequently, the preservation of the resource. His characterization of archæologists prior to the emergence of CRM described individuals who “worked on projects for the sheer joy of it” and who never complained about the inherent repetitiveness of archæology, working long hours, or working for free on weekends. He adds: “One factor in the development of this attitude [that archæology is a mission of near religious intensity] was that archæology was a much smaller and different kind of field in past. It had little public utility and was shared by a few academic practitioners and a vast horde of hobbyists who envied the academicians” (Fitting 1979: 1-4).
In contrast, he describes the contemporary (CRM) archicologist as “refusing to work on weekends, quitting work at 5:00 each day, and refusing to put in any evening time unless, horrors, they were paid for it” (Fitting 1979: 1-4). Fitting suggests that when archology became a business the joy was removed because archicologists began to view it as a “job.” Further, he describes the archology of today as similar to commodities “bought and sold in the marketplace” which has resulted in many archicologists engaging in “some very unethical and inhumane practices” (ibid).

Realizing in 1979 that at many levels archology was making a transition from “problem-oriented research” to “a job,” Fitting argued that the archological community needed to respond to the transition by acknowledging that many in the field, primarily field workers, consider archology to be their job. Subsequently, the “normal” rights of employees, including a “living wage” and benefits, needed to be extended to laborers irregardless of the laborers’ theoretical edicts and research goals, or lack thereof.

Voellinger (1997) offers a contemporary perspective that supplements Fitting’s assessment of CRM in 1979. He adds:

We could pay our college graduates a poverty-level wage with little hope of career advancement, call them field-workers or even worse, strip away their dignity and force them to either live like migrant field laborers or get out of archology. Or, we could treat them like the professionals they are, and stop bidding on the unknown...

If we define archology as walking transects and digging dirt then the low-bid system works. If we are to investigate, integrate, formulate and interpret, to derive a professional opinion, then we should use another method of competing for projects (Voellinger 1997: 4).
Voellinger is directing the archeological community, particularly those in the CRM industry, to re-evaluate their place in archeological investigations and to re-evaluate the images of the past that they are providing the discipline. He also calls for the careful consideration of the role of archeologists, namely field technicians. Although he is at many levels discounting the importance of CRM investigations, he also focuses on the purported unethical practices of its managers. He also finds fault within the entire anthropology discipline for not taking a more active role in training future CRM practitioners.

Representing the Field Technicians' Voice: UAFT, ACRA, and Field Technicians

As this thesis has reported, many field technicians feel that they do not have a voice in decisions that effect their position in CRM archeological investigations. There are, however, organizations that seek to formally underscore the field technicians' voice for the rest of the archeological community. These organizations include an archeological field technician union and a CRM trade association.

Calls for the unionization of the archeological labor force to protect worker rights have been advocated for over 20 years. In a 1979 SAA paper presentation, Fitting states:

Obtaining these benefits, a minimum professional wage, better working conditions, paid holidays, vacations, sick leave, health insurance, and retirement programs, are going to increase the cost of doing archeology and these dollars will need to come from either an increase in funding or, more likely, a decrease in services provided per project dollar. The former will be impossible and the latter unpleasant. The mission is in effect, one of unionization of a migratory and largely voiceless professional labor force. What is most needed is an
Yet, unionizing efforts did not emerge until over a decade later and have culminated today in the United Archological Field Technicians, or UAFT.

Neither sample was polled in the questionnaires about their perceptions of the UAFT, or of archeological unions. I believe that had I pursued this line of questioning I would have alienated one or more respondents. Instead, the following discussion is built from published documents, personal statements, and on-going discussion relating to the UAFT.

The UAFT was organized in the early 1990s. A union brochure summarizes the UAFT's profile and mission statement:

The UAFT is an association of highly qualified Archological Field Technicians across the United States. This association is dedicated to the performance of the finest quality field work in the most timely fashion. This dedication is founded on the belief that only timely, professional work can protect this nation's fragile Cultural Resources within the political and business climate present today.

The membership of the UAFT has set specific goals for itself. [including] professional training [which includes] a combination of collegiate education and additional work related and classroom instruction. [going] toward certification by this association. This program will follow the guidelines of the United States Labor Departments Bureau of Apprenticeship & Training, and the recommendations of the Secretary of the Interior for work in this field (UAFT 1994a).

Additional benefits provided to member field technicians include health benefits and an in-house hiring service where UAFT representatives match field technician's and their individual level of experience to CRM positions, based on the needs of companies.

Surficially, it appears that the UAFT can provide field technicians with something no one else, to date, has been able to achieve - job security and health
benefits. Yet, job security is dependent on CRM companies using the UAFT’s hiring service. Likewise, health benefits are also contingent upon employers contributing to the UAFT once field technicians are hired, and field technicians contributing to the same. In addition, there are other considerations regarding the stability and legitimacy of the UAFT that place their reliability as a formal voice for field technicians in question. The following discussion details some of these considerations.

In 1994, “the underground” devoted a special issue of their newsletter to introducing their readership to two then new organizations - ACRA and the UAFT. The newsletter stated: “. . . we have reprinted various materials being distributed by the groups themselves to give you an idea about where they are coming from and where they are heading . . . Both of these groups are forming partially in response to the statistical information [indicates] where [technicians] stand as wage earners in comparison to other fields” (Kintz 1994: 1). Among the materials reprinted in the newsletter were the “Federal Government definition and job description of Archaeological Technicians for subcontractors” (Department of Labor 1965b), which was cited from the Service Contract Act (Department of Labor 1965a).

The UAFT has been vocal in the CRM archaeological community regarding the insufficiency of field technician wages. Further, UAFT representatives claim that field technicians receive low wages as a direct result of CRM companies’ business practices that are, in the UAFT’s opinion, licentious and illegal. The Federal Government’s definition and job description of Archeological Technicians are what the UAFT is using as the basis for their claims against the CRM industry.
The UAFT submitted an article, printed in the same edition of "the underground," entitled "The Big Shell Game: The art of making money by doing contract archæology." Following are excerpts that I have gleaned from the article:

... Many of us working as field technicians are not informed about the workings of the bidding process, or the way wage and overhead figures are arrived at. This article will explore these facets of our industry ...

... This article will attempt to explain how a company can collect $400,000 for an archæological project and pay out only $180,000 in wages. No, the missing $220,000 does not include money for travel, hotels, or perdiem (sic). Those expenses are directly billed to the client. Overhead is the amount of money collected by a company to cover undisclosed operating expenses. This overhead charge is the amount of money calculated as a percentage of the actual money paid out in wages, this figure is then added to the total bill and the profit percentage is calculated on the combined wage and overhead figures (UAFT 1994b).

The article then attempts to illustrate, using hypothetical figures, how a company negotiates its overhead expenses, ultimately pointing out that the bottom line overhead figures are in the UAFT’s opinion exorbitant. In addition, they then attempt to illustrate how field technicians, if they were employed in the construction industry, would pocket more of the billed expenses. The article continues:

... If these figures seem a little high to you, you’re not alone. If we were working in the construction industry [overhead charges are billed at a lower rate]. Why does the contract archæology industry need such high overhead rates? ... Every overhead dollar not spent becomes another dollar of profit. By disclosing this money as overhead it appears that CRM companies are only making a modest profit, when they are in fact making a huge windfall doing contract archæology.

The hourly rates, overhead and profit figures used in this article are a matter of public record under the terms of the Service Contract Act and the Freedom of Information Act ... The secret can not be kept forever. The only people doing this work out the kindness of their hearts are the field technicians. The companies are making plenty of money doing this kind of work ...
Exactly what should the overhead cover in the way of "undisclosed" expenses? It should cover the actual costs of doing business, any more than that borders on criminal profiteering.

The overhead money charged on any project should go to paying for the tax and workman's compensation contributions mandated for any company with employees. This money should also go to funds for health insurance, vacation pay, and retirement plans for the employees . . . This situation is known as "Bad Management" and this problem plagues the industry . . . The companies should be punished for bad management by going out of business. The field technicians should not be made to carry this burden for the "good of the resource" (UAFT 1994b: 3).

After this article was published, it quickly spread throughout the CRM community. The UAFT successfully voiced their complaints and demonstrated to CRM companies that they will take action against them. It should be noted that the UAFT's accusations against CRM were not discredited by industry managers in any way that is known to me outside of informal discussions between the managers themselves. Yet, according to many industry managers, the UAFT's interpretation of year-end company overhead and profit figures is erroneous (W. Kevin Pape, Personal Communication: 1994).

*Job Descriptions*

Many industry managers view the UAFT's reliance on the "Federal Government definition and job description of Archaeological Technicians" as invalid, illogical, or "out-of-date" for today's CRM. They concede that some of the job description characterizes the day-to-day responsibilities expected of field technicians, such as "utilizing a basic understanding of anthropological and archaeological field techniques in connection with locating, testing and evaluating cultural resource sites"
and, "searches areas of proposed projects for evidence of historic and prehistoric archaeo-
logical remains" (Department of Labor 1965b). Managers feel that other responsibilities listed in the description, however, are reserved for specialists including field and laboratory supervisors.

For example, the job description cites the primary job responsibilities of field technicians to include: "... conducting prefield office research ... [interviewing] source individuals ... [preparing] an archaeological reconnaissance report needed for evaluation and management of the project ... [reviewing] work in progress and [reporting] to superiors relative to completion date and other standards set in report. Cleans and catalogs artifacts recovered from inventories and excavations" (Department of Labor 1965b). For this reason, many industry managers have contested using this description and its attached wage schedule on their projects that rely on federal funding.

I asked field technicians to construct their own job description for a CRM field technician using their personal experience and responsibilities in CRM as a guideline. This was pursued to see if the industry was correct in its position that the government's job description does not define the work that field technicians do. The results are summarized as follows: artifact and feature identification (47%, n=17), physical endurance (47%, n=17), hand excavation skills (45%, n=16), compass skills (45%, n=16), data documentation (42%, n=15), ability to "get along" (39%, n=14), basic geologic skills (33%, n=12), tolerance for isolation (33%, n=12), illustration (31%, n=11), expedient excavation skills (31%, n=11), college degree and field school
(25%, n=9), willingness to travel (22%, n=8), mental stability (19%, n=7), screening fill (17%, n=6), and familiarity with legislation (3%, n=1). Ninety-two percent (n=33) of field technicians indicated that they rated a job description as “very important” to the successful completion of their jobs.

Individuals outside of the field technician class also agree that a job description is very important. One industry representative characterized the job description as follows: “When you write a job description, any job description, you must specify both training and experience as well as skills, knowledge, and abilities . . . I’ll bet that if we all wrote our own job descriptions, we would discover that we were underpaid” (Heite 1996). The responsibilities they listed to construct the field technician job description testify to the social, mental, and physical pressures that they confront.

It should be pointed out, however, that the UAFT has successfully used the “Federal Government definition and job description of Archaeological Technicians” in securing higher wages for some field technicians - specifically for UAFT members who are employed on federally-funded projects. For several years, they have filed suit against a handful of CRM companies for wages “owed” to them for work they completed on projects that incorporated federal monies. Some companies have been forced to pay back wages because the Department of Labor (hereafter, DOL) recognized the definition and job description as relevant to the work that field technicians complete, and more importantly because the 30-year old job description was all that they had to base their decision.
CRM industry managers have since moved to revise the job description, ultimately in an effort to curb further litigious action against them by UAFT members and to once and for all provide themselves and field technicians with a contemporary and relevant job description for individuals acting as field technicians. After more than two years of testimony by and negotiations between members of ACRA, the UAFT, the DOL, the United States Forest Service (hereafter, USFS), the United States Army Corp of Engineers (hereafter, ACOE), and the International Brotherhood of Operating Engineers (by whom the UAFT is locally represented), the DOL proposed revised position descriptions for archaeological technicians that were eventually adopted in 1997 (Department of Labor 1997a, 1997b, 1997c). The position descriptions are three-tiered so that, depending on experience and responsibilities agreed upon at hiring, field technicians' duties would be fairly represented in script and in salary.

The three-tiered position descriptions classify archaeological field labor as one of the following: Archeological Technician I (Crew member) paid at a the GS-4 rate (Department of Labor 1997a); Archeological Technician II (Crew Chief) paid at the GS-5 rate (Department of Labor 1997b); and Archeological Technician III (Field Supervisor) paid at the GS-6/7 rate (Department of Labor 1997c). Archeological Technician I represents crew members, or field technicians as they are defined in my research. Following is the official job description for this position:

Under the direct supervision of archaeological crew chiefs and under the general supervision of field director/project archaeologist performs unskilled and semi-skilled tasks at archaeological field sites. Duties include assisting crew chief in activities associated with the excavation of survey areas and found features,
walking over project looking for archological materials, screening soils, performing flotation of soil samples, back filling excavated areas, assisting in preparation of sketch maps, and assisting in field photography. Works under specific instruction for each assignment. Work is spot checked for conformance. (Department of Labor 1997a).

Although necessitated by the current climate of CRM field investigations described in this thesis, the job description for Archeological Technician I has not been entirely embraced by CRM company managers or by the UAFT. Members from both parties are dissatisfied with the DOL's interpretation of suggested job descriptions submitted by each to construct the final product. Also, many feel that the DOL's subsequent use of nomenclature in the job description fails to recognize the experience brought to CRM by field technicians (W. Kevin Pape, Personal Communication: 1999; Donna Bryant, Personal Communication: 1998). For example, the use of terms and phrases such as "unskilled" and "semi-skilled tasks" many feel do not fairly represent the expertise of most field technicians, especially those who have worked as field technicians for several years. In particular, many field technicians feel that descriptions such as this one will only add to the misconception that field technicians perform simple, manual-labor tasks and therefore, can be easily replaced by individuals with little to no archeological experience (Donna Bryant, Personal Communication: 1998; Steven Roberts, Personal Communication: 1998).

Further, field technicians were not afforded the opportunity to provide input during the creation of the job description. To my knowledge, aside from review and negotiation initiated by the UAFT, no other field technicians' suggestions and/or insights were solicited during the construction of this job description. It should be
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stressed that the UAFT does not represent the entirety of the field technician. It is therefore unclear that if by including the UAFT in the decision-making process, non-union field technicians' interests were fairly represented.

The UAFT states that their membership is approximately 500 field technicians—a number that they suggest to be almost 25 percent of the total number of field technicians currently working in CRM (or about 2,000 field technicians) (Brian West, Personal Communication: 1997). Aside from UAFT's official membership, these numbers cannot be substantiated. To date, no one has ever completed a census of field technicians working in the United States and her territories. And, the UAFT states in the History section of their union charter: "unfortunately the burn out rate of technicians is very high and a good chunk of the membership drops out of the field every year" (UAFT 1999). In sum, it is impossible to calculate how many individuals call themselves field technicians.

Archaeological Unions and their Applicability

Some CRM industry managers feel that the UAFT's tenacity reflects a decades-long battle between academia and the private industry. Some agree (Epperson 1998) that in order for CRM archaeological investigations to evolve every person engaged in CRM must have a voice in the considerations of CRM's future, including field technicians and by definition, members of the UAFT since they represent some field technicians.
After an annual ACRA board meeting in Denver in 1998 many topics were discussed including the future economic and social changes in CRM, the need for a workforce equipped with technology-based skills and the ability to apply them to CRM, and the need for finding common ground within the archeological community in approaches towards archaeology as a business. During the meeting, UAFT picketed outside in hopes of sending their message to ACRA members (and, by definition all CRM industry managers). One ACRA member sent a message to the ACRA-1 list for discussion. His message summarizes some industry managers' sentiments regarding the UAFT:

I have a confession to make: During the meeting I snuck out and chatted with the United Archaeological Field Technicians (UAFT) picketters (sic). To make matters even worse, I enjoyed the visit. The sample of people I met seemed like delightful and intelligent human beings. I discovered that I share an academic connection with one of the individuals. As an adjunct instructor at a community college, I recently joined the American Federation of Teachers (AFT), AFL/CIO, so there was even a tenuous union kinship. At least one of the individuals is involved in a project that would have made an excellent contribution to the discussion about the importance of conducting archaeology on twentieth-century sites (Epperson 1998).

Epperson adds that industry managers need to find “common ground” with field technicians because in all likelihood many field technicians will one day become industry managers. He points out that many of the industry’s perceptions of field technicians as unskilled or underqualified for CRM is not a result of class divisions but a result of the tension between academia and the industry. He argues that because many field technicians graduate from anthropology programs that do no prepare them for careers in CRM most of CRM’s labor force winds up lacking not only scientific knowledge of the discipline but also “the necessary communicative and administrative
skills” (Epperson 1998). Epperson provides no statistical basis for his argument but instead draws on his own experiences as well as those of his peers.

Finally, Epperson suggests that because many of the issues in CRM are of interest to everyone in the archaeological community, ACRA should take a leading role in including field technicians in their planning efforts for the future. Specifically, he suggests that future ACRA meetings would benefit from including members of the UAFT, archaeology graduate students, and academic representatives to discuss “benefits, wage rates, professional development and advancement, and educational programs” (Epperson 1998).

Epperson’s message generated few responses on the ACRA-1 list. One response, however, illustrates other industry managers’ sentiments towards the UAFT, or labor unions in general. In part, Joseph responds that not only should field technicians’ wages be examined but also compensation packages for everyone in CRM (including industry managers). He suggests that “cross industry comparisons” such as an “engineer’s pay” would be useful (initiating industry comparisons similar to field technicians’ comparisons to construction workers’ regarding “equal pay for equal work” discussed in Chapter 4).

But Joseph adds that, in his opinion, it is impossible for a business industry such as CRM and a labor union to coexist. He states:

Dealing with a union places a firm line of division between a company and its staff with hiring, communications, etc. all directed through union personnel. I do not think that this system works well at all in a CRM environment, where hiring is often done on short notice and with specific needs and where open communication between supervisors and excavators, analysts etc. is vital. I don’t think a union will ever be successful because of the basic nature of CRM’s
job structure - a union’s power derives from its ability to strike and strikes are of little consequence in an industry where most of the projects are short term and where there are abundant non-union works (sic) available as replacements (Joseph 1998).

He concludes that it is the CRM companies’ responsibility, and not a labor unions’, to improve field technician’s work environment (ibid: 1998).

Joseph strikes on a key element related to many field technicians’ claims that their contribution to CRM is undervalued when he states “... a union’s power derives from its ability to strike and strikes are of little consequence in an industry where most of the projects are short term and where there are abundant non-union [workers] available as replacements” (Joseph 1998). Field technicians’ claims are therefore founded when supplemented by statements that field technicians are supplants, and, moreover, reproducible as long as newly graduated archaeologists turn to CRM for jobs.

Resolving this argument may rest in the hands of the industry. As Epperson (1998) points out, the industry needs to initiate dialogue between themselves and field technicians if CRM is to evolve and to grow to meet the changing needs of the preservation community, and ultimately, national attitudes towards preservation. Joseph (1998) agrees that “open communication between supervisors and excavators, analysts, etc., is vital.”

Joseph also feels that labor strikes are an ineffective method of quality control in CRM because most projects are short-term. I disagree and argue that no matter how long a project’s duration, if field technicians strike the project is deadlocked. And for long term projects striking has minimally provided members of the UAFT a voice that
has reached the industry and some members of the general public. For example, in 1998, field technicians, which included many UAFT members, were laid off of a CRM archaeological project in Indiana with less than 24-hours notice. Aside from archeological investigations being temporarily shut-down, construction efforts were also halted on the river-boat casino site because the construction workers supported the union membership of many of the archeologists who had been laid-off and who were also picketing.

The September 16, 1998 edition of "The Corydon Democrat" reported that UAFT representatives were claiming that the field technicians were laid-off because of two class-action lawsuits filed against Indiana State University (the contractor) and Caesars (the client) by the UAFT. The UAFT claims that union wages were not recognized by the contractor and those paid were in violation of the union wage scale. Subsequently, the UAFT was (and may still be) suing for over $2 million to compensate union field technicians for back wages and punitive damages accrued since the project began (Cummings 1998: 1, 14).

Contrary to the UAFT's claim, Indiana State University representatives said that field technicians were laid off because "there wasn't enough work left at the site" and they stated that the lay-off was temporary and work was expected to resume in coming weeks (Cummings 1998: 1). Representatives for Caesars stated that no delays were anticipated because of the labor strikes. Laying off field technicians with little to no notice is not isolated to the Caesar's project. It is a reality in CRM archeology.
By definition, contract archaeology is bounded by negotiations between contractors (CRM firms) and clients (in this case, Caesar’s). At times, clients cancel projects with no notice for a variety of reasons. These reasons usually include changes in developmental priorities such as moving the construction site to another location but can also include changes that evolve from community concerns (i.e., landowners may successfully lobby against the construction of a gas pipeline through their backyards). In either case, the CRM contractor is forced to stop their contribution towards the project, subsequently leaving hired field crew without jobs. Some field technicians view such last minute management decisions as evidence that their role is insignificant, even if the decisions are outside of the CRM firm’s control, because they are forced by the immediacy of their unemployment to find work (which may or may not be available). It may be that Indiana State University faced a similar situation and that the UAFT is incorrect in their assessment of the lay-offs.

Whether or not the laying off of the Indiana State University crew was the result of such last minute client decisions, the field technicians were forced to find other CRM work at the last minute. Many UAFT field technicians stayed and picketed the site while others found work on field projects with other CRM contractors. The picketing by those that stayed as well as by many of the construction workers was effective in partially relaying to the industry and to the public some of the challenges of CRM archaeological field investigations. One field technician was quoted as saying: “this picket did what it was supposed to do - it got the word out” (Smith, cited in Cummings 1998: 1). “Getting the word out” underscores some field
technicians’ concern that they are being exploited, and attempts to remind the industry managers (on this project and perhaps others) that some field technicians want an active voice in decisions regarding their work.

CRM has reached a critical juncture where dialogue and negotiation can, in my opinion, resolve many of the underlying issues mentioned thus far without the formal instillation of a union. Others disagree (e.g., UAFT members). Although the UAFT probably does not represent the majority of field technicians working in CRM today, the field technicians that belong to the UAFT deserve as equal a voice as those that are not represented by a union because they are all field technicians whose experiences are similar in many regards. Resolution to those problems (such as deficient wages) for now is dependent upon union affiliation or negotiating independently with a CRM company.
Academia's role in preparing future CRM employees for their careers is important to this research. As I have stated in this thesis, many field technicians and industry managers feel that their undergraduate educations were inadequate and/or outdated and that most of their programs never prepared them or their peers to relate the theoretical underpinnings of the discipline that they learned in the classroom to the "real-world" practice in the field, or CRM (Zeder 1997a). This chapter explores one of the targeted labor problems related to this claim: The non-active role of higher education in preparing students for careers in CRM.

Curricula in anthropology programs have been scrutinized in recent years, primarily by CRM industry managers but also by some academicians. To summarize the standard claim of many industry managers (based on published work) towards the purported deficiencies of undergraduate archaeological curriculum, one CRM manager states:

"By and large, [university-trained archo1ogists] are trained to excavate square holes in idealized Phase III site settings. Clearly, this level of training is fundamental, but the fact remains that the vast majority of CRM work is Phase I survey and Phase II evaluation. Although some university programs are beginning to recognize this fact, we continually are forced to hire university-trained personnel who do not know how to use a compass, orienteer, count their paces, etc. (Branster 1996)."

Also, contemporary education has become a key focus of many professional organizations including the SAA and the SHA. Both of these archaeological organizations have coordinated task groups charged with the responsibility of focusing
on teaching archaeology in the 21st century (SAA 2000; SHA 2000). Many archaeologists, both academic and private-sector, are pushing for training that includes the why and the how of CRM, like policy and practice training (Schuldenrein 1996b).

Taking the Pulse of and Applying Conventional Training and Education

Field technicians indicated that 61 percent of CRM companies require a baccalaureate degree in anthropology or a closely related field (e.g., history) for hiring consideration. Of those, another 61 percent of companies also require that an archeological field school be incorporated into their experience portfolio. This number (the latter 61%) only represents the requirement of a field school for hiring consideration. Some companies may only require a field school and no degree while others may require both.

Of those that responded, a majority of field technicians indicated that their undergraduate curricula which led to the acquisition of a baccalaureate degree only provided them with the opportunity to seek CRM employment (89%, n=13). That is, by possessing a BA or BS degree, their chances for gaining employment in CRM increased significantly. Eighty percent (n=12) of respondents indicated that their degree was in anthropology. Of those, more than half (62%, n=7) felt that their undergraduate education was insufficient preparation for working in CRM, and the remaining (38%, n=5) felt that their education was beneficial training for CRM.

The remaining 20 percent (n=4) of respondents' degrees were not in anthropology, most agreeing that their undergraduate curricula was unsatisfactory for...
CRM employment. This could be a result of two factors: first, like most field technician responses, undergraduate curricula only provides minimal training for real world endeavors; or, since their undergraduate degrees were not in anthropology, course work and training would by definition not provide the needed emphasis on anthropological methods and theory. Finally, all of the respondents indicated that their archaeological field school provided them with the best preparation for working in CRM.

Field Technicians’ Skills

As stated above, field schools acted as the principal platform for archaeological skill and technique acquisition, or minimally, it prepared field technicians for CRM more so than did their classroom education. Most respondents indicated that they learned the following skills and techniques in their field schools: hand-excavation (47%, n=17), transit set-up and use (22%, n=8), cartography (19%, n=7), excavation tool identification and use (19%, n=7), lithic and historic materials recognition and identification (19%, n=7), soil analysis (Munsell reading) (16%, n=6), compass use (14%, n=5), and data recordation (14%, n=5). A smaller number indicated learning how to survey (10%, n=4), laboratory techniques (5%, n=2), and how to identify and to care for human remains (3%, n=1).
Advantages for integrating CRM Federal Preservation Legislation training into the classroom

Contemporary CRM archaeological investigations live by a body of legislation (see Chapter 1). For this research, it is important to consider what legislation, if any, field technicians have been exposed to or have used in their work. In doing so, knowledge can be gained regarding the alleged failures of academia in training future CRM practitioners and possibly why some field technicians feel alienated from the "upper-class" (management). This information can also help to explain, in part, how industry managers create(d) their perception of the role of field technicians (that again, according to field technicians, is to perform manual labor).

Field technicians were asked to enumerate what Federal preservation legislation that they are familiar with and that they recognize in practice while working on projects. The results were: National Historic Preservation Act, 1966 as amended in 1992 (80%, n=29); Native American Graves Protection and Repatriation Act (67%, n=24); Archaeological and Historic Preservation Act, or Moss-Bennett (33%, n=12); 1906 Antiquities Act (31%, n=11); Historic Sites Act (28%, n=10); and, American Indian Religious Freedom Act (14%, n=5).

Industry managers were also asked to describe the types of federal antiquities legislation field technicians should know or at least have been introduced to prior to working in the field. The following list represents their responses, in order, based on popularity: Native American Graves Protection and Repatriation Act (53%, n=10); National Historic Preservation Act (47%, n=9); Archaeological Resource Protection
Act, 1979 (21%, n=4); Executive Order 11593 (11%, n=2); American Indian Religious
Freedom Act (11%, n=2); and Moss-Bennet Bill, or Archaeological Historic
Preservation Act, 1974 (5%, n=1). In addition to these figures, 42 percent (n=8) of
industry managers felt that field technicians did not need to be familiar with any
legislation in order to fulfill their role as field technicians.

Because Title 1, Section 106 of the NHPA greatly influences CRM (see
Chapter 1), field technicians were asked to describe the greatest success and the
greatest failure of the Section 106 process. Answering this question implies that field
technicians have knowledge of the NHPA (since Section 106 is a part of it) or have at
least discussed the criteria for or recognize that they are participating in the Section
106 process. Ninety percent (n=26) of those that responded felt that its greatest
success has been the installation of required legislation that includes federally
mandating archaeological investigations where federal funds are used. The remaining
10 percent (n=3) were evenly divided - success was described by them as (1) the
establishment of a review process that is filtered through the State Historic
Preservation Officer (SHPO); and, (2) the creation of jobs for archaeologists.

When asked to describe the greatest failure of Section 106, field technicians
provided numerous responses that were almost evenly distributed. The two primary
failures indicated by field technicians were (1) forced compliance with pertinent
legislation that is driven by money (17%, n=6), and (2) the production of an
abundance of “gray” literature (literature that is not made available to the general
public or most of the archaeological community) (11%, n=4). Other failures of the
Section 106 process indicated by field technicians include, but are not limited to, an inability to deny federal undertakings (3%, n=1), a precedent set by the Federal government and carried out by CRM companies of meeting only minimum requirements (3%, n=1), and the disarticulation of review between states (3%, n=1).

As previously discussed (see Chapter 1), the NHPA and ARPA exist, in part, as a revival of national interest in and of priorities towards archaeological and historic resources. The NHPA’s and ARPA’s impact on archaeological investigations is great and they are the primary governing forces in CRM (and are joined today by the Native American Graves Protection and Repatriation Act, hereafter, NAGPRA). While only twenty percent (n=7) of respondents had never heard of the NHPA and 39% (n=13) had never heard of ARPA, it may be that some if not many of the respondents that indicated knowledge of or working knowledge of them is because they have spent considerable time working in CRM and therefore have seen first hand their application.

Also, it is my opinion, that the reason a large number of respondents indicated familiarity with NAGPRA (67%, n=24) is due to the fact that this piece of legislation and the attached Code of Federal Regulations (CFR) demands that the Federal government allocate funds to assist private and public facilities in meeting their federal obligations to the Native American community (NAGPRA 1990). Based on informal discussions with colleagues, I am aware of several field technicians who have secured temporary appointments with museums and other facilities to carry out the requirements of NAGPRA (some of whom probably participated in this survey).
Field technicians highlighted legislation that closely matched the legislation listed by industry managers. It is clear from their responses that some field technicians embody knowledge of legislation that directly relates to the work that they do, and legislation that (their) employers work with in CRM archaeological investigations. Familiarity with NAGPRA, for instance, may directly relate to its emergence in the past decade and the immediacy with which its statutes force compliance (NAGPRA 1990). Or, as mentioned above, field technicians may have worked in the NAGPRA compliance process. Some newly graduated archaeologists may also have been introduced to NAGPRA in the classroom given its recent genesis. Likewise, industry managers may have targeted NAGPRA for the same reasons and also because national attitudes towards Native Americans have shifted towards allowing them the opportunity to recapture their cultural heritage with limited governmental interference. In a sense, the status quo is being redefined within archaeology.

Field technicians and industry managers both prioritized knowledge of NHPA and ARPA. Yet, many industry managers did not feel that field technicians should be armed with a working knowledge of these two pieces of legislation. Since field technicians rarely, if ever, engage in preparing work proposals (where knowledge of NHPA is necessary), in protecting the resource outside of working as a laborer in the Section 106 process (where knowledge of ARPA is necessary), or in reporting the results of CRM investigations (where knowledge of Section 106 is necessary),
knowledge of antiquities legislation is clearly viewed as unnecessary by many industry managers (42%, n=8).

It is possible that the high number of industry managers who felt that field technicians did not need to know any legislation to perform their in-field tasks (42%) is related to how they perceive the field technicians' primary role in CRM. These industry managers are at one level implying that field technicians should only be charged with data collection.

As this thesis argues, if trained in a conventional program (one that does not include CRM curricula), it is possible that many field technicians can become alienated from "real-world" archaeology by not entering the field with a firm understanding of the work that they are completing. Without knowledge of the legislation or without being afforded the opportunity to apply it, they are in essence only qualified to perform manual labor tasks (e.g., hand/shovel excavation, data recordation). Field technicians can become removed from the broader process of synthesizing data and formulating meaning from their field investigations.

It is important to state that there is a learning period built into most employment positions and that it is unreasonable to expect newly graduated archaeologists to have heard of or much less to exact knowledge of all of the criteria that defines CRM. It has also been argued, however, that the level of training presently offered within academia is limited to non-applicable course work, truncated field practicums, and selective internship appointments (Zeder 1997a). Because the very nature of CRM investigations emerged from and remains governed by bodies of
legislation, it is reasonable to expect that entry-level employees, that is, field technicians, come to CRM armed with an awareness of this legislation (and possibly a working knowledge of the same) - a knowledge that can be acquired in academia.

Method and theory, concurrently, form the basis for all archaeological investigations. Graduating archaeologists who have trained in any anthropology program will have been introduced to and should have working knowledge of how method and theory work together. Yet, an archaeologist’s ability to interpret the past is dependent upon more than understanding methods and theories. There are rules and regulations that govern archaeology that transcend academic enculturation - these rules and regulations are the legislation.

The legislation defines why we are permitted to engage in archaeology; it defines who is qualified to do the work; and, it defines our responsibilities to Native peoples, to the nation, to the public, to science, and to each other. Defending the importance of requiring every member of the archaeological community (including field technicians) to know the legislation and to embrace it is moot - I propose that it ought to be implicit. Yet based on the results of the surveys, the differences between academic programs (which are discussed later in this chapter), and the low morale of many field technicians, it is clear that everyone is interpreting the need for legislative training differently.
How does Academia presently prepare future CRM practitioners?

The script, codes, and regulations enumerated within the legislation may not represent the types of material that can be realistically covered in an undergraduate classroom. There are, however, some applied anthropology programs and interdisciplinary programs that introduce students to the legislation. Aside from the need to familiarize students with legislation, there are many conventional courses that need to be abandoned and/or updated. Many of these courses focus on teaching skills that are important to any archaeological investigation but that remain without offering clear alternatives (such as skills used in CRM).

Field technicians were asked to describe the technical skills that they have acquired while in CRM. Most respondents indicated that they learned the following skills and techniques after graduation: cartography (44%, n=16), geologic processes (41%, n=15), lithic and historic material identification (38%, n=12), surveying (33%, n=9), electronic mapping (25%, n=9), compass use (22%, n=8), transit (22%, n=8), and unit/feature/artifact illustration (19%, n=7). Other skills learned from CRM employment include, but are not limited to, expedient survey and excavation techniques (19%, n=7), photography (16%, n=6), technical writing (14%, n=5), site interpretation (8%, n=3), equipment management (8%, n=3), and collecting and managing samples (e.g., pollen) (3%, n=1).

Based on their experience in relating academic training to “real world” expectations, field technicians were asked to design a training program for someone interested in pursuing a career in CRM. They provided a list of classes that they felt
were needed in undergraduate curricula and then ranked them according to importance and/or relevance to field technician employment. Some classes include, but are not limited to, an archaeological field school (30%, n=11), archaeological method and theory (25%, n=9), artifact analysis (specifically, lithic analysis) (6%, n=2), OSHA regulations (6%, n=2), geology with a focus on landscape morphology (6%, n=2), and survey techniques (6%, n=2).

As previously mentioned, field technicians indicated that 61 percent of the companies that they work for require them to have a baccalaureate degree in anthropology or a closely related field in order to be considered for a field technician position. The industry managers were asked to describe their minimum educational requirements for field technicians hired on to their projects. Sixty-five percent (n=11) of those that responded indicated that the highest level of education that they require of potential field technicians is a baccalaureate degree in anthropology, 6 percent (n=1) requires no more than a junior, or two-year, degree, 19 percent (n=3) require a highschool degree, 6 percent (n=1) accepts baccalaureate degrees obtained in a closely related fields (e.g., history), and no companies required or preferred graduate course work or a graduate degree. In sum, a baccalaureate degree, specifically in anthropology, is the most desirable and highest level of education required of field technicians by industry managers. In addition, 53 percent (n=9) indicated that they expect field technicians to have completed an archaeological field school in addition to their classroom anthropological training.
I constructed a list of classes that I believe are useful in contemporary archaeology, based on my experience and the experiences of my peers, academic advisors, and professional colleagues, and those listed in the “training program” designed by field technicians. The list was included in the industry managers’ questionnaire. Managers were asked to rank the classes, from most important to least important, envisioning that they were constructing a training program for students interested in pursuing careers in CRM as field technicians. Based on industry managers’ perception of each class’ relevance to either most important or least important in CRM, the results are as follows: Field Methods, CRM Policies and Procedures (which implies legislation), Archiological Theory, Historic Preservation, Research Design, Historic Sites Materials Analysis, Lithic Technology, Basic Geomorphology, Contemporary Native American Issues, Occupational Safety and Health, Theory of Culture, Ethnographic Methods, GPS/GIS, Statistics, Physical Anthropology, and Illustration Techniques.

The industry managers’ responses illicit several ideas about the academic expectations and ultimately applicable training of today’s field technicians. The majority of industry managers ranked training in areas that have traditionally been reserved for supervisory and management-level personnel. The characterization of what they expect from their field technicians that I reported earlier, when compared to the above ranked classes, creates conflicting conclusions. Since most managers do not expect field technicians to perform tasks not related to data collection, why then did
they assign the highest priority to classes that are typically used in supervisory and management positions (such as Research Design and CRM Policies and Procedures)? Perhaps the industry managers chose these classes because they understand that the more well-rounded an individual is in the discipline, the more likely they will successfully perform in the "real world." Or, the industry managers project that they will recruit future management personnel from their field crews. In addition, questions regarding the "why" (theory) and the "how" (methods) of the archological project should be answered within academia while enrolled in these classes (e.g., Research Design and CRM Policies and Procedures), whereas individuals who do not bring knowledge of these areas to their work in CRM may feel "lost" or "out of the loop."

Since industry managers have the benefit of "real world" experience, they recognize that their own careers may have progressed faster or less arduously had they themselves included this type of in-class training. This also assumes that they acquired the "what" (such as constructing a project scope), the "who" (defined by the legislation), and the "where" (such as within a ROW) after they exited academia. As Friedman (1996: 22) points out: "These are skills that our schools rarely teach us, skills that we usually must learn by trial and error - much too much error."

Voellinger adds: The task of cultural resource management includes a variety of skills that are not generally part of our academic background. It seems there is an assumption that everything that is beyond the academic curriculum will be learned by on-the-job training. Do these "applied" skills include interpretation? Do we need to know the difference in an MOA and a PMOA, or a Treatment Plan? Does it take any special training to learn how to integrate the information from all those courses..."
from four or more years of university training and apply them to an archaeological investigation. Should the university have taught us to write and apply a research design or treatment plan, select the appropriate methods to accomplish your goals of inventory, evaluation, data retrieval and analysis, and interpretation? Most of all, do we need to know anything about business or professional ethics? (Voellinger 1997: 2).

He concedes that much of the “professional” preparation future CRM practitioners need should be addressed within academia.

As potential industry managers and governmental agency representatives, if field technicians are formally introduced to the above “applied” criteria Voellinger cites during their undergraduate careers they probably will make the transition to their “professional” careers more easily than had they not. Also, during their graduate schooling, they should be able to refine the “applied” skills. This also assumes that they will choose to continue their education. As field technicians, the usefulness of Voelinger’s criteria in day-to-day CRM responsibilities may not be overtly clear but necessary, nonetheless, in providing them with a foundation for professional growth and development.

The Effects of Traditional Training and Education on Field Technicians

The classes chosen by the industry managers and the criteria espoused by Voellinger do not make up the standard curricula offered in many anthropology programs. The classes (or those relating to the general principles of the same) may be offered at universities but many field technicians indicated that their advisors never guided them towards enrolling in the classes. Typically, students were instructed to meet core requirements for their academic institutions and core requirements for their
anthropology programs. The usefulness of other classes (such as those listed by Voellinger and by industry managers) was never made clear to them while they were students. Not until they graduated and acquired positions in CRM did they realize the benefits of incorporating such classes into their undergraduate curriculum.

Feelings, like being "lost" or "out of the loop," can manifest themselves in a field technician's negative attitudes towards their employers and the industry. Subsequently, the relationship between field technicians and industry managers can become tense - particularly if field supervisors do not engage field technicians in the management aspects of the project (like the Research Design) or do not engage in "intellectual" discussions with them (defined here as discussions which include culture and human behavior and not "making sure holes are the right size" or "bags are labeled properly").

On the individual level, field technicians will feel further alienated if witness to any degree of "intellectual favoritism" that supervisors express towards field technicians that exhibit an understanding of the complexities of the archeological project (an understanding implied after taking any or all of the aforementioned courses). Whether they are lacking the skills necessary to offer "interpretative insights" about the project or whether they resent supervisors who favor field technicians that do, I purport that there is a direct correlation between professional preparedness and the relationship between labor and management.

The practicality of including Field Methods, Materials Identification and Analysis (lithic, ceramic, and historic), Basic Geomorphology, Contemporary Native
American Issues, and Illustration is obvious. Without an introduction to these types of classes, and others, future field technicians will be forced to "learn as they go."

Schuldenrein (1998: 33) adds: "Empirical skills including high technology, sophisticated sampling, heritage preservation, and public education should work their way into comprehensive archaeological programs . . . [because] on the job training is no longer practicable for freshly minted PhD’s beginning their careers on a CRM track." In addition to "freshly minted PhD’s," I assert that future field technicians (or, "baccalaureates") will also benefit from applied academic training and development. Bringing an understanding of these types of classes creates a foundation that can be bolstered through "real-world" field experience.

I agree with many industry managers’ opinion that other classes should be included in preparing archaeologists for CRM (e.g., Research Design and CRM-specific topics). Whether they devote the entirety of their CRM career to being a field technician, or work towards management level and agency positions, graduating archaeologists will benefit from this type of applied curricula. Minimally, they will understand before they graduate the options available to them. It is clear that steps need to be taken towards overhauling conventional curricula or creating alternative professional development programs.

Who is responsible for training students?

When asked who should be responsible for this training (for funding and for teaching the sessions), several responses were generated by field technicians. Most of
the managers selected more than one party so the following percentages represent their multiple responses. Seventy-two percent (n=26) agreed that academia should provide the training in classroom curricula; 50 percent (n=18) said that the individual should take responsibility for their own training because academia and the industry will not (either through taking classes offered in academic institutions or through other training forums); 44 percent (n=16) agreed that individual companies need to offer training; and the remaining 42 percent (n=15) felt that CRM as an industry should coordinate training programs.

Industry managers were asked who they felt should assume responsibility for training field technicians. Most of the managers selected more than one party so the following percentages represent their multiple responses. Ninety percent (n=17) selected academia; 63 percent (n=12) selected the CRM Industry as a whole while 21 percent (n=4) felt that individual companies could best manage training efforts; 16 percent (n=3) felt professional organizations like the SAA and SHA should initiate training programs; 11 percent (n=2) agreed that field technicians should take responsibility for their own professional development; and, 5 percent (n=1) stated that Federal Agencies, like the National Park Service, should carry the bulk of the responsibility for training field technicians.

Based on the popularity of their responses, the industry managers and field technicians agree that training should come, first and foremost, from within academia, but concede that others outside of academia could supplement institutionalized education with additional "hands-on" or "real-world" training. Academicians were not
surveyed to ascertain their opinions on this matter; future research will benefit from including their insights. In the following discussion, I examine the availability of training for field technicians. I have broken down training alternatives into two major categories: Academia, and Development of Training outside of Academia.

**Academia**

If most anthropology programs are out-dated as described by many members of the CRM industry, it is important to look at the types of curricula being offered to students in a large sample of anthropology programs in the United States and abroad. For my research, it was impossible to conduct such a survey. Future research is suggested to provide statistical insight into this area.

A rapid assessment study was, however, conducted by Burley (1993) and examined the integration of CRM in to anthropology curricula in North American universities (there were also limitations to his research as he points out in his paper). In an effort to define the level of “training opportunities at universities to reflect the necessities of a real world demand,” in the early 1990s, Burley wrote to 141 university anthropology departments inquiring about the presence or absence of CRM course curricula and the curricula’s focus, if present (1993: 1). Of those that responded (18%, n=25), 21 integrated training in CRM at some level in either upper-level undergraduate or graduate courses.

Burley (1993: 6) states that these CRM programs typically included the following curricula: “1) the relevance and values of a CRM philosophy, 2) the
legislative basis for archaeology, 3) processes and requirements of consultant archaeology including proposal and contract writing, significance assessments etc., 4) academic research and research design within CRM, 5) native issues such as repatriation and reburial and 6) public and avocational concerns.” He adds that over 50 percent of the schools reported concentrating on item 3 above - the “processes of consultant archeology.” Burley also found one department that actually “[brought] the experience as close to reality as possible” by “[imposing] a zero tolerance for late papers or projects as deadlines are considered an important part of resource management archeology” (1993: 7).

To approach the dissatisfaction expressed by the CRM industry towards conventional anthropology programs I decided to outline the curricula of three "applied" anthropology programs based on their aims to integrate interdisciplinary and "real-world" skills into academic environments. As previously reported (see Chapter 2), I selected these schools based on recent attention that has been paid to their anthropology programs by CRM industry representatives and by some academicians. They include the anthropology programs located at the University of Southern Florida, Michigan State University, and Sonoma State University in California.

*University of Southern Florida*

Graduating archaeologists from the University of Southern Florida were characterized by the following statement, made by a member of the CRM industry:

> Very few academic programs teach students what they need to know about contracting or life after school. Ones with "insitutes" (sic) being no exception.
One of the best examples of CRM training I have seen is South Florida. Unless something has happened in the last year or two, SF does not have a "contracting" arm, yet they turn out better students than any school with a contracting arm that I have seen. Their program works closely with private firms to provide internships and their thesis program involves developing a project from start (proposal) to finish (SHPO approval) with a private firm. The only problem with the program is that you can't find any of their students to hire since they are already promised by the time they graduate or start their own firms (Wheaton 1996).

The University of South Florida in Tampa offers undergraduates and graduate students the opportunity to combine traditional research and theoretical directives with contemporary archaeological objectives. Their “Center for Applied Anthropology” and their archaeology program and course work allow students to tailor curricula to meet their unique research and professional interests. It “is concerned with applying anthropological knowledge, theory, method, and perspectives to problems of contemporary society . . . areas of activity include human services needs assessment, program planning and evaluation, social and environmental impact assessment, and public policy analysis” (University of Southern Florida 1999). Archaeological research also introduces students to and provides them with the opportunity to work in settings that mirrors today’s archaeological environments.

Field schools have been completed in conjunction with the Florida Department of Transportation (FDOT), and with other development and contracting agencies to “[include] opportunities on large and small contracts” (University of Southern Florida 1999). FDOT experience has included “site testing . . . conducted in state road corridors across central Florida . . . at several right-of-way locations. . . ,” the results of which were “used to refine site location models and develop patterns of archaeological
Funding was also provided by the Florida Department of Transportation.

Course work instruction includes a variety of traditional classes including Introduction to Archology, Archaeological Field Methods, Laboratory Methods in Archology, and History of Anthropological Theory, as well as what appear to be contemporary classes including Sex Roles in Cross-Cultural Perspective and Rethinking Anthropology. Specialized training is also offered in Museum Methods, Florida Archology, and Historical Archology. These classes, combined with field work, foster the development of skills that are directly applicable to the contract arena.

Michigan State University

Michigan State's Anthropology home page describes their undergraduate program in archaeology as follows:

The anthropology major can prepare you for a wide variety of occupations. Our graduates have found jobs in government, in health care delivery, with museums, with nongovernmental organizations, and with industry as social analysts, translators, journalists, teachers, and community and resource use planners, both in the United States and abroad.

In addition, the major serves as excellent preparation for advanced professional study in areas such as law or business, as well as in anthropology (Michigan State University 1999).

In addition, they characterize their course work in archaeology to include training in: public policy and cultural impact assessment, including cultural resource management in archaeology, and studies of the impact of public policies on living people" (ibid 1999).
Michigan State University’s Anthropology Department has taken steps towards providing their majors with “real-world” skills because they realize that many will become CRM field technicians or work in a CRM environment. Their curricula has recently been revised based on “a panel discussion that was held at the 1994 SHA Conference . . . entitled Rumblings along the Rift: the Academy, CRM, and our Collective Future” (Gray 1997: 15). A program was organized “to evaluate and to revise their archaeology curriculum to reflect contemporary hiring trends” and Gray states the purpose of the conference “was to create closer working relationships between the university, government, and the private sector for training students in archaeology and historic preservation” (Gray 1997: 15). Members of the review discussant panel also included alumni and graduate students.

Alumni’s discussion provided the most useful insights into the demands of the archaeological workforce, since “many of them [had] already worked in cultural resource management as field technicians” and who wished to “discuss the means by which the university can produce graduates who are trained for today’s workplace” (Gray 1997: 15). In addition, members from the CRM industry, including Gray, also provided useful insights into the underpinnings of contemporary archaeological training. Gray (1997: 15) states: “Although the initial intent of the panel discussion was to open a dialogue concerning the real and/or perceived lack of communication between academia and cultural resource management, the majority of the discussion focused on the lack of adequate training by academia for nonacademic jobs.”
The panel concluded that additional meetings were necessary to formally discern suggestions and to develop the revised curricula. Several options were, however, discussed during the conference. Again, Gray states:

Among the options being considered by the department are taking advantage of courses currently offered by other departments, developing a 5- or 6-year professional degree program in cultural resource management, developing internships with government agencies and private companies, and developing intensive short courses on specific cultural resource management (CRM) topics” (Gray 1997: 15).

Michigan State acknowledged the schism between academic preparation and “real-world” demands by holding this conference.

It is clear that some members of academia recognize the need to revise current curricula to match the demands of the working world. The fact that “new blood” is emerging in academia may explain, in part, the development of applied programs like the one at Michigan State. Overall, some members of academia’s “traditional” guild are beginning to realize that they do not have to forfeit control of educating students; rather, they can help and in some cases are helping the discipline to evolve.

*Sonoma State University*

Another applied anthropology program recognized by members of the CRM industry as “taking steps to meet today’s job market” (Green and Doershuk 1998: 140; Len Winter, Personal Communication: 1997) is located at Sonoma State University. The courses offered in the anthropology program mirror many courses currently offered in “conventional” programs. Sonoma State does, however, offer its students
the option of integrating classes from outside of their anthropology major in an effort to develop professional readiness for graduation.

Aside from the "traditional" baccalaureate degree in anthropology, they also offer "The Special Emphasis BA in Anthropology." Their website describes this degree as follows:

"The Special Emphasis BA in Anthropology is designed for students whose academic and/or professional aims are not satisfied by the Department's existing degree program. The purpose of the Special Emphasis Major is to provide students with an opportunity to design, in consultation with an advisor, an individualized course of study emphasizing a particular subfield of anthropology, leading to a Bachelor of Arts degree. In this respect, the Program provides students with the option to pursue special intellectual directions in anthropology, and to respond to career and employment potentialities. For example, such directions include linguistic anthropology; applied economic and ecological anthropology; prehistory; human biology; and human development (Sonoma State University 1999)."

Like the University of South Florida and Michigan State University, Sonoma State recognizes the movement of the discipline towards multi-disciplinary development. By offering the "Special Emphasis BA," Sonoma State has desegregated traditional anthropology curricula by recognizing the unique needs and interests of each student—interests and needs which cannot be met by training every student in the same way.

The popularity of these three programs rests in their success at relating classroom education to the demands of the job market without sacrificing traditional theory-oriented instruction. Green and Doershuk (1998: 140) add: "M.A. programs at the University of South Florida and Sonoma State University appear to provide [training in ethics, preservation and conservation, finance, contracts, and personnel management, along with development of field, analytical, and report-writing skills] along with the essential theoretical grounding in anthropology."
Students come to know that they will leave these programs with “above-average” preparation (the benefits of which are discussed throughout this thesis). Also, because the faculty at these institutions are using the classroom to relate archaeology to the “real world” and because they probably bring to the classroom their experiences working in the same, it is implied that all classes are influenced by the applied learning process (even if some classes focus on traditional knowledge). That is, it is expected that no matter what class a student enrolls in they will be introduced to the application of academic training to non-academic endeavors.

Other Applied Programs

There are other schools in the United States that have integrated applied foci into their curricula, and even more that are negotiating for change. Yet, as I have stated, it is impossible to describe the curricula portfolios of those institutions in this thesis. I will, however, provide the comments of one academic archaeologist regarding his institution’s CRM training:

For many years now at the College of William & Mary, the anthropology department and its affiliated Center for Archaeological Research, has provided students with classroom and internship (sic) opportunities specifically designed for CRM training. The class we call “Practicing CRM” provides a review of legislation and process. Assignments include preparation of a basic survey proposal and professional-quality survey report using “real” results. More importantly, we foster the all important perspective founded on a preservation ethic, professional ethics, efficient practice, effective decision-making, etc. This summer internships place a small number of students in a CRM setting - in the field and lab and office. By all accounts our students have performed well in private-sector jobs with this background. There will never be a substitute for work experience but it is possible to send students on their way with a good working knowledge of the profession and a healthy respect and appreciation for what we do outside traditional academic research (Blanton 1999).
Rigorous adoption of an applied focus into anthropology programs can better equip graduates to deal with field reconnaissance projects by affording them the knowledge base necessary to begin reconstructing and interpreting the past (as espoused by industry managers and by the curricula at the schools described above). The CRM industry can be confident of employing a more capable, reliable, and perhaps conscientious group of archologists.

Huckerby (1999) also supports forcing academia to discontinue the “quiet attempts to reinforce a separatism between itself and CRM.” She adds:

“Academia loses [a lot of opportunities] both on the practical and the theoretical level... primarily because of the emphasis on specialization.”

What is the value of being able to recite 10,000 years of typologies for a 4,000 square mile area when you can’t determine the relationships between those implements and the locations they were recovered? (Huckerby 1999).

A field technician’s “real-world” preparation in applied programs will afford them the opportunity to engage in both the manual aspects of a project, like data collection, as well as the interpretative aspects once they enter into the field. By combining interpretive responsibilities with the often repetitive manual labor that is commonplace in field work (as described by field technicians in my survey), it is likely that morale would improve and rapport would improve between industry managers and field technicians.

CRM courses and textbooks

Adopting an applied foci implies the inclusion of courses in CRM. Industry managers as well as academicians have engaged in numerous discussions related to the
necessity of such classes, but more importantly, they have discussed the need for a CRM textbook. Industry managers were asked if they agreed that such a text was necessary. Of those that responded, 95 percent (n=17) agreed that it was not only necessary but integral to training the future members of the CRM community, as well as individuals already working in CRM.

Most archaeology textbooks only discuss CRM in passing (Ashmore and Sharer 2000; Hester et al., 1997). Because legislation relevant to CRM investigations is being revised or passed into law in recent years, the need for an up-to-date CRM text is important. Even though the majority of industry managers feel that a CRM-specific text needs to be written, there are different opinions amongst industry managers and academicians on how CRM should be taught. Black (1999) states:

Some of the most successful activities I assigned students in an introductory CRM course (mostly, but not exclusively archaeology) taken by upper division undergraduates and graduate students required them to interact with CRM professionals. In particular, I had each student interview a different CRM professional (that I chose from contacts who agreed [to] be interviewed) to find out what they did in CRM, how they got to their present position, positives and negatives of their position, and what they would recommend to a person embarking on a CRM career . . . This assignment and the student interactions with a diverse set of guest speakers from CRM world were the most successful parts of the course (so said the students) (Black 1999).

Another academician describes her classroom focus:

It has been more successful to have them learn by doing things - fill in a site survey form, write up a feature from someone's old field notes, evaluate a phase I report based on our state guidelines, scope out a project. Not because I want them to think they are now qualified to do these things without lots more training and experience, but because this is a way to teach them about the ambiguity of the CRM world (Chiarulli 1999).
Because there are varying opinions regarding the standards for teaching CRM, there are as many varying opinions regarding the type of textbooks appropriate for teaching it.

The call for a CRM text is not recent. After his rapid assessment of CRM in North American universities, Burley (1993: 8) states: "If there is anything that can be stated with certainty regarding resource management in the classroom, it is the clear lack of a textbook. Though most courses had assigned texts, in every case considerable numbers of supplementary readings were required to meet the needs of the professor." Some instructors consolidate articles that have been published about CRM into a reader; others use government publications that define the legislation; and some will use books that illustrate how, in practice, the legislation is applied.

Culling CRM publications, the outdated from the up-to-the-minute, is not an easy task. It is ambitious to assume that academicians and CRM managers will completely agree on what constitutes the perfect CRM text. A new book, however, was recently published entitled "Cultural Resource Law & Practice: An introductory guide" (King 1998). The author's archological career spans over 30 years including having worked as a field archologist, a historic preservation consultant, in the academy, and as an archologist for various Federal agencies (King 1998: 303). He also teaches Section 106 workshops for government employees and private consultants. Given King's vitae he is satisfactorily experienced to coordinate a CRM text or minimally to offer cautionary tales.
The book has been met with positive reviews by many individuals within the CRM community (Niquette 1999). Yet, because it was published so recently, only a few academicians have tested the book in the classroom. One academician teaching a CRM class noted that she felt the book is appropriate for graduate-level or experienced students but that most undergraduate students (who have only taken a “basic archaeology” class and a field school) will not “understand the book” because “the world of laws and agencies and the difference between state agencies and federal agencies is [different]” (Chiarulli 1999). The author later stated that he did not write the book for undergraduate audiences (King 1999). Based on King’s response, an undergraduate guide to the same is needed.

Field School Programs in North America

As I reported earlier in this chapter, field technicians and industry managers indicated that supplemental to a baccalaureate degree, completion of an archaeological field school is highly desirable for job consideration. It is therefore necessary to look at the methods and techniques included in today’s field school instruction. As previously stated in Chapter 2, for this thesis it was impossible to complete such a survey. Future research will benefit from surveying field school curricula to assess the perceived gap between field school training and CRM. Since future field technicians will be trained in conventional and applied programs and in a variety of field school environments (research-oriented vs. contract), it is necessary to examine other training
that has been or that is currently made available to them that can bring their skills to a competitive level.

Developing Skills outside of Academia

Training Initiatives in the Past

Formally training “archaeological technicians” outside of academia began when CRM came into its own. The United States Forest Service, for example, initiated a training program in 1975 in Wenatchee, Washington. As discussed in Chapter 1, the passing of the Archaeological and Historic Preservation Act in 1974 was followed by a large demand for archaeologists who could apply a working knowledge of the legislation as well as meet project deadlines and work with often insufficient budgets. Academic archaeologists were often not prepared to meet this demand because most were trained to conduct “pure” research and “huge contracts in distant places [became] administratively impossible to coordinate” (Sims 2000).

The need for people was immediate so the Forest Service decided to train their own staff, including Park Rangers. By arming the Forest Service employees with legislative criteria and the basic skills necessary to recognize sites, to fill out site forms, and to channel the information to the appropriate agency personnel, they were “buying time” until sufficient funding became available to hire “real” archaeologists (those that could synthesize the data and interpret the findings) (David Brauner, Ph.D., Personal Communication: 1999).
There was a concern, however, amongst most of the archaeologists who were charged with training the Forest Service employees. They wondered if the Forest Service would enroll their employees in the two-week training session and then assume that their staff was adequately trained to handle archaeological resources (David Brauner, Ph.D., Personal Communication: 1999). Ultimately, the Forest Service would never hire professional archaeologists and instead use their staff to manage their cultural resources. Many professional archaeologists were eventually hired but as many positions remained filled by Forest Service employees who came to work with cultural resources only after having taken the two-week training session.

The development of Wenatchee training program, and others like it, saw a parallel evolution with the emergence of private consultant archaeology. Agency hiring began to slow down in the late 1970s; some archaeologists (Ph.D.s, and Masters) found work at universities but some started their own consulting firms. Many of these individuals have been characterized as “creative” because ultimately, they were working on Federal land only this time the work was being contracted out to them by Federal Agencies (David Brauner, Ph.D., Personal Communication: 1999). There was no longer a need to obtain a full-time job with Federal agencies; rather, they could successfully do archaeology as consultants. With that, the CRM industry took off.

Aside from the Wenatchee training initiative, I am not aware of previous attempts to train CRM archaeological technicians. I expect that other regions in the
United States integrated similar programs, particularly in regions in the west (where a majority of Federal land is located).

*The Availability of Contemporary Training*

There has been an increase in training courses offered over the last twenty years. Some training is currently available through the National Park Service (hereafter, NPS) and Environmental Systems Research Institute (hereafter, ESRI). Yet, many of these training workshops and seminars are costly and likely not affordable for the average field technician. The NPS annually distributes the “Cultural Resource Training Directory” that lists numerous classes that may be of interest to field technicians for their professional development.

For example, one class offered is “Recent Advances in Archeological Prospection Techniques” and is intended to teach archeology “professionals” and students about “recent advances in . . . electronic survey equipment, geophysical equipment, and aerial photographic methods available for the identification, evaluation, and preservation of cultural resources” (DOI 2000: 13). The cost of the class is $475 but is only offered in Tucson, Arizona. Field technicians would need to pay for the class, the round-trip travel expenses to Tucson (if they did not live within commuting distance), and meals and lodging. GIS and GPS training offered by ESRI is considerably more expensive (ESRI 1997).

Another possibility for field technicians to acquire CRM-related training is by attending professional meetings. Organizations like the SAA and the SHA typically
offer training seminars prior to and during their annual meetings (e.g., Section 106
classes are offered by a CRM professional). Again, field technicians would need to
travel to the conference city, and pay for the class, conference fees, lodging and meals.

Attending paper and poster presentations at these meetings also offers field
technicians and students some useful insights into academic and CRM archaeology,
related technology, and other areas of research explored by organization members. In
order to attend these meetings, individuals have to pay an organizational membership
and conference fee that also may not be affordable for them. Students are given
significant discounts but no special allowances are made for field technicians. In my
opinion these meetings are a valuable resource and the best way to integrate “real-
world” training into their education because once the fees have been paid access is
unlimited to hundreds of presentations that span several days.

In addition, professional meetings are held independently by states and regions
(e.g., Association of Oregon Archaeologists Annual Meeting and the Northwest
Meetings). Here too field technicians and students have the opportunity to supplement
their academic training by witnessing the application of archaeology to the “real-
world” by “professionals” in the field. The advantage of attending state and regional
meetings for students and field technicians is that they usually cost significantly less
and presentations tend to focus on regionally-specific research conducted in
geographic regions that students and field technicians are or will likely work. Other
types of contemporary training are not known to me but likely exist.
Based on my experience, I believe that some CRM companies are in a strategic position to offer at least local field technicians some job-related training. As a full-time employee of a CRM company, I was afforded the opportunity to participate in several in-house training seminars taught by staff. The classes were held during the winter months because this is when the company experienced "down time." Some of the classes taught by in-house staff included "Basic Geomorphology," "Ceramics Analysis," and "GPS." Although I was not working in the field at the time, I found these classes to be highly beneficial. Some field technicians would have also benefitted from similar training but because they were not full-time employees they did not participate in the program (because most lived out-of-town).

Training Field Technicians: Evaluating their individual strengths and weaknesses

It is unknown to what extent a field technician can process the minutia of CRM prior to applying it on the job. Because human's capacity for learning (synthesizing and applying) varies, field technicians were asked to describe which method of instruction relates best to their learning capabilities. Eighty percent (n=28) indicated they were kinesthetic learners; that is, they relate best to hands-on experience. Eleven percent (n=4) indicated they are visual learners (they relate best to imagery) while the remaining 9 percent (n=3) indicated they were auditory learners (they relate best to verbal commands).

Since field technicians enter learning environments with different strengths and weaknesses, classes geared toward providing students with contemporary training
should be considerate of difference. For example, a student/field technician who is a kinesthetic learner would probably benefit more from an internship appointment, such as an assistant to a review and compliance officer. Likewise, a student/field technician who is a visual learner would probably benefit more from research-oriented projects.

The data and discussion presented in this chapter demonstrates the many perceived CRM job-related training weaknesses that students face in academia and that field technicians have faced and continue to face in the industry. It is clear that because field technicians, industry representatives, and academicians each have opinions about the role of academia in preparing students for careers in CRM, resolving this issue is difficult.
Safety legislation and regulations have been drafted that seek to protect the health and safety rights of employees. Every employer is required by law to protect the health and safety of their employees (i.e., adopting Health and Safety plans). This includes CRM employers. Yet, there have been numerous complaints by field technicians and by industry managers (both in conversation and in the published record, as reported in this chapter) regarding a lack of health and safety protection for archaeologists.

This chapter explores the final targeted labor problem, related to the above claim: Non-standardized and non-regulated safety controls. First, cautionary tales from members of the archaeological community are offered (in part, based on personal communication). Field technicians' and industry representatives' responses to questions regarding the health and safety of archaeologists are reported. In addition, I provide a report that defines the inherent threats and dangers archaeological investigations pose to personal health and safety and offer suggestions that establish procedures for protecting the same. Some of the hazards of fieldwork including traveling and excavations, some of the hazards of laboratory work, and specific examples of how archaeologists have encountered illness and injury in the field are explored. In addition, insight into safety education is discussed and a workplace illness and injury prevention model is presented.
Safety in the Workplace

What is Safety?

At a basic level, we have all been introduced to the concept of safety. Whether through parenting or actual on-the-job experience, safety awareness has made a profound impact on our ability to discover, create, and control our environment. Safety can be defined as follows: “The minimization of injury and loss resulting from non-deliberate acts such as accidents and natural calamities” (Worwick 1975: 2). Through safety education, this “minimization” can be addressed by detailing the habits, skills, attitudes, and knowledge of human experience which are conducive to safe behavior.

Worwick adds: “[Humans] will continue to take risks in the interest of progress. That progress will bring new hazards with which [they] must cope. But [they] must evaluate those risks, eliminate those [they] can, and compensate for or control those [they] cannot eliminate. Failure to do so will allow accidents to continue to plague our society” (1975: 7). His statement illustrates the need for every individual to be introduced to and to be competent in safety in order to provide themselves as well as their peers with a safe environment, particularly during employment.

Accidents in the workplace are not strictly fortuitous mishaps. They are often caused by inefficient business policies that generate incompetent employees. There are five primary causes of accidents: Inadequate knowledge, insufficient skill,
environmental hazards, improper habits and attitudes, and unsafe behavior (Worwick 1975: 23-25). Inadequate knowledge and insufficient skill are two causes that can be controlled at the corporate level. In order to avoid hazardous situations and react properly when caught in such a situation, an employee must be trained to recognize unsafe activities. In addition, attempting to perform tasks beyond one’s ability level creates high risk situations. Therefore, individual strength, fatigue, attitudes, and emotions should be taken into consideration prior to delegating work assignments.

Improper habits and attitudes are a direct result of a divorce of theory and practice. Although an individual may understand the primary tenets of accident prevention, for reasons within or beyond their control (i.e., apathy or overwhelming emotions) they have ignored their role in safety. This can also be said for unsafe behavior. Worwick notes: “[Unsafe behavior] is the end result of [an individual’s] failure to develop proper habits, attitudes, and knowledge concerning safety” (1975: 24). Further, safe behavior also entails avoiding, when possible, high-risk situations. Finally, environmental hazards can critically affect all of the above. Often, these hazards are beyond our control and only through awareness and recognition training will accident prevention be possible.

Why Safety?

Safety is practice. In the workplace, safety initially operated under the auspices of Worker’s Compensation. Here, responsibility for accidents was acknowledged through the establishment of a program that provided the injured party
economic relief for income lost due to workplace illness or injury. This program did not, however, create a code of regulations that prevented those accidents.

In an attempt to prevent workplace injuries, the Occupational Safety and Health Act (hereafter, OSHA) was passed into law in 1970. OSHA “calls for all employers to comply with occupational safety and health standards promulgated under the act, and in addition employers must provide each of their employees with a place of employment free from recognized hazards that are causing or likely to cause death or serious injury” (Worwick 1975: 106). OSHA regulations have been created for a plethora of workplace environments including, but not limited to, Construction, Agriculture, Forest Activities, and Underwater Activities. It’s greatest success has been in the overall reduction of workplace accidents and illnesses; it’s greatest failure has been its lack of protection for all practitioners of interstate commerce.

There are no OSHA regulations that specifically govern archeological investigations. When appropriate, archeologists “borrow” regulations from Construction, Agriculture, Forest activities, and Underwater Activities (for submerged – not specifically archeological resources search and recovery). It should be noted that traditional archeological excavations are closely wedded to most activities covered under OSHA. These include trenching and shoring. By the fact that governing legislation has not specifically addressed archeology as a work environment needing regulation, safety is often overlooked by academicians, industry managers, and field technicians.
Cautionary Tales

Legislation, as evidenced historically and contemporarily, is created to fulfill a deficiency. In the case of archaeology, the rampant looting of the American Southwest by foreign constituents saw the installation of the first piece protective legislation, the 1906 Antiquities Act (see Chapter 1). In the case of workplace illness and injury increasing on-the-job fatalities promulgated safety legislation - OSHA. The need for governmental regulation is brought to the public’s and government’s attention through accounts of personal experience and typically, the sum of several experiences, which often result in legislation. Unfortunately for personal health and safety, awareness and prevention programs and legislation came after the reality of on-the-job injury had played out over and over again in the workplace.

Archaeology has its own collection of personal injury accounts. If collectively taken into consideration, these experiences may spur productive safety communication within the archaeological community and more importantly safety legislation that specifically targets archaeological investigations. The following passages are a sample of those accounts.

"Hard-Hat Archaeology"

In October 1995, a CRM firm was conducting archaeological investigations. An unhappy landowner contacted OSHA and this firm was subject to a “surprise” inspection with resultant fees of almost $12,000. Among the citations were a lack of personal protective equipment, a shoring system, a hazard communication program,
and the improper location of spoil piles which were adjacent to excavation units. The firm's owner saw his fines reduced to $500 after a meeting with OSHA but now his company has moved to "the top of list" of OSHA's future inspections (Niquette 1997: 15-16).

"CRM Project Worker Strike"

Another problem was unsafe working conditions. [They have] little regard for your safety. OSHA has visited the site two times, and cited them for various violations. There was an extremely high injury rate on the site. Over the summer when we were pushed the hardest, many people had repetitive motion injuries. The deeper components of the site are clay, and can be very difficult to excavate. If you are seriously injured on the job, good luck. The head of Humans Recourses (sic) for [them] dictates how much money can be spent on medical procedures, and several employees have had to resort to obtaining a lawyer in order to get the medical treatment they desperately needed (Anonymous 1998).

Runaway Suburban, or not?

A few years ago I was working on an excavation project out in the middle of nowhere. Our field supervisor was usually on site during the morning and late afternoon, but the crew could depend on him being gone for about 3 - 4 hours midday. The site was a late Archaic site, and most of the deposits were shallow (we were working in the desert). But the horizontal distribution was fairly extensive. As a result, our backdirt piles were enormous, especially after 10 weeks of excavating.

Usually around 1 or 2 in the afternoon, the crew got restless - "duct-tape ball" was a favorite past time. One afternoon, a few of the guys decided to show us some Hollywood stunts. The three of them got in the Suburban and drove about 1/4 mile down the access road that was adjacent to the site. Then, they turned the vehicle around, one of the guys got on the roof, faced forward, and held onto the window wells, and another positioned himself on the hood. The driver then floored it. Speeding down that road, and coming straight for the site, the crew all sat "slack-jawed" - nobody said a thing. Finally, just before reaching the site, the driver quickly turned the wheel to the left and braked - the two guys flew into the air and both landed in the middle of a backdirt pile. They crawled out of the sand, whooping, laughing, high-flying each other.
In hindsight, the crew realized that what those guys did probably wasn’t too smart. Fortunately, they landed in big piles of sand. I’ll never forget it . . . I wonder if those guys ever made it to Hollywood? (Matthew Steinkamp, Personal Communication: 1998).

Just Holler’ if you Need Help!

I worked on a project where we excavated “telephone booth units.” The techs were expected to excavate 1² meter units, as deep as 3 to 4 meters down. Yes, 3 to 4 meters! We were working in sorted alluvium, so the light, fluffy stuff was on top. I remember walking up to one of these units and asking the guy where his dig partner was. He groaned and said “down in the hole.” Not believing him, I peeked over the edge, and further over the edge, and further over the edge and finally saw this guy way at the bottom.

I couldn’t believe it. I looked at the guy standing next to me and asked “why hasn’t the unit been expanded? What happens if the walls begin to collapse?” He proceeded to tell me that he asked the field director the same questions. Apparently, the field director said there wasn’t enough time to open additional units. The director told the guy in the pit that if the walls began to collapse, to “just holler’ if you need help and your dig partner will reach in and pull you out!” Everyone hated the company after that. (William Calhoun, Personal Communication: 1992).

“Does anyone have any case studies, advice, etc. on dealing with archaeological sites contaminated by hazardous waste?”

Situation: The surviving remains of a shell mound were contaminated by arsenic and lead over a period of 90 years by industrial [facilities] built over the site. The area is now scheduled for "remediation"and redevelopment. The powers-that-be are requesting advice on how to deal with resource conflict - remediation of the hazardous materials (excavation of the contaminated sediment and removal to an approved dump site) versus destruction of cultural materials. Site is also known to contain Native American burials. The EIR completed for the project requires the development of a plan for archaeological monitoring of subsurface construction and "treatment" in the event of a discovery. How to resolve the conflict? (Busby 1999).

These stories reflect a troublesome trend - that an archaeologist’s safety is always in question. Safety can be accomplished through a variety of means but
paramountly through the encouragement of management. Once a company has prioritized safety, they can begin to identify known hazards and Workplace Injury and Illness Prevention Programs can be instituted. Then, they can begin the training process. The prevention program is crucial in the safety process and is discussed later in this chapter.

The Field Technicians' Report on Safety

Crucial to this research is the role of worker safety. The feelings of alienation harbored by some field technicians (as discussed in this thesis) can be enhanced by a lack of safety programs in place to protect them from hazards to their personal health and safety while working on CRM archological projects.

Based on a general assumption that a CRM company is complying with standard field practices, many companies make certain adjustments to their field methodology, and ultimately their project budgets, to compensate for known hazards to employee health and safety on field projects. This may include, but is not limited to, provisions for investigations conducted during hunting seasons (i.e., safety vests), in forested environments (i.e., hard hats), and in deserts or swamps (i.e., shin protectors against snakes). In addition, many, if not all, companies provide standard equipment for use during projects such as first aid kits, mobile phones, and potable water. There are, however, many hazards that are not taken into consideration, known and those not realized, during the planning phase of field investigations. These hazards are addressed below.
Illness and injury on field projects was the focus of several survey questions. Field technicians were asked if they had ever received worker's compensation benefits for an illness or injury obtained while working on CRM project. Thirty-three percent (n=12) of respondents indicated that they had received benefits (and make up the sample of respondents to questions regarding worker's compensation). When asked to describe the illness or injury, most field technicians indicated a non-life-threatening illness or injury. Allergic reactions to a variety of things including bee stings and poison oak (25%, n=3), major cuts (requiring stitches) (25%, n=3), and muscle/bone sprains and strains (25%, n=3) accounted for a majority of reported illnesses and injuries that forced them to miss work. Other maladies included minor cuts (17%, n=2) and back injuries (9%, n=1). Time missed from field projects ranged from no days to over thirty days. Fifteen percent (17%, n=2) missed over thirty days of work due to back injuries. Yet overall, those injured required field technicians to miss only one or two days of work.

Field technicians were also asked to describe the circumstances that led to the illness or injury. Of those field technicians that reported job-related illness or injury, forty two percent (n=5) stated that their illness or injury was a direct result of job protocol; that is, they were fulfilling their duties as a field technician. This included clearing vegetation during survey or excavation (that can lead to encountering poisonous plants, beehives, and sticker bushes that can tear skin), building or setting up stations over units during inclement weather (such as Weatherports©), and repairing field equipment.
Seventeen percent (n=2) described repetitive motion activities causing their injury. For example, digging multiple shovel tests for extended periods of time can often lead to minor and serious neck and back injuries. It is my opinion that repetitive motion injuries can be lumped together with injuries incurred as a result of job protocol. Many survey projects require the excavation of many shovel tests (the average field technician may excavate as few as 10 or as many as 100 plus on a field project). Seventeen percent (n=2) admitted that their injury was a result of their using field equipment improperly. But, they also stated that the company failed to provide them with task specific equipment which forced them to “make do” and resulted in their injury. Seventeen percent (n=2) admitted that their injury was a result of horseplay in the field. Finally, 8 percent (n=1) indicated that their injury could have been avoided had the company provided personal protective equipment (hereafter, PPE), such as dust masks, hard hats, and/or goggles.

Seventy eight percent (n=28) of field technicians surveyed are familiar with OSHA. Their individual interpretations of OSHA, however, varied. One-third (33%, n=12) understand “the basic idea” behind OSHA. That is, they knew that OSHA is a federally mandated piece of legislation that protects workers from on-the-job hazards. They did not, however, indicate knowing any specific code of regulation pertaining to worker safety. Twenty-five percent (n=9) indicated that they were very familiar with OSHA regulations, specifically those codes that pertain to excavations. This group also noted that they rarely saw companies implementing safety plans to protect workers. Another 6 percent (n=2) felt that OSHA regulations pertaining to subsurface
investigations were too strict and that specific codes needed to be revamped to accurately reflect the work archaeologists complete. Twenty-two percent (n=8) said that OSHA meant nothing to them or to their field work. That is, they did not know that they had rights as employees to be provided with a safe work place.

Working in the field, field technicians are strategically positioned to make informed observations about field work. Aside from critiquing field methodology, they also observe known, or potential, threats to worker safety as well as actual violations of workers' safety protection. Field technicians were asked to describe the most important safety issue facing CRM archaeological investigations. The list that they generated is diverse and extensive, and is summarized as follows: inadequate shoring protection (19%, n=7); limited or absent comprehension/application of safety legislation by workers and industry managers (8%, n=3); agricultural chemicals and soil toxicity (8%, n=3); other environmental hazards (8%, n=3); impractical project deadlines and budgets which encourage rushed and careless behavior in the field (6%, n=2); weather, such as violent thunderstorms and hail (6%, n=2); repetitive motion injuries (6%, n=2); heat exhaustion due to long days in hot weather and dehydration (6%, n=2); fatigue and stress (6%, n=2); untrained supervisory personnel (6%, n=2); inadequate or absence of PPE (3%, n=1); improperly maintained and operated field equipment and vehicles (3%, n=1); isolated project areas which limit access to emergency facilities (3%, n=1); inadequate or absence of a safety plan (3%, n=1); poisonous plants (3%, n=1); and workers' substance abuse (3%, n=1).
Because many field technicians are not aware of the finite details of OSHA (i.e., specific codes of regulations), it can be assumed that the safety issues targeted above do not represent the entirety of safety problems that exist in archaeological field investigations. In addition, their mercurial responses indicate a general lack of understanding of safe work-place behavior and safety legislation. More field technicians may have targeted problems associated with PPE and shoring had they known (1) what they are; and/or (2) regulations that require both. The issues targeted by them are, nonetheless, a powerful testament to the potential for hazardous situations in field work and to their health and safety.

As previously reported in this thesis, field technicians are in a good position to evaluate the potential for unsafe working conditions while in the field. They were asked to describe one situation in which their own safety or that of a co-worker’s was compromised by a CRM company. Six field technicians reported that they never witnessed unsafe work practices. The remaining 30 indicated that they had and their evaluations follow. Twenty-seven percent (n=8) reported that on numerous occasions, their CRM employers had required the excavation of unshored test units, or “telephone booth” units (like the one described earlier in this chapter under the subtitle “Just Holler’ if you need Help”). Seventeen percent (n=5) reported being “encouraged” to work in violent weather conditions (all 5 field technicians reported that their supervisors stressed the urgency with which the project needed to be completed that compelled them to finish but to finish fast).
Other hazards described include, but are not limited to, exposure to pesticides from working in freshly treated agricultural fields (10%, n=3); commuting long distances to and from the work site each day in vehicles operated by exhausted drivers or in vehicles in need of maintenance (10%, n=3); working in soils with high levels of toxicity from runoff or other toxic wastes without prior notification from supervisors (7%, n=2); working during hunting seasons with or without proper PPE (3%, n=1); working alone in isolated areas with or without mobile phones (3%, n=1); and, excavating to or around buried utility lines (3%, n=1).

Field technicians were then asked to offer insight as to why they felt the unsafe behavior occurred. Of those that responded, an overwhelming 50 percent (n=15) felt that most unsafe behavior witnessed in the field was a direct result of impractical work deadlines established by CRM companies. Seventeen percent (n=5) stated that most CRM companies do not construct safety plans which ultimately lead to unsafe behavior. Other reasons offered by field technicians include a lack of common sense practiced by field technicians (13%, n=4); supervisors who are only trained in archaeological field methods and not in worker safety practices (10%, n=3); a lack of supervision while in the field (3%, n=1); poorly constructed job descriptions (3%, n=1); and physical exhaustion (3%, n=1).

The Industry's Report on Safety

Industry managers’ views on safety in archaeology were also solicited. They were asked the specify measures their company takes to ensure personal on-the-job
safety. Their responses included: conducting safety meetings in the field or in the office (53%, n=10); distributing a safety handbook (37%, n=7) - though, none of the managers indicated whether the handbook was for staff and/or for field technicians; coordinating OSHA training for field supervisors (32%, n=6); distributing PPE or requiring field technicians to provide their own PPE (21%, n=4); coordinating first aid and CPR training for field supervisors (21%, n=4); constructing project specific safety plans (16%, n=3); complying with OSHA regulations specific to the project (16%, n=3); providing first aid kits (16%, n=3); terminating or taking corrective action against employees found purposely engaging in unsafe behavior (11%, n=2); employing a safety officer (11%, n=2) - though managers did not indicate if the safety officer is full-time, contracted, or a member of permanent staff whose duties are split between safety and something else; designing projects to avoid or minimize hazards (5%, n=1); and, maintaining equipment and vehicles (5%, n=1). Finally, five percent (n=1) indicated that they take no specific measures to ensure worker safety.

Industry managers were asked if they agreed that OSHA regulations should be factored into their work proposals. An overwhelming 95 percent of those that responded (n=17) agreed that they should. They explained that OSHA regulations need to be considered when they design work plans because it is the law (55%, n=11) and because employee safety is more important than being awarded a contract (15%, n=3). Other managers added that if approached properly, integrating OSHA regulations can be cost effective (15%, n=3) but others insist that it really depends on the nature of the work (10%, n=2). Finally, the five percent (n=1) that stated that they
take no measures to ensure worker safety explained that based on their experience, OSHA regulations are inappropriate for CRM investigations.

Whether a result of acknowledging the need to comply with OSHA because “it’s the law” or a result of their belief that employees need to be protected from potential dangers in the workplace, most industry managers concede that archæological investigations pose threats the personal health and safety. Yet, others added that the cost of being safe, although less in the long run, may prevent them from being awarded some projects. Because of “low-balling” (see Chapter 5), industry managers are faced with the challenge of trying to remain competitive in the industry and trying to ensure worker safety. Twenty-four percent (n=4) of industry managers concede that contract competitiveness has been or will be stymied if the sundry safety controls are integrated into project proposals (which is relative because safety procedures are implied in Federal contracts). It should be noted, however, that 76 percent (n=13) disagree. They do not feel that they will lose their competitive edge by mitigating work hazards.

Some safety measures can be coordinated within the company so that the company, not the client, absorbs the additional costs (such as most PPE). Other measures, like those associated with a specific project, would need to be included in a work proposal. Including any safety measures in work proposals or as part of a company-wide safety plan, is entirely contingent upon (1) the industry and management placing a value on and acknowledging the need for safety measures, and (2) educating the industry, management, and field supervisory personnel in safety
philosophy and practice. Industry managers were also asked if it was feasible for all CRM companies to adopt a standard safety program which would become a normal inclusion (or "boilerplate" inclusion) in work proposals. Seventy-eight percent (n=14) said yes.

Because 22 states have adopted their own OSHA regulations, that are equal to but more rigorous than federal regulations, additional safety measures would need to be considered in work proposals submitted by companies who are competing for projects within one of those states. Clearly, it is unreasonable to think that all industry managers would participate in such an endeavor. I believe, however, that if clients are presented (more often than not) with work proposals that budget for safety measures, competitive bidding would remain a reality. Initially, clients may be shocked by the sudden inflation of budget proposals. Yet most, if not all, of the industry's clients (like gas and power companies and federal agencies) are already accustomed to their own safety plans and operate under OSHA regulations in their workplace.

CRM companies may experience a decrease in project awards because they have integrated safety measures into their work plans (24%, n=4). Some clients will always choose the CRM company that submits the lowest bid. These clients have been characterized as unscrupulous, and conversely as "innocent bystanders" whose work is truncated by a complex web of legal machinery and confused national values. In either case, development projects emerge from a need to provide communities and the nation with a product and are, at the same time, sanctioned by regulations that seek to protect communities and national history from the same.
Again, Fowler (1984: 109) states that contract investigations "are undertaken solely because they are mandated by federal law, not because development companies choose to conduct archaeological studies" and "the compliance process is an adversarial process necessary to enforce federal mandates." Nonetheless, the CRM industry, and by definition individual companies, is responsible for ensuring that their employees' health and safety are protected. CRM company representatives must make it clear to their clients, and more importantly to their competition, how important personal health and safety are to each member of a project, including field technicians.

Some companies have sponsored their employees' attendance to OSHA workshops and seminars (32%, n=6 of those that responded). Yet, these individuals are primarily charged with managing field technicians' health and safety. Practicing safety, although the responsibility of every company employee, is an individual endeavor. Field technicians also need to be trained in how to promote a healthy work environment and safe behavior as well as how to protect themselves and their peers from potential hazards. The transiency of field technicians severely limits this type of training.

Industry managers were asked what would be the most logistically and economically feasible method for supplying field technicians with safety training. They were also asked to indicate who should be responsible for the training. Their responses included: the employer should provide safety training to every crew (52%, n=9); the employer should only train field supervisors (24%, n=4); the employer should provide specialized training, like that associated with project specific safety
considerations, to supervisors and crew (12%, n=2); academia should provide the training (6%, n=1); professional associations, particularly regional ones, should provide the training at their annual meetings (6%, n=1); field technicians should be responsible for their own training and companies should only hire field technicians who have completed OSHA training (6%, n=1); OSHA should provide the training on-site (6%, n=1); OSHA and the industry should coordinate and create an interactive CD (6%, n=1); and, the employer should only train field technicians whose employment status is permanent, not temporary or fixed-term (6%, n=1).

Their responses vary but offer valuable insight into how to approach training field technicians to be safe in the workplace. Interestingly, some managers feel that field technicians need to be responsible for their own training. Aside from the expense, which may be too much for many field technicians, acquiring training in archaeological safety may be impossible considering there are few classes available that target this area of safety and they would probably not know what needs to be included in the training curricula (as evidenced by their responses to their familiarity with OSHA). In addition, expecting them to coordinate a safety program with OSHA illustrates, in my opinion, gross irresponsibility on the part of the industry.

Creating safety training programs geared towards archaeological investigations has been accomplished in recent years. Charles Niquette has been the most vocal and active CRM industry managers to organize training sessions. In addition, some CRM consultants and archaeological interest groups, like ACRA, have also organized training programs for CRM employees. The West Virginia Archaeological Council,
for example, sponsored an OSHA compliance training program in 1998. The session announcement stated:

The Occupational Safety and Health Administration (OSHA) regulations affect cultural resource management (CRM) professionals through potential federal OSHA or state OSHA enforcement, contract requirements from clients, insurance company requirements, and labor relation agreements. Council members that have been cited by OSHA have had proposed fines over $10,000.

Two key requirements in most OSHA standards (e.g., Hazard Communication) are for employee training and written compliance programs. The goal of the training program, sponsored by the Council for West Virginia Archaeology and organized by ACRA and Woodward Clyde, is to provide attendees with both the training required by the OSHA standards affecting CRM professional and to provide draft written programs for use by firms sending attendees to the classes (Rouse 1998).

I attempted on three separate occasions to contact Rouse’s company to discuss the events of the training session but have not heard back from them. The session offered free admittance to those that attended (and who meet very specific eligibility requirements). Its limitations, however, were that the terms of their grant restricted attendance by individuals who were not West Virginia residents (but a few spots were made available to a select group of non-residents). It was also only intended to train CRM professionals, like architectural historians and archaeologists, and did not, to my knowledge, include training field technicians.

Because field technicians were asked to describe the most important safety issue facing them in their work, I thought it would be valuable to solicit the same information from industry managers. They responded as follows: trench wall collapse (27%, n=3); no safety issues are apparent (27%, n=3); fatigue/stress (14%, n=2); improperly used equipment (14%, n=2); confined spaces (7%, n=1); lack of PPE (7%, n=1); back injuries (7%, n=1); and, substance abuse (7%, n=1).
The industry’s responses match, in part, field technicians’ (like trench wall collapse chosen by 27 percent of industry managers and inadequate shoring protection chosen by 19 percent of field technicians). They both agree that fatigue/stress and substance abuse are concerns. The majority of the industry’s responses can be interpreted, however, as a lack of acceptance of their responsibilities as employers to protect worker health and safety. This is also supported by the fact that 27 percent indicated that field technicians’ health and safety is not jeopardized while conducting archaeological investigations.

Some CRM managers may lack an understanding of the full gamut of hazards posed by field work (i.e., field technicians cited exposure to crop chemicals and other environmental biohazards). Because many industry managers rarely visit sites or project areas (as reported by field technicians in Chapter 4), this can explain why they do not feel these potential hazards merit action. Or, they may think they are limiting exposure to unhealthy work practices and unsafe environments but in reality are not.

For example, citing field technicians for not using field equipment properly can also be an indication that the companies are not providing them with task-specific tools or training them in the proper use of others. Citing back injuries can also be an indication that the duties performed by field technicians have created health risks such as repetitive motion injuries or they are not discouraged by their supervisors from placing stress on their backs. Citing fatigue/stress can also be a indication that field supervisors are not providing them with adequate breaks during the day and/or that the project’s scope is unreasonable.
Industry managers also listed a lack of PPE. In January of 1999, one discussion on ACRA-1 addressed dress codes in archology. Some of the stories submitted to the list recounted "anecdotal" tales of the inappropriateness of some archologists' field attire (such as female archologists wearing "shorty-shorts" and tanks tops while excavating a site located adjacent to a prison yard). While these tales offered some comedic relief, at the same time they demonstrate the lackadaisical and often uneducated industry attitudes towards safety.

Niquette (1999b) makes some vital statements about such attitudes:

This whole thread amply demonstrates how profoundly ignorant we as archeologists are about OSHA requirements. OSHA compliance is not a personal choice. It is the law.

As an employer, you are required to develop a Health and Safety Plan for all fieldwork. Adherence to the plan is a condition of employment for all employees. Proper clothing for conducting fieldwork falls under the elements of your Personal Protective Equipment (PPE) Program (26 CFR 1910.120(g)(5)), a component of the project specific Health Safety Plan. Field crews must wear appropriate personal protective clothing whenever they are on the job. The purpose of PPE is to shield or isolate individuals from chemical, physical, and biological hazards that may be encountered. No single combination of PPE and equipment is capable of protecting against all hazards, and therefore PPE should be used in conjunction with, not in place of, engineering controls and safe work practices. OSHA requires that the effectiveness of the employer's PPE program be evaluated regularly. Those who have received HAZWOPER training are well aware of OSHA's four different levels of PPE protection. Effective PPE programs and equipment limitations may effect certain personal features of workers, and can lead to a prohibition of, for example, facial hair and long hair, conventional eyeglasses, and gum or tobacco chewing on the job site (Niquette 1999b).

The responses provided by the industry managers represent deficiencies witnessed within their own companies and those witnessed in others. Each company will approach safety depending on several variables that I have already discussed, and others that are not known to me. Again, safety education and accident prevention will
only come when the value of such actions are realized by the industry. Once this is accomplished, a safety plan can be coordinated by companies or by an representative organization (e.g., ACRA). The safety plan can only be drafted once the hazards of fieldwork and laboratory work have been identified. In the following discussion, I have provided a list of many hazards that have been identified by myself, researchers, some industry managers, some field technicians, peers, and colleagues.

### Fieldwork: Hazards, their Identification, and Safe Behavior

#### First Aid and CPR

Prior to undertaking any archological investigation, the preparedness of those in charge should be a foremost concern. To this, it is highly recommended that all field supervisors, regardless of the time they annually spend in the field, be trained in American Red Cross First Aid and CPR. Crew members would also benefit from this training but it is unreasonable and impractical for field supervisors to depend on the training of their temporary employees.

#### Abroad

Whether working abroad or at home, the hazards posed in undertaking archaeological fieldwork are abundant. The risks of contracting a local disease while working abroad spawn primarily from the food and the climate. Immunizations are recommended to avoid some of the more common illnesses. Water is often a major...
The source of illness as many countries do not have the strict regulations to protect potable water as are present in the United States (Hester et al., 1997: 110). Food preparation is often very different abroad so caution should be taken to assure that the food is thoroughly cooked.

At Home

In the United States, the potential for illness and injury waxes and wanes depending on where the archeologist is working. In general, work conducted in rural areas poses more obvious threats to health than in urban areas. As cities encroach the foothills of the country during urban expansion efforts, however, the hazards in both big cities and small, sparsely populated communities are constantly changing. Rural areas typically manifest a variety of injury and illness potential. Rattlesnakes, bulls, and range cattle are among the most obvious threats (Hester et al., 1997: 111). Ticks, mosquitos, and rabid wild animals are the most common reservoirs of disease (Ellik and Fink 1997). Various mammal hosts are responsible for the perpetuation of rabies throughout the United States. In 1994, raccoons, skunks, foxes, coyotes, and bats represented most of the 8,224 animals diagnosed with rabies at local public health laboratories (Rupprect et al., 1996: 404). Raccoons encompassed 4,780 of those cases and their commensal habits lead to frequent human and domestic animal contact. Wildlife and cattle should always be approached with caution, especially when young are present.
Lyme disease is the most commonly reported vector-borne disease in the United States according to 1993 survey results (Reed 1993: 6-7) but is not the only disease transmitted by ticks. Rocky Mountain Spotted Fever, Ehrlichiosis, Q Fever, Tularemia, and Colorado Tick Fever also pose significant threats to health. Several methods of protection can be used to reduce the risk of exposure to tick-borne illnesses. They include wearing light-colored clothing, tucking clothing in (i.e., pant legs into socks), and using a repellent that contains DEET!

Reappearing in the American Southwest in the summer of 1993, hantavirus pulmonary syndrome (hereafter, hantavirus) has the potential to become one of the most common disease threats to archaeologists. The common deer mouse (*Peromyscus maniculatus*) has been targeted as the primary reservoir host of hantavirus in the United States (Ellik and Fink 1997; CDC 1995: 1-2). Transmission occurs when airborne rodent excreta (i.e., saliva, urine, and feces) is introduced to the mucous membranes. Inhalation, leading to labored breathing with flu-like symptoms, is the most common form of transmission. Archaeologists should take precautions by wearing National Institute for Occupational Safety and Health (hereafter, NIOSH) approved masks or filters when excavating and sifting dirt as rodents and their nests may become disturbed. The proper maintenance of field accommodations, museums, and laboratory activities and using protective eye wear and a filtered mask are suggested (Fink and Zeitz 1996).

Hiking during survey and clearing vegetation introduces archaeologists to a variety of poisonous plants and fungal spores. Poison oak, ivy, and sumac are among
the leading field annoyances but can produce severe allergic reactions in some individuals. Hornets, paper wasps, and yellow jackets also contribute to potential illness contraction during fieldwork investigations. Individuals should be prepared to deal with unexpected encounters.

In addition to these hazards, hiking can also introduce archaeologists to live ordnance. In the McDonald-Dunn Research Forests in Oregon, areas of the forest contain mortar rounds because the area was used during World War II by the United State’s Army as training grounds for practicing Nazi camp raids. Today, a thick blanket of vegetation conceals many of these “snipers.” Archaeological crews working in the forest are trained by the Oregon Bomb Squad in the identification and treatment of ordnance if they are encountered.

The potential for encountering live ordnance is not isolated to Oregon. In 1987, in the Monongahela National Forest, located in West Virginia, a hiker was clearing his way through underbrush when he encountered a mortar shell. He took the shell home as a souvenir. Fortunately, the hiker met no harm; it was eventually destroyed by the bomb squad. Others have not been as lucky. Fifty years ago, in the same forest, a hunter encountered a mortar round, examined it, and tossed it to the ground. The round exploded, “wrapped him around a tree,” and today his foot is wired together and his leg is embedded with metal plates (Sharp 1997). Again, if encountering ordnance is a possibility, archaeologists should be trained by bomb squad authorities in their recognition and treatment.
Marijuana plantations are frequently located in rural areas, often in remote locations that are not easily accessed by pedestrian traffic. Many of these plantations are “booby-trapped” and it is suggested that if one is encountered, individuals should not attempt to tamper with the plants. Instead, they should follow the same path back and should contact a supervisor or the local authorities.

PPE is necessary to prevent injury and illness. The type of archaeological investigations being conducted will determine the PPE needed. In general, boots, leather gloves, and non-restricting clothing should be worn. It should be remembered, however, that as a general rule, bathing suits and bare feet are not acceptable in any excavation situation irregardless of temperature extremes. Wearing shorts should also be critically evaluated where there is chance of injury from thorny vegetation or falling or flying debris. As Niquette (1999b) notes “we just can’t [be] topless and go skinny dipping during the breaks on the job anymore.” PPE is also suggested when cleaning, sharpening, or repairing equipment such as trowels, mattocks, and shovels.

Precautions should also be taken to prevent common physical health hazards. These include extremes of temperature and pressure, and overexposure to the sun. Worwick (1975: 113) adds: “Heat exhaustion, heat stroke, and frozen limbs may result from extreme temperature exposures.” Frequent rest breaks and an adequate supply of water are recommended. The affects of excessive exposure to the sun are well documented but its long-term effects are characterized by sun-spots, burning of the skin, and cancer. Sun protection with an SPF no less than 15 is recommended with repeated applications as needed.
Ergonomics is commonly ignored in fieldwork investigations. Archæology inherently necessitates activities that have the potential to cause physical strain. Repetitive motion is a likely candidate for causing a majority of illness and injury in archæology (as reported by field technicians and industry managers in this chapter and as I reported in Chapter 3, see Peter Warr). This includes digging by shovel for extended periods of time, repeated bending, and traversing long distances while carrying heavy loads (i.e., a backpack, screen, and/or shovel).

Back injuries are a common result of practicing improper bending techniques (i.e., bending with the back instead of the legs). I injured my back during survey work, not from improper bending but from a combination of the repetitiveness of my work and the stress placed on my neck, shoulders, and spine from wearing a hard-hat. Finally, matching the proper tool for the job and the individual can decrease physical stress (i.e., the height of shovels, using trowels to excavate desert pavement).

Landowners typically are not classified as potential hazards during fieldwork but should nonetheless be a consideration. As CRM investigations contribute to over 70 percent of the archæology done in the United States (Zeder 1997a), it is obvious that at some point in their career, an archæologist will come into contact with an angry landowner. To the landowner, the archæologist represents the wanton destruction slated for their property. It is advised that if a landowner demands that you leave their property you do so.

Finally, working in rural areas will unavoidably coincide with hunting seasons. It is recommended that prior to undertaking investigations, archæologists be aware of
hunting dates, the type of hunting permitted (i.e., bow, rifle), and always make themselves obvious when investigating wooded environments. By wearing brightly colored clothing and shouting, the chances of an unfortunate accident can be reduced or eliminated.

Urban areas also pose numerous hazards for archaeologists. Heavily commuted areas, highway construction, and pollution are the most obvious threats. During subsurface excavations, however, accidental contact with a utility line can result in major problems. Combined sewer overflows (which often occur when sewage and storm drain systems are combined) can also pose serious health threats to archaeologists especially if they are working in highly saturated areas that typically endure seasonal flooding episodes.

In general, field technicians should always ask the company what hazards are present in the project's area prior to entering into the field. And, they should contact the Centers for Disease Control (hereafter, CDC) and the State Health Department for the state they are working in to gather "potential hazard" information (Wilson 1997b).

Subsurface Excavation Hazards

Subsurface excavations pose a dangerous threat to archaeologists. As mentioned earlier, archaeologists tend to "borrow" OSHA regulations from Construction when conducting deep excavations. The major considerations for subsurface excavation are the depth and width of the excavation, the stability of excavation walls, the location of heavy machinery and tools in relationship to the
excavation unit, the placement of spoil dumps, confined spaces, and the location of buried utility lines. Green and Doershuk (1998: 131) note: “The increasing importance of geomorphological studies has led to an increase in deep trenching in CRM work, which naturally has fostered heightened concern for excavation safety.” Trenching and shoring plans are also crucial to all subsurface excavations. Trench walls can collapse with little warning and an individual buried by such a collapse has only a short time, perhaps only minutes, in which to be rescued. Such accidents can be largely eliminated by trench support, provided that the support system is adequately designed and does not require individuals to enter the trench to insert the initial support frames (Budleigh 1989: 62).

Paramount to a trenching scheme is the bearing strength of the soil and groundwater level. Budleigh notes that where undisturbed soils, such as clay, are present, their natural cohesiveness allows for some protection against wall collapse. Solvent soils, however, such as sands and gravels, pose significant collapse potential (Budleigh 1989: 11). Any soil has the capability of collapsing due to several variables including gravity, swelling, contracting, and fissures. Seasonal fluctuations in groundwater levels should also be considered in any trenching scheme. Groundwater level is not, however, “a sufficient indicator in itself of potential groundwater problems, and must be used in conjunction with information on soil porosity to assess the probable inflow of water into the trench excavation” (Budleigh 1989: 11-12).
Language that is familiar to trenching schemes are shoring, sloping, and benching. OSHA defines them as follows:

**Shoring:** “a structure such as a metal hydraulic, mechanical or timber shoring system that supports the sides of an excavation and which is designed to prevent cave-ins.”

**Sloping:** “a method of protecting employees from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation so as to prevent cave-ins. The angle of incline required to prevent a cave-in varies with differences in such factors as the soil type, environmental conditions of exposure, and application of surcharge loads.”

**Benching:** “a method of protecting employees from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels” (OSHA 1997: P-1, P-2).

Too common in archaeological investigations is the excavation of “telephone booth” units. Similarly, excavating privies also poses significant safety hazards since soils are generally saturated and unstable. In addition, while shoring and sloping systems are used in archaeological excavations, excavators often enter pits without hardhats and other forms of PPE. Or, as in the case of the Indiana excavations described in “Hard-hat Archaeology” in this chapter, the shoring system met OSHA standards but archaeologists were screening dirt midway up the slope while their spoil was falling below onto another archaeologist (Niquette 1997: 15).

Again, the soil type critically determines the type of sloping, shoring, and benching systems permitted and the width and depth criteria for subsurface excavations. Archaeologists should investigate either the Federal administrative rules for OSHA or, where applicable, state regulations.
The location and condition of heavy machinery and tools should also be a major consideration when excavating. OSHA specifies regulations but in general, individuals working around or under heavy machinery should wear appropriate PPE (e.g., hardhats, steel-toed boots, long shirts and pants, goggles, and ear plugs). Tools and equipment should not be left or stored next to excavation units as they may accidentally drop into the unit injuring the excavator(s). As a general rule, all sharp equipment such as shovels, picks, and trowels should be placed with the sharp edge facing toward the ground to prevent pedestrian injury. Tools and equipment should be maintained to assure their safe use. Granted, budgets and more often the location of the site make the maintenance of equipment an irregular endeavor. But shovels with split handles and mattocks with duck-taped necks, for example, are entirely inefficient and pose a critical threat to individual safety.

Siting spoil piles often is determined by the type of archeological excavations being conducted. For example, large block excavations or mitigation projects typically will designate a location that is removed from the actual excavations. Testing projects, however, where small isolated units are excavated, will designate the ground directly adjacent to the unit for dumping spoil. This facilitates the backfilling process but seriously threatens the safety of the excavator as the piles may begin to seep and eventually force the collapse or cave-in of the unit with the excavator inside. Therefore, careful planning is recommended.

Confined spaces pose significant hazards to archaeologists. NIOSH defines a confined space as: “One that has limited openings for entry and exit, is not designed...
for continuous employee occupancy, and has unfavorable ventilation that could produce a hazardous environment” (Potter-Chiles 1999). They are identified archaeologically as caves, rockshelters, tunnels, and burial crypts.

Atmospheric hazards that are typically associated with confined spaces include oxygen deficiency and the presence of toxic gases such as methane, which is formed during the decomposition of vegetation and animal feces. Physical hazards include excessive noise that can “interfere with communication between an entrant and an attendant,” falling objects such as roof collapse, temperature extremes, and slippery surfaces (Lawson 1997). These hazards certainly do not define the entire gamut of known threats to human health and safety in confined spaces. Preliminary inspection of the confined space by someone familiar with (and preferably trained in) identifying known hazards and applying procedures is strongly recommended.

Finally, ascertaining the subsurface positioning of sewers, electricity cables, and gas and water pipes is critical. Budleigh (1989: 105) notes: “This is obviously important in towns and cities, but it must also be remembered that many stretches of open countryside are now criss-crossed with [utility lines], [the location of which] may only be vaguely known.” He suggests that if in doubt as to their location, a geophysical survey is recommended.

Environmental Hazards

Safety in archaeology must also consider conditions that “encourage the development of the slow, insidious diseases which affect various parts of the body,
such as the lungs, skin, kidneys, or brain" (Worwick 1975: 114). CRM investigations often requires the survey of agricultural areas. Indeed, this type of survey is facilitated by fallow land but development projects may not coincide with the end of a farmer's growing season. For this reason, it is crucial that caution be taken when entering crops since herbicides and pesticides may be present.

In the summer of 1997, I worked on a crew that participated in surveys of a local forest. Unbeknownst to us, many of the plots we surveyed had recently been treated with an herbicide that was used to retard the growth of or to eliminate undesired vegetation and to prevent the infection of plants by disease organisms such as fungi. We were later assured that our introduction to this herbicide was non-threatening. It was only brought to our attention after we completed our field work that management had posted notification in the main office. But because our crew was made up of part-time, seasonal employees, we were rarely in the office and often we were not made aware of such postings. Notification of the presence of the herbicide prior to our field work would have eliminated our concerns. Stories like these are common and have been reported by field technicians in this thesis (see this chapter). It is up to the field technician to express their individual concerns.

Finally, field personnel need to be acutely aware of their surroundings at all times. Other environmental hazards that may be encountered in the field include, but are not limited to, “50-gallon drums on the surface, partially buried, or submerged, unusual odors, disturbed ground surface[s] with unusual soil characteristics, and the
presence of abandoned extractive equipment (mining or drilling)" combined with any of the aforementioned environmental hazard characteristics (Wilson 1997b).

Traveling: Vehicles

One of the most common threats to an archaeologist's safety is fatigue. Due to logistics, field sites are often located a considerable distance from lodging accommodations. After a long day excavating in the sun, or in any other field condition, it is recommended that the crew designate an individual who is capable of transporting them safely back to the hotel. The dangers are increased in poor weather conditions (i.e., icy roads).

Vehicles should also be properly maintained. This includes obvious maintenance such as checking the brakes and cleaning windows. The most critical maintenance oversight occurs, however, during the transporting of tools and artifacts. Care should be executed to ensure that they are securely positioned during the ride. Groundstone, for example, has a tendency of remaining in field vehicles for extended periods of time. In the case of an abrupt stop, a large piece of basalt to the back of the head can create a world of hurt.

Traveling: Lodging

As mentioned throughout this paper, coordinating logistics can be difficult when conducting archaeological investigations but are a manageable aspect of the archaeological project. Budgetary constraints and the field site location make choosing
clean and safe accommodations a chance endeavor. In addition, CRM projects typically begin with relatively short notice so making reservations in motels, inns, or hotels is often dependent on the availability of rooms. The selection process should receive a greater amount of attention than is typically paid. The AAA motor vehicle association has travel guides that list hotels, motels, and bed-and-breakfasts in both urban and rural areas in the U.S. These hotels are rated but are not included in the book unless they pass certain safety and health tests.

When staying in a hotel or motel, there are several health and safety hazards which should be assessed. In 1974, during an American Legion conference in Philadelphia, several people died or were seriously debilitated from an air-borne bacterial virus that spread through a Holiday Inn’s ventilation system. It was subsequently named Legionnaire’s Disease (Thomas and Morgan-Witts 1982). This scenario is an extreme example of the potential hazards posed by lodging in a motel but is a consideration. Water systems in hotels and motels must comply with industrial regulations but rurally located accommodations may be susceptible to contaminated water sources. Bed covers have been reported to be irregularly cleaned and investigations have revealed that trace elements of sperm and other human secretions can remain on them for several months. Mattresses and pillows may also harbor the infestation of lice, including crabs.

The safety of hotel and motel swimming pools should receive, at least, some consideration but on the individual level. The CDC notes that the major outbreaks associated with recreational water include dermatitis and gastrointestinal (i.e., giardia,
cryptosporidia, and escherichia coli). Obvious characteristics to look for when considering “taking a dip” include water clarity and temperature, the presence of fecal matter, and blood (Salvato 1992: 1012-1024).

Finally, roommates are an aspect of lodging that have the potential to endanger personal safety. CRM companies typically will house two single, same sex individuals together to decrease lodging expenses. Where separate rooms are not an option, a roommate’s personal habits, alcohol consumption, and sleeping habits may prove detrimental to the quality of living for their roommate. It is recommended that if such problems occur, the archaeologist request a rooming reassignment. Again, logistics may make this impossible.

**Lab Work: Hazards, their Identification, and Safe Behavior**

Archaeology laboratories can harbor many hazards to personal health and safety. Many archaeology labs in the U.S. are located in museums and universities but a significant number are located in CRM firms. The nature of archaeological materials processing, analysis, and curation constitutes serious consideration. This includes the housing and storage of material remains, the use and storage of processing chemicals, and the use of laboratory tools. Because some field technicians may temporarily work in-house as laboratory technicians and because a CRM company may decide to maintain an in-field laboratory and use field technicians as temporary laboratory technicians, laboratory hazards are addressed.
Most archaeological collections are forwarded to approved curation facilities. Therefore, storage may not be an issue for individual CRM firms. There are, however, instances where money has not been appropriated in the budget for curation and the collections are housed at the firm - often, for significant periods of time. CRM firms generally do not have adequate storage space for collections and will sacrifice office space to meet these storage demands. When this occurs, boxes, whose average weight is 20 pounds, are stuffed under tables, next to filing cabinets, and on top of shelves. If storing boxes in elevated areas, the height, size, and bearing capacity of the shelving needs to be considered.

Many chemicals are used in the archaeology laboratory. Foremost, a Material Safety Data Sheet (hereafter, MSDS) on each chemical used is required for excavations in the United States (Sease 1992: 5). Second, lab personnel should be trained to recognize hazard symbols on chemical containers (i.e.,  means poisonous) and instructed in the proper disposal of chemical and solid wastes. Personal safety instruction is paramount and must at least include measures for wearing personal protective equipment (i.e., safety goggles), the location of eye wash stations, proper First Aid procedures for assisting employees that have inhaled or ingested chemicals or their vapors, and ensuring that the laboratory is well-ventilated while chemicals are in house.

Most of the chemicals found in labs are those used to remove insoluble salts from pottery or to reassemble pot sherds. These include glacial acetic acid, hydrochloric acid, and nitric acid (Sease 1992: 12). Solvents are also used in the lab
and include acetone, alcohol, toluene, and ammonia. Incidentally, hydrochloric acid has been used in-field to differentiate between living floors and sterile floors (David Brauner, Ph.D., Personal Communication: 1998) and alcohol is used “to clean and soften lumps of dirt when water cannot be used” (Sease 1992: 13). Therefore, instruction is strongly recommended prior to their use in the field.

Consolidants are used to strengthen friable material. Polyvinyl acetate (PVA) is the most popular consolidant used in the laboratory. It is used to create a strong surface for artifact labeling. Due to its tendency to “change chemically over time,” PVA has been replaced by standard clear nail-polish (Sease 1992: 14, 22). Care should be exerted when cleaning the brushes used to apply consolidants by ensuring that they are not washed in a sink used for food preparation, that the proper chemicals are used to clean them to avoid adverse reactions, and personal protective equipment such as gloves and goggles are worn to reduce the potential for contact with the skin. Fungicides are also used in laboratories, although infrequently, and are added to artifact boxes to prevent spore accumulation. Sease (1992: 19) suggests “fungicides are toxic and should be handled with extreme care . . . [as they can] irritate the skin, eyes, and upper respiratory system and can effect the central nervous system.”

Lab tools include scalpels, sharpening stones, and dental tools. They can be sharp and should be approached and stored with care (i.e., wrapping the tips with tissue and storing them face down). Finally, every lab should have standard safety equipment. This includes an approved First Aid kit which is clearly labeled, in plain view, and easily accessible; rubber, latex, and vinyl gloves; NIOSH approved dust
masks; goggles; and lab coats or aprons (Sease 1992: 20-22). Fire extinguishers are a final piece of hazard prevention equipment that are not only highly recommended, but by law are required.

**The Cost of Being Safe**

The CRM industry (and its practitioners) has broached the subject of safety with less than the needed level of effort. It is my opinion that responsibility for CRM employee health and safety protection should be shared with the awarding agencies. If these agencies ensure that their contract work is let to a reputable firm, that the contractor's proposals submitted for approval satisfactorily consider safety hazards, and that during excavations safe practices are followed, safety will assume its importance in the archaeology workplace.

Niquette agrees that safety compliance is not an inexpensive program but believes that accident prevention is a much more lucrative endeavor than the cost of an archaeologist's life. He adds:

Basic training of employees and preparation of written programs are perhaps the least expensive items, but even this easily costs in excess of $10,000. If you add salaries and wages, overhead, and the loss of hourly time during which employees could otherwise be working on projects for which clients could be invoiced, the numbers begin to sour. Add in those training sessions that require more than a day away from regular job-description tasks and you are talking about a serious financial commitment. Nevertheless, it is the cost of doing business ... OSHA regulations are intended to ensure that workers are provided with a safe and healthy working environment and, with a few exceptions, are not difficult for CRM firms to implement. (Niquette 1997: 16-17).
In order to create a safe environment, a CRM firm needs to acknowledge the existence of problems and that they can be remedied. Worwick outlines his “Principles of Accident Prevention” as follows:

1. An unsafe act, an unsafe condition, an accident: all these are symptoms of something wrong in the management system
2. Certain sets of circumstances can be predicted to produce severe injuries. These circumstances can be identified and controlled
3. Safety should be managed like any other company function. Management should direct the safety effort by setting achievable goals, by planning, organizing, and controlling to achieve them.
4. The key to effective line safety performance is management procedures that fix accountability.
5. The function of safety is to locate and define the operational errors that allow accidents to occur. This function can be carried out in two ways: (1) by asking why - searching for root causes of accidents; and, (2) by asking whether or not certain known effect controls are being utilized (Worwick 1975: 108).

Each of his “principles” can enable a company to broach the subject of safety in a formal and organized manner. In doing so, industry management can integrate safety into their business policies and make the transition to safe behavior less intimidating for all employees.

**Workplace Injury and Illness Prevention Programs**

Once known hazards have been identified, a safety program can be created. The safety program should include the support of management, reasonable goals, thorough accident and injury records for the purposes of prevention and developing safety rules, analysis of job tasks, training education based on job tasks and accident and injury records, training education based on safety requirements, and periodic but regular evaluation of the safety program (Worwick 1975: 108).
Responsibility

A CRM firm should stress their dedication to providing a safe and healthy workplace for all employees and that the safety program was created to be followed as the means of preventing injuries, illnesses, and accidents. Responsibility should be outlined clearly for all employees (Wilson 1997b). Management responsibilities should include:

1. Communicating to all employees that the success of the injury and illness prevention program depends on everyone;
2. Developing safe work practices for employees to follow;
3. Maintaining and using PPE; and,
4. Creating an emergency response system.

Supervisors, such as P.I.s, Laboratory Directors, and Field Directors, should be designated as the key personnel responsible for the success of the program. Because most CRM investigations occur away from the office, field supervisors are instrumental in implementing the program. They should:

1. Maintain safety;
2. Encourage safety awareness whereby they are responsible for being familiar with the safety and health hazards to which their employees are exposed, how to recognize the hazards, the potential effects on the employees of the hazards, the rules, procedures and work practices for controlling the exposure to the hazards;
3. Provide employee training; and,
4. Be aware of how to investigate an accident or how to identify hazards in order to take corrective and preventive action.

Employee compliance with the program must be stressed in order to ensure that they are aware of the program and are in compliance with all rules and expectations. Paramount to ensuring employee compliance is the installation of a
means for corrective action for employees who fail to follow and/or participate in the program requirements (as 11% of company managers reported doing earlier in this chapter). Management should stress that no employee is expected to undertake a job until they have received instructions on how to do it properly and safely, and are authorized to perform the job. Employees should also know that if they are uncomfortable with any situation, they have the right to say "no" without reprisal.

Communication

Communication is key to implementing and to the success of a safety program. Employees should be regularly notified of program requirements, identified workplace hazards, safety requirements, and healthy work practices through regularly scheduled and periodically unscheduled training sessions. Hazard identification and evaluation, investigative procedures, and correcting identified hazards must also be included. A communication system should also be included that is easy to understand and that encourages employees to "speak up." In-house and in-field suggestion "boxes" may also be helpful.

Training

Training must be provided for safe workplace behavior. Minimally, training should be scheduled when the safety program is first established and implemented, for any new employee, whenever an employee is given a new job assignment, whenever any new substance, process, procedure or equipment is introduced in the workplace
and represents a new hazard, and for all supervisors to familiarize them with the safety and health hazards to which employees under their immediate direction and control may be exposed.

Training should include most of the hazards that I have identified in this chapter and others unknown to me at this time. To recap, these include First Aid and CPR, body mechanics, safe work practices, fire safety, natural disaster safety, and reporting unsafe or unhealthy working conditions. In addition, employees should be made aware of emergency phone numbers and contacts. These should be made easily accessible (while in the field) or clearly posted (back in the office). Training criteria is also dependent on the project location and the type of work being conducted (like the ordnance training in Oregon discussed earlier in this chapter).

Safety committees can establish a system to allow members to obtain safety related suggestions, reports of hazards, or other information directly from all employees, including those in the field. Economic restrictions and contract schedules can make establishing committees burdensome for CRM companies; therefore, CRM companies are more likely to implement a successful safety program if they designate one individual whose only job responsibility is safety. The feasibility of CRM companies creating this position is unknown at this time but warrants further investigation.
Self-inspection Checklists

Self-inspection checklists can significantly aid both management and supervisors in implementing their safety program. The following are several categories of inspection criteria that can be used by a CRM firm to ensure not only the success of their program but also the health and safety of their employees. These categories of criteria have been formally endorsed by OSHA, in CFR 29 part 1911 for Construction. I have gleaned categories that seemed to me to be conspicuously applicable to archaeological investigations, and combined those with the field and laboratory hazards underscored by field technicians and by industry managers to create the following list. Again, depending on their state of residence, every CRM company may have additions to the criteria presented.

The categories of inspection criteria that should be regularly identified, tested, discussed, and incorporated into training programs include:

1. Permit Requirements (e.g., are they needed for deep excavations);
2. Medical Services and First Aid (e.g., does the crew have access to First Aid Kits);
3. Personal Protective Equipment and Clothing (e.g., are goggles, gloves, or boots needed);
4. General Work Environment (e.g., are open units covered when not in use);
5. Hand Tools and Equipment (e.g., are they properly maintained and are they appropriate for the job);
6. Power Operated Tools and Equipment (e.g., are they grounded);
7. Entering Confined Spaces (e.g., are known methane-producing agents accounted for);
8. Environmental Controls (e.g., are alternative methods used when available);
9. Flammable and Combustible Materials (e.g., are these materials stored and marked properly);
10. Material Handling (e.g., what types of tools are needed to handle materials properly);
11. Transporting Employees and Materials (e.g., are vehicles large enough for crew, equipment, and materials);
12. Ergonomics (e.g., are adequate work-breaks given and encouraged);
13. Infection Control (e.g., is potable water made available to crew, are First Aid kits stocked with the necessary supplies); and,
14. Emergency Action Plan (e.g., are communication devices made available to crew) (OSHA 1997).
CHAPTER 8. CONCLUSIONS

General Overview of Reported Data

To recap, the labor-related issues addressed in this thesis include: (1) non-standardized and regulated wages and compensation packages; (2) non-standardized and regulated industry communication; (3) spontaneous and inconsistent ethics in CRM and how they are related to the competitive nature of practicing contract archaeology; (4) a general lack of non-manual labor responsibilities (including interpretation) assigned to field technicians; (5) the field technicians’ ephemeral relationship with CRM projects; (6) non-standardized and non-regulated safety controls; and, (7) the non-active role of higher education in preparing students for CRM careers.

The data presented in this thesis support several general conclusions. First, field technician wages are low (to which both industry managers and field technicians agree). Industry managers are making efforts to improve field technicians’ wages (94% pay them based on their experience and education). They also pay for meal and lodging expenses. Field technicians also work in CRM on average for only half of a year. They indicated having to find non-CRM related employment to supplement their income. Although much of CRM work is seasonal, industry representatives hire field technicians full-time (60%); other companies hire project-to-project (40%).

A lack of medical benefits for field technicians was also underscored by both field technicians and industry managers. Industry managers enumerated many of the
limitations that they confront in offering medical benefits to temporary employees and have attempted to address this deficiency but, to date, benefits are administered by individual companies so not all field technicians receive coverage.

Second, communication between industry managers and field technicians can be improved. Although industry managers overwhelmingly support being loyal to field technicians who work hard and have experience (100% of companies rehire some field technicians based on their work record) and support promoting field technicians to supervisory or full-time positions (90%), field technicians indicated that they want to "connect" with management more often and that they want to feel comfortable suggesting changes to project personnel. Also, when changes are suggested by field technicians, field technicians and industry managers' reported that on average, the industry will recognize those suggestions by implementing changes between two percent and twenty-five percent of the time.

Third, ethics in arclueology need to be addressed. Field technicians enumerated several ethical issues that they feel are important. Among these, they ranked the quality of field investigations (47%), the overall treatment of field employees (36%), and the industry prioritizing their client's satisfaction (36%) high. Some academicians and industry managers were cited as agreeing that there are ethical issues in CRM, many underscoring the issues reported by field technicians (including the quality of field investigations and problems associated with client-satisfaction goals). In particular, "low-balling" is a practice that both field technicians and
industry representatives recognize as creating problems between industry managers as well as effecting the protection of cultural resources.

Fourth, much of the field technicians' responsibilities revolve around performing manual-labor tasks. Field technicians (70%) and industry managers (e.g., 74% artifact recognition and 68% hand excavation) both indicated that data collection is their primary responsibility. Field technicians reported that their jobs rarely include interpretation (50%) while industry managers reported that when expected to perform non-manual responsibilities, field technicians will participate in identifying and locating sites (16%), and making National Register eligibility determinations (14%).

Fifth, because field technicians are primarily hired for one contract and are therefore transient, they have little opportunity to understand the full complexities of their projects or to participate in any aspect of the project outside of field work. This appears to be tied at one level to the lack of non-manual responsibilities delegated to them on projects as they often are working for other companies when pre-field and post-field work is completed (e.g., lab analysis and report writing).

Sixth, health and safety issues are clearly present in all archaeological investigations. Field technicians reported being injured on-the-job (33%), though none reported life-threatening illnesses or injuries. They did, however, indicate that in most cases, their illness and/or injury was a result of job protocol (42%) as they cleared vegetation, constructed unit covers, engaged in repetitive motion, and repaired equipment. In addition, only 28% of field technicians were familiar with OSHA. Industry managers reported that trench wall collapse (27%) was an important safety
issue. Many indicated that they take steps to ensure worker safety including conducting safety meetings in the field (53%) and distributing a safety handbook (37%), and most agree that it is the employers responsibility to train employees in safe work behavior (52%). Yet, other managers indicated that there are no safety issues in CRM (27%).

Finally, much of the current academic curricula is deficient in preparing students for careers in CRM. As field technicians (89%) indicated, their undergraduate archaeological education only provided them with the opportunity to seek archaeological employment. Over half (62%) of the field technicians whose degrees were in anthropology reported that their undergraduate education was insufficient for CRM-related work. Most field technicians learned their craft after leaving academia, being introduced to geologic processes (41%), lithic identification (38%), and surveying (33%) once they have worked on CRM-related projects.

Field technicians also underscored the need for students to be introduced to field work (30%), method and theory (25%), and artifact analysis (6%) while in academia. Industry managers also agreed that field methods, theory, and lithic technology were important aspects of archaeology students' curricula, but also included a need for instruction in CRM Policies and Procedures, Native American issues, and Research Design.

Most field technicians left academia with knowledge of only a few pieces of legislation related to CRM (e.g., NHPA and NAGPRA) but most expressed some knowledge of the Section 106 review process. Some industry managers reported that
they feel future field technicians (and any person considering CRM as a career) should be at least introduced to NAGPRA, NHPA, and ARPA. Others, however, indicated that field technicians did not need to be familiar with any legislation (42%).

Several industry managers support applied anthropology programs in the United States because they feel that these schools have made efforts to include CRM in students’ curricula (including course work and internships with local CRM firms and state agencies). They conceded that these schools usually graduate students who are more prepared to work in CRM than students graduating from conventional programs. Training outside of academia is presently limited to classes offered in select cities, at select times, and at times to select CRM practitioners. In sum, field technicians, industry managers, and other CRM practitioners cited from the published record agree that current anthropology programs need to be updated to include course work related to CRM.

**Further Insight and Recommendations**

Based on the results of my research with field technicians and industry managers, it is clear that the occurrence of many field technicians’ low morale merits attention from members of the private sector and academia. The labor issues addressed in this thesis have resulted, in part, from efforts to combine multiple enterprises to create and to justify the field technicians’ position within contemporary archaeological environments. These enterprises include academia (and contributions it has made to not adequately preparing students for CRM careers), CRM-specific
legislation (that has forced CRM practitioners to conduct scientific investigations under the constraints of publically-approved dispensation of funding), and the private-sector (and contributions it has made to manage those funds and to manage the interests of cultural resources in a business environment).

In an effort to resolve these challenges, it is crucial that both parties (academia and the private-sector) encourage their constituents to act responsibly towards their fieldwork, the resource, the discipline, and each other. To accomplish this end includes initiating dialogue between academia and the private-sector so that they can work towards creating curricula that focuses on CRM and applying it, while continuing to teach the traditional theories and goals of the anthropology discipline.

Also, dialogue must be initiated between the industry managers and the field technicians so that they may work towards (1) cultivating field technicians’ application of institutionalized training; (2) acknowledging and improving the CRM-related safety problems, and lobbying as a community for the creation of archology-specific safety regulations; (3) creating a platform for field technicians to discuss work-related problems with industry managers without fear of reprisal; (4) finding a method for standardizing field technician salaries (so that they match the expertise of the individual) and benefits (so that all contract employees are afforded health care maintenance and protection); and, (5) allowing field technicians the opportunity to be involved in field work projects as laborers and as “associates” so that they can recognize CRM as a collaborative effort.
The dichotomy between theory and practice that exists in conventional academic structure and that is practiced by private-sector consultants testifies to the need for these changes. As reported in this thesis, many field technicians and industry managers agree that today’s CRM needs a work force that is prepared to succinctly investigate cultural resources and to make determinations on their preservation, while also taking care that the quality of field work, data collection, analysis, and interpretation efforts is not compromised. To this goal I have illustrated how differently field technicians and industry managers think that it can and should be accomplished. Ultimately, each views the contributions of field technicians from not significant to very significant based on how competent each party feels field technicians are at appreciating the full-complexities of the archaeological record. Because each party views the competence and role of field technicians in CRM differently, the challenges raised in this thesis exist and will continue to intensify.

Challenges: Academia

Research, theory, field skills, and practical training acquisition are necessary components in the development of today’s archaeologists. Whether an archaeologist will fill a field technician, agency, academic, or CRM management position, their knowledge base must minimally include a well-rounded focus in these areas. It is clear that all archaeologists should have available to them the opportunity to participate in course work and training relevant to CRM work.
Eventually, many field technicians will continue on in CRM which increases their need to incorporate specialized professional training. The same transition is possible for any archologist (because both lateral and upward movement through the various archology-related jobs is always a possibility). Because this transition is possible, and altogether probable, it is necessary to integrate all areas of contemporary archeology into formal academic and training environments - even if introduced to students on a basic level.

It is also possible that many academicians may not have an understanding of CRM. Some academicians' reticence against integrating CRM may rest wholly in the fact that they are not qualified to deal with it. Schuldenrein (1998: 33) adds: “Courses, programs, and most significantly career choices are being offered by tenured faculty who are weaned, trained, and came to maturity in the boom years. . . where they pursued sexy topics in paleoanthropology, Mesoamerican studies, and origins of agriculture. . . their trainees are students who are coming of age in an archeological environment light years removed from that of their mentors.”

The issue of training today's archeologists was discussed in detail in 1998 at a forum organized by the Professional Archaeologists of New York City (PANYC). The primary focus of the forum was to discuss “the disjuncture between expanding career niches in [CRM] and shrinking opportunities in more traditional academic tracks” (Schuldenrein 1998: 31). Perhaps the forum's greatest success was the bringing together of academicians, public educators, museum specialists, government agency personnel, preservation and contract personnel, and recently graduated students all of
whom used this venue to introduce new academic values, and argue against or agree with existing ones that are placed on professional development.

Academicians offered insights that sought to answer questions like "[is] traditional archiological training adequate to meet the needs of those students filling newly created jobs [such as preservation and compliance archology]" (Shuldenrein 1998: 31). Responses to this question were "paradoxical." One academician felt that since universities are confronting tighter than ever budgets that inherently decreases available faculty, students should take charge of their own educations and "buttress their training with summer work in contract settings" (Shuldenrein 1998: 31). Another argued that since many students, namely graduates, will be employed in CRM it is necessary to integrate CRM training into academic programs, and that "university departments be candid with entering students about career expectations and options" (ibid. 1998: 32).

An agency representative reflected on the quarter decade she has spent in government archeology. Based on her experience Shuldenrein (1998: 32) states: "[She] argued for maintenance of the four-field approach tempered with a healthy influx of empirically relevant courses. [as this will] assure that contemporary practitioners can tackle delicate planning issues with a working familiarity with the compliance process as well as a grounding in well-formulated Research Designs."

Students expressed similar concerns in their presentations. In sum, they agreed that many academic programs fail to prepare students for "today" and that if university budgets cannot support training faculty so that they can "get up to speed" or paying
guest instructors who are, then the “real-world” constituents ought to consider
donating their services in-kind on a periodic basis. This is a short-term solution but
one that can be effective until academic departments can find more permanent
methods for dealing with our evolving discipline.

Challenges: Safety

Safe behavior is more than company policy and governmental legislation, it is
a community’s responsibility. If labor problems increase in CRM, it is possible that
field technicians will begin to use purported safety deficiencies against CRM
companies, possibly resulting in litigation. For CRM, redefining a company’s
priorities by integrating safety may protect a company from litigation (remembering
that safety is a plan to protect employees and not a plan to safeguard against
litigation). If both industry managers and field technicians agree that safety rules are
for the good of all employees, and are developed cooperatively, rich and meaningful
dialogue will be initiated and hazards will be reduced.

I believe that the issue of safety is consequential in CRM and that it is not until
OSHA managers visit more sites that safety will become an industry buzz-word. This
may prove to be of great financial devastation for many companies and more
importantly, great tragedy for field crew. Safety in archaeology must begin with a
recognition of the value of a living culture known as archaeologists during
investigations deep into the past.
In addition, it is naive to assume that safety is only an issue in CRM. All archaeologists confront hazards to their personal health and safety every time they enter into the field. Because of this, it is my opinion that the entire archaeological community - not just CRM practitioners - should discern procedures for dealing with field and laboratory safety. Also, as I argued for the CRM industry to campaign for OSHA protection, I would encourage academia to support this effort. Yet, until OSHA protection can be ascertained, it is up to the individual companies, field technicians, the CRM industry, and academia to work towards improving archaeological safety standards and procedures.

One solution would be to draft and to distribute to all field and laboratory personnel pamphlets or brochures that target expected and unexpected hazards that pose threats. Recently, the Department of Environmental Health in conjunction with the Department of Anthropology at the University of Washington in Seattle drafted a brochure that targets the same. In a 15-page pamphlet, they define and apply to archaeological investigations Safety and Health Plans, Excavation Safety, Confined Spaces, Hazardous Materials and Activities, Biological Hazards, First Aid, Insurance and Liability, and a Safety and Health Resource page (Potter-Chiles 1999).

Challenges: Expanding Field Technicians’ Job Descriptions

Since many field technicians indicated that they support expanding their job responsibilities to include less manual aspects and more interpretive ones, it is clear that industry managers should reevaluate their perception of the role of field
technicians to CRM. Yet, I believe that even if industry managers encourage field technicians’ interpretive responsibilities— that may afford them the opportunity to make significant intellectual contributions to CRM (and to the anthropology discipline)—many labor problems will still likely exist. As this thesis reported, many industry managers expect field technicians to engage in interpretation but their responses offered inconclusive evidence of what “interpretation” means (their responses varied between site identification, site locating, National Register determination, etc.).

It is also important to point out that the field technicians must also allow the industry managers to manage the resource without constantly facing reprisal from field technicians (such as law suits or discounting improvements offered by industry managers based simply on the idea that the “higher-ups” will benefit). Partly because of their archeological experience and partly because of the necessity for a hierarchical structure in CRM, industry managers must be given credit by field technicians for attempting to manage a sub-subdiscipline of anthropology whose growth and attractiveness as a career could not be foreseen in the early years. Also, more importantly, the CRM industry and academia cannot be held solely responsible for labor problems (that were also not anticipated). Field technicians are inherently part of the problems outlined.
Ethical problems in CRM partially stem from the competitive nature of CRM but also from the techniques that archaeologists use to interpret the past. These techniques can restrict and pattern particular modes of psychological and cultural identity. Because each interpretation of the archiological record varies, and because as archaeologists we are creating a limited “window” into the past, I emphasize the need for consideration by all archaeological constituents of the subjective nature of our work. Individual interpretations should be as objective as possible which is dependent upon each contributor’s realization that their own voice hallmark proclivity. Thus, reliance on a single voice in interpreting the past will continue to create, in my opinion, limited opportunity to understand the rich, textured, and diverse cultural histories that frame our investigations.

The need for the archaeological community to establish goals towards objectification is supported by the existence of what Hodder classifies as “strong statements” made in archaeological reporting (Hodder and Shanks 1995: 18). Cultural illustrations such as “diagrams,” “photographs,” and text ostensibly testify to objectivity and “attest to the actual happening of the excavation” (ibid). Yet the archaeological report cannot convey anything more than a perceived truth that is created by few voices (that does not typically, according to field technicians, include field technicians). By compartmentalizing aspects of fieldwork, including the creation of labor positions, CRM acknowledges the various components of the project.
Acknowledging that fieldwork is very much dependent upon the contributions of field technicians is essential to moving CRM ahead.

Further, if the labor problems discussed in this thesis are to be addressed to the satisfaction of the entire archaeological community, field technicians and industry managers need to ask themselves the following questions:

(1) Is archaeology important enough to society to increase the cost of doing archaeology by this factor, especially given how labor intensive the profession is?; (2) Should there be some minimum standards of skills, experience, and education that employees have when they take jobs with these wages? Should there be differentiation in wages between someone just out of school who has to be taught lithic identification and compass use, and someone who has been working in the field for 2 to 6 years, or even 10 to 20 years as a crew member? Should all Archaeological Technician II constituents (as defined by the DOL) be required to have useable writing skills?; and, (3) Should employees think about working with employers to achieve reasonable pay levels rather than creating adversarial relationships across the board? Should employers encourage this? (Anonymous: 1999).

Challenges: Wages and Benefits

Offering solutions to the wage and benefits problems associated with contemporary CRM is an enormous and arduous task. One solution would be to ask the industry managers to take a lead role. It may be possible for a CRM organization, like ACRA, to offer association-wide benefits and guaranteed wages to field technicians. That is, if a field technician is employed by a company that belongs to ACRA, they would be guaranteed to receive specific benefits (such as medical and retirement) and wages. ACRA CRM companies would be required to make yearly contributions to a “benefit fund,” the sum of which would be dispersed to field technicians working for ACRA CRM companies. These same companies would also
be obligated to provide a predetermined wage (agreed to by ACRA and field technicians).

This system would improve the standard of living for field technicians but what would ACRA CRM companies get in return? ACRA CRM companies would only hire field technicians that meet predetermined qualifications for CRM work. That is, field technicians would no longer be able to use their baccalaureate, or even graduate, degrees as sole certification for employment. Instead, field technicians would have to enroll in a training program approved by ACRA and receive certification that they have met the requirements to work as field technicians. Unless a student’s degree was received from an institution that ACRA members agree provides students with well-rounded CRM training (e.g., Michigan State University), or if the student failed to prove their school’s curricula meets ACRA’s requirements, all field technicians looking for work with ACRA CRM companies would need to complete an additional training program.

Future field technicians would enroll in a training program (organized by ACRA, the SAA, or other vested party), pay a tuition fee, and upon completion of the program would receive a certificate designating them as a “professional field technician.” This certificate would be used as proof that the field technician is qualified to work for ACRA CRM companies, and by definition, to receive a matching wage and health benefits. Yet, as this thesis has discussed, no one (field technicians or industry managers) agrees on who is responsible for training future field technicians.
Because academia has not yet taken a lead role in training them, it seems reasonable to expect an organization like ACRA or the SAA to initiate training practicums.

It is important to point out that even though a field technician may receive “certification” as a field technician (like the solution proposed above), it would not however qualify them for “professional” status as outlined by SOPA/ROPA. To ascertain “professional” status in the true sense is contingent upon meeting the requirements set forth by SOPA/ROPA, the SAA, the SHA, and the legislation. Certification would, however, give them a better standing in the archaeological community because both parties would consider them at the field technician level, “professionals.”

It is also clear that field technicians will never be afforded the opportunity to achieve any “professional” status or be compensated accordingly until their role is perceived differently by the industry and by academia. Shuldenrein (1998: 33) adds: “The people digging the shovel tests and excavation units of today will be managing the state and federal programs and writing the textbooks of tomorrow.” Because we now see the impact CRM investigations has on the reconstruction of history, on the public, and on members of the archaeological community, we must embrace the opportunity to shape the industry’s and discipline’s future.

Closing Remarks

Since we take responsibility for cultural resources, for representing various cultural identities, and for supplying a backdrop for so many fields and disciplines
outside of our own, we must also take responsibility for each and every person in our community. Just as archaeology campaigned for a place in our society in the early part of the 20th century and again during the reconnaissance efforts of the late 1960s and early 1970s, archaeologists today must also be united. Whether threatened by changing trends in our society that affect preservation legislation or by internal forces that have created separation, archaeologists must come to realize that without working on the problems that presently exist in CRM (some of which are discussed in this thesis) the consequences to the industry and to the anthropology discipline will be monumental. If as a community we can acknowledge the prolific bias that exists in every aspect of our work (from selecting field technicians for jobs, to creating classroom curricula, to writing final reports) and then use that knowledge to initiate change, we, the public, and history will be supplied with the most responsible interpretations and best chance for a future that money can buy.
Advisory Council on Historic Preservation (ACHP)  

Anonymous  

Anonymous  
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Appendix A: Field Technicians' and Industry Managers' Informed Consent Agreements

Field Technicians' Informed Consent Agreement

15 August 97

Dear Fellow Archaeologist,

Archaeological field technicians are facing challenges as contract archaeology (CRM) grows. Over the last couple of years, many students are graduating and turning to CRM for career opportunities even though CRM offers few salaried positions, medical benefits, or retirement funds for field technicians. Industry representatives acknowledge this shortcoming but argue that many students graduate with few “real world” skills thus burdening the industry with the responsibility of re-educating and re-training technicians. This research will examine the absence of those benefits as well as non-standardized and non-regulated labor discourse and safety controls, the competitive nature of practicing contract archaeology, conventional academic programs, and the extent of non-manual labor responsibilities delegated to field technicians (i.e., interpretation).

Information is needed to indicate how field technicians in the United States view CRM and what changes they feel should be adapted. This information, when collected, will provide field technicians, industry representatives, organizational sponsors and academia with a better picture of how CRM has performed and what it might become - specifically, for field technicians.

As a CRM field technician, I am asking your help in determining some of the characteristics concerning compliance archaeology. I would appreciate it if you would take about 45 minutes to respond to the enclosed 22-question survey. Most of the questions require short answer responses or fill in the blanks. Please limit your responses to the space allotted. If you do not have a college degree, still complete the questions that refer to a college education but indicate “no degree.” In addition, where questions solicit responses that recall a specific experience or incident, do not list personal names, company names, institutional names (including museums), cities, states, or dates.

Your responses, together with others, will be combined and used for statistical summaries only. Your participation in this study is voluntary and you may refuse to answer any question. Only a small sample of field technicians will receive the questionnaire, so your participation is vital to the study. The answers you provide are strictly confidential and special precautions have been established to protect the confidentiality of your responses. The number on your questionnaire will be removed once your questionnaire has been returned. Numbers are used to contact those who have not returned their questionnaire, so I will not burden those who have responded. Your questionnaire will be destroyed once your responses have been tallied.

When you have completed the survey, send it to me in the envelope provided. Do not remove any of the pages from this stapled packet except page 1 which is your copy of the Informed Consent agreement. A duplicate of this agreement follows (page 2) and by returning it with the completed survey, I will know that you understand and agree to the outlined conditions. Please sign both copies. Completed questionnaires must be returned no later than October 1, 1997.

If you have any questions concerning this survey, my research, your rights as a participant, or in general, please feel free to contact me M-F after 6:00 p.m. PST or weekends anytime at (541) 847-5721; E-mail: wilsonm@peak.org. Thank you in advance for your cooperation and participation in this survey. Your thoughtful responses are appreciated.

Sincerely,

Michele Wilson
Oregon State University Graduate Candidate
Industry Managers’ Informed Consent Agreement

No. __________

INFORMED CONSENT AGREEMENT

Dear CRM Representative,

Archaeological field technicians are facing challenges as contract archaeology (CRM) grows. In recent years, many students have graduated and turned to CRM for career opportunities even though CRM offers few, if any, salaried positions, medical benefits, or retirement funds for field technicians. Many of you have acknowledged this shortcoming but argue that by definition contract employment is fixed term. Further, you have conceded that most students graduate with few “real world” skills thus burdening the industry with the responsibility of re-educating and re-training technicians which ultimately depreciates the value of field employees. And as more students graduate the field of archaeology is being overwhelmed by individuals looking for career positions which has created a never before seen intrafield competitiveness. This research will examine the absence of the aforementioned benefits as well as non-standardized and non-regulated labor discourse and safety controls, the competitive nature of practicing contract archaeology, conventional academic programs, and the extent to which non-manual labor responsibilities such as site identification are delegated to field technicians.

Information is needed to indicate how industry representatives in the United States perceive the role of CRM field technicians and what changes, if any, they feel should be adopted. This information, when collected, will provide you and other industry representatives, field technicians, organizational sponsors and academia with refined insight of how CRM has performed and what it might become - specifically, for field technicians.

As a CRM industry representative, I am asking your help in determining some of the characteristics concerning compliance archaeology as they relate to technicians. I would appreciate it if you would take about 45 minutes to respond to the enclosed 30-question survey. Most of the questions require checked responses or fill in the blanks. Please limit your responses to the space allotted. In addition, do not list personal names, company names, institutional names (including museums), cities, states, or dates in Sections II and III.

Your responses, together with others, will be combined and used for statistical summaries and academic discussion only. Your participation in this study is voluntary and you may refuse to answer any question. Only a small sample of industry representatives will receive the questionnaire, so your participation is vital to the study. The answers you provide are strictly confidential and special precautions have been established to protect the confidentiality of your responses. The number on your questionnaire will be removed once your questionnaire has been returned. Numbers are used to contact those who have not returned their questionnaire, so I will not burden those who have responded. Your questionnaire will be destroyed once formal analysis has been completed.

When you have completed the survey, send it to me in the envelope provided. Do not remove any of the pages from the questionnaire except for your copy of the Informed Consent agreement which is attached to the front of the questionnaire. A duplicate of this agreement follows (labeled File Copy) and by returning it with the completed survey, I will know that you understand and agree to the described provisos. Please sign both copies. Completed questionnaires should be returned by April 15, 1998 but will be accepted as late as April 30, 1998.

If you have any questions concerning this survey, my research, your rights as a participant, or in general, please feel free to contact me M-F after 6:00 p.m. PST or weekends anytime at (541) 847-5721; E-mail: wilsonm@peak.org. Thank you in advance for your cooperation and participation in this survey. Your thoughtful responses are appreciated.

Sincerely,

Michele Wilson
Oregon State University Graduate Candidate

Your signature: X
Appendix B: Field Technicians' Questionnaire

SECTION I. Personal Information (OPTIONAL)

By providing your name, address, and signature below, you only agree to be considered for a follow-up telephone interview. The telephone interviews are to explore unique and insightful responses by technicians which may enhance this research. If you are contacted for an interview, you will be given the option of being recognized in the final report by name or by a pseudonym. The remainder of the information in Section I is for statistical purposes only.

Name: __________________________________________________________________________
Address: _________________________________________________________________________
Telephone: _______________________________________________________________________
E-mail: __________________________________________________________________________

Signature _______________________________ Date ________________, 1997

<table>
<thead>
<tr>
<th>Age (Circle one):</th>
<th>18-25</th>
<th>26-29</th>
<th>30-39</th>
<th>40+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education Level (Circle one):</td>
<td>High-school</td>
<td>Junior College</td>
<td>4 year college</td>
<td></td>
</tr>
<tr>
<td>Graduate school</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years of CRM experience (Circle one):</td>
<td>1 week-6 months</td>
<td>6 months-1 year</td>
<td>1-3</td>
<td></td>
</tr>
<tr>
<td>years</td>
<td>3-5 years</td>
<td>5-10 years</td>
<td>10-20</td>
<td></td>
</tr>
<tr>
<td>20+ years</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average hourly wage (Circle one):</td>
<td>$ 7-8/hour</td>
<td>$ 8.01-9/hour</td>
<td>$ 9.01-10/hour</td>
<td>$ 10.01</td>
</tr>
<tr>
<td>$/hour</td>
<td></td>
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</tr>
<tr>
<td>Primary work regions (Circle two):</td>
<td>Northeast</td>
<td>Mid-Atlantic</td>
<td>Southeast</td>
<td>Midwest</td>
</tr>
<tr>
<td>Plains</td>
<td>Great Basin</td>
<td>Southwest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northwest</td>
<td>California</td>
<td>Alaska</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polynesia</td>
<td>Other</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average distance that you will travel for a CRM project (one way):</td>
<td>5-50 miles</td>
<td>51-200 miles</td>
<td>200+ miles</td>
<td></td>
</tr>
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<tr>
<td>Annual travel expenses for CRM project to project employment (consider fuel and maintenance): $________</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average number of CRM companies that you work for annually: ____________</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please begin the questionnaire. Do not use a permanent marker such as a Sharpie. Thank you.
SECTION II. Questionnaire

1. (a) What percentage of companies that you have worked for expect a minimum of a BA/BS degree in Anthropology (or closely related field) to be considered for a field technician position? __________ %
(b) What percentage expect an archaeological field school? __________ %
(c) How do you feel your degree has assisted you in the "real world" (i.e., qualifies you for technician positions, enables you to recognize cultural resources)?

2. What technical skills did you acquire from academia that prepared you for working in CRM (i.e., from a field school and/or course work)?

3. What technical skills have you acquired while employed in CRM?

4. What are your primary responsibilities while employed as a CRM archaeological field technician?

5. Are you or have you ever been given interpretative responsibilities as a technician (i.e., making site determinations, taking detailed field notes other than filling out probe or unit forms)? Please explain your answer.

6. Using the following calendar, indicate your CRM work status over the past 12 months (i.e., two weeks unemployment, one week Phase I, grad school).

|----------------|--------------|---------------|--------------|--------------|--------------|
7. In your opinion, what is the most important issue facing CRM archaeological field technicians (i.e., wages, benefits)?

8. How much can you afford to contribute annually toward a personal medical benefit package and a retirement fund? $ / $

9. Please check (✓) the following pieces of Federal Antiquities legislation that you are familiar with and that you have recognized being implemented while in the field. (Note: It is important that your answers be spontaneous. Therefore, please do not ask your peers or use any outside references).

- Antiquities Act of 1906
- Historic Sites Act of 1935
- National Historic Preservation Act of 1966, as amended (NHPA)
- American Indian Religious Freedom Act of 1978
- Archeological and Historic Preservation Action or Moss-Bennett Bill of 1974 (AHPA)
- Archaeological Resources Protection Act of 1979 (ARPA)
- Native American Graves Protection and Repatriation Act of 1990 (NAGPRA)

10. In your opinion, what has been the greatest success and the greatest failure of Section 106?

11. (a) If you were asked to construct a job description for a CRM archaeological field technician with only your experience and responsibilities over the course of your CRM career as a guideline, how would it read? Please limit your response to the space provided.

(b) How important is a job description to you?

12. (a) What percentage of CRM companies that you have worked for provide employee orientation (i.e., distribution of a company handbook, a tour of the main office)? %.
(b) List the job titles of two people that you primarily contact at a CRM company while searching for technician work.

1) 
2) 
(c) How frequently are you given the opportunity to meet the owner/project manager (i.e., Principal Investigator) of the CRM company where you are employed? Do you feel it is important for field crews to be familiar with the owners and/or project managers? Please explain your response.

---

13. (a) How frequently (%) do CRM companies solicit feedback on their policies and field procedures from you or other technicians (i.e., suggestion cards, comment forms)? _________%.
(b) How frequently (%) do you recognize companies acknowledging technician suggestions by making changes? _________%.

14. Using the following criteria for CRM field supervisors, rank the following 1 to 8 (1 being the most important and 8 being the least) (Smith 1933).

( ) Knowledge of the subject and an ability to communicate it
( ) Knowledge of [training archaeological] techniques
( ) A willingness to learn from [technicians] and an ability to relate [training] to their experience (realizing as a supervisor that there is always something to learn)
( ) Intellectual integrity
( ) Broad cultural perspective free from prejudice
( ) Interest in [technicians] as individuals and having a belief in their desire to learn
( ) Have a warm, sympathetic personality
( ) Have a sense of humor

15. There are three types of learners. Please check (✓) the one which best describes you:

( ) Kinesthetic - relates best to hands-on experience
( ) Auditory - relates best to verbal commands, hearing
( ) Visual - relates best to imagery

16. (a) If you could design a training program for someone interested in pursuing a career in CRM, what would you rank as the five most important classes needed for their preparation? (Note: Your responses may be actual classes that you have taken or classes that you feel need to be taught).

1) ________________________________
2) ________________________________
3) ________________________________
4) ________________________________
5) ________________________________

(b) Who should be responsible for this training (i.e., academia, CRM as an industry, individual companies, or yourself)? Briefly explain your response. ________________________________

---
17. Have you ever received Worker's Compensation benefits for an illness/injury obtained while employed on a CRM project? Describe the illness/injury, the length of time you were unable to work, and the circumstances by which it occurred.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

___

18. Are you familiar with OSHA and what does it mean to you?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

___

19. What do you feel is the most important safety issue facing CRM?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

___

20. Describe one situation from your CRM career in which your personal safety or that of a co-worker's was compromised. Why do you feel that this occurred? Could it have been prevented? If so, how?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

___

21. When searching for CRM work, do you expect potential employers to meet any criteria (i.e., a specific hourly wage, word-of-mouth recommendation, responsibility towards archaeological investigations)?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

___

22. What ethical issues in CRM do you feel are the most important?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

___

Thank You.
Appendix C: Industry Managers’ Questionnaire

SECTION I: RELEASE INFORMATION

By providing your name, address, and signature below, you only agree to be considered for a follow-up telephone interview. The telephone interviews are intended to explore unique and insightful responses from participants which may enhance this research. If you are contacted for an interview, you will be given the option of being recognized in the final report by name or by a pseudonym.

Name: ____________________________________________
Company/Organization Affiliation: ________________________________
Address: ________________________________________________
Telephone: ___________________________ FAX: ___________________________ E-mail: ___________________________
Signature ___________________________________________ Date ________________, 1998

SECTION II. QUESTIONNAIRE

Please begin the questionnaire. Do not use a permanent marker such as a Sharpie. Most of the questions simply require a check mark (✓) or a circled response; others require short answer responses. Please follow the instructions for each question. In addition, limit your responses to the space provided. There is space available at the end of this questionnaire for additional thoughts and comments.

1. What is your position title?
2. (a) Are you directly responsible for hiring field crew?
   Yes ☐ No ☐
   (b) If your response to the above question is “NO,” do you serve in a capacity which influences hiring decisions?
   Yes ☐ No ☐
3. What is your company size? NOTE: If you are part of a multi-task firm, such as a Federal Agency, please indicate the total number of individuals whose responsibilities include CRM.
   1-5 ☐ 6-10 ☐ 11-15 ☐
   16-20 ☐ 20-25 ☐ 26+ ☐
4. What type of organization are you affiliated?
   ◼ CRM firm
   ◼ Federal
   ◼ University-based program
   ◼ Individual
   ◼ Multi-Disciplinary
   ◼ Other ______________________
5. (a) What is your per diem rate?
   0 ☐ $ 1-10 ☐ 11-15 ☐ 16-20 ☐
   35 ☐ 21-25 ☐ 26-30 ☐ 31-36 ☐
   36-40 ☐ 41+ ☐
   (b) Does this rate include hotel expenses?
   Yes ☐ No ☐
6. What is the average hourly rate you pay field technicians? NOTE: This does not include projects which fall under the proposed USFS’s and the DOL’s GS rate schedule.
   $ 4-5.00-6.00-7.00-8.00-9.00-10.00-11.00-12.00-13.00-13.01+
7. Is this a fixed rate or do you offer a tiered rate based on education and/or experience?
   Fixed ☐ Tiered ☐
8. (a) Do you compensate technicians for intra-company project-to-project travel expenses?
   Yes ☐ No ☐
(b) If so, what do these expenses include?

- Standard mileage rate
- Fuel
- Maintenance
- Overnight expenses (i.e., lodging)
- Other ________________

9. (a) What is the average number of technicians that work for you annually?

<table>
<thead>
<tr>
<th>5-10</th>
<th>11-20</th>
<th>21-30</th>
<th>31-40</th>
<th>41-50</th>
<th>51-60</th>
<th>60+</th>
</tr>
</thead>
</table>

(b) How many of those technicians are repeat hires? For example, how many of those technicians do you rotate from project-to-project or do you hire whenever they are available based on their good performance record?

<table>
<thead>
<tr>
<th>1-5</th>
<th>6-10</th>
<th>11-15</th>
<th>16-20</th>
<th>20+</th>
</tr>
</thead>
</table>

10. (a) Do you hire field technicians for permanent positions?

- Yes
- No

(b) If so, are these positions fixed-term or permanent?

- Fixed-term
- Permanent

(c) If you were hiring for a supervisory field position (i.e., Crew Chief or Field Director) outside of permanent staff, who would you consider first?

- A technician whose performance was outstanding, who was familiar with your company policies and procedures, and who could, in your opinion, handle the job but who had no supervisory experience; or,

- A person whose resume indicated supervisory experience but who had never worked for your firm.

11. Please indicate the types of benefits that you offer your field technicians:

- Medical
- Dental
- Retirement
- Sick
- Weekend lodging
- Paid Holidays
- Weekend per diem
- Paid Vacation
- Crew parties
- Other

12. What are the minimum requirements for hiring a field technicians? (Check all that apply)

- High School Diploma
- Junior College
- BA/BS Degree in Anthropology
- BA/BS Degree in a closely related field
- Graduate Course work
- Graduate Degree
- Archaeological Field School

13. What are the primary skills that you expect of field technicians? (Check all that apply)

- mapping/profiling
- artifact recognition
- compass skills
- feature recognition
- artifact identification
- hand excavation
- feature identification
- photography
- soil analysis
- landform recognition
- formation process
- ID
- transit use
- mapping/orienteering
- screening soil
- backfilling
- equipment maintenance
- ability to “get along”

14. Of those you checked, which five would you rank as the most important? (For all phases)

1. __________________________
2. __________________________
3. __________________________
4. __________________________
5. __________________________
15. Do you expect field technicians to be at least capable of making site determinations?  

Yes  No  

16. In your opinion, what is the most important issue facing CRM field technicians? (Check one)  

___ Low wages  
___ Insufficient medical benefits  
___ Insufficient retirement benefits  
___ Personal on-the-job safety  
___ Inadequate academic preparation  
___ Revised legislation  
___ Intra-discipline competition (i.e., available positions ≠ available workforce)  

17. Which of the following pieces of Federal Antiquities legislation should field technicians be acquainted with in order to successfully fulfill their duties as field technicians? (Check all that apply)  

___ Antiquities Act of 1906  
___ Historic Sites Act of 1935  
___ National Historic Preservation Act of 1966, as amended in 1992  
___ Executive Order 11593  
___ American Indian Religious Freedom Act of 1978  
___ Archaeological and Historic Preservation Act or Moss-Bennett Bill of 1974  
___ Archaeological Resources Protection Act of 1979  
___ Native American Graves Protection and Repatriation Act of 1990  
___ None  

18. (a) Do you provide employee orientation?  

Yes  No  

(b) If so, in what form? (Check all that apply)  

___ Distribution of company handbook  
___ Office tours  
___ Over the phone  
___ Field visits by members other than direct supervisors  
___ Other  

19. (a) Do you solicit feedback on your company's/organization's policies and field procedures?  

Yes  No  

(b) If so, in what form?  

___ Project Comment Forms  
___ Formal in-field meetings  
___ Informal in-field meetings (i.e., discussion over lunch)  
___ Other  

(c) How frequently do you recognize that feedback by making changes?  

___ 0-1%  ___ 2-25%  
___ 26-50%  ___ 50%+  

(d) What is the nature of those changes, in general?  

___ Logistical (i.e., lodging, vehicles)  
___ Field Equipment/Supplies  
___ Wages  
___ Benefits  
___ Field Forms  
___ Field Methodology  

20. Considering the following criteria for CRM field supervisors, rank all of the following from 1 to 8, not each of the following (1 being the most important and 8 being the least) (Smith 1933).  

___ Knowledge of the subject and an ability to communicate it  
___ Knowledge of [training archaeological] techniques  
___ A willingness to learn from [technicians] and an ability to relate [training] to their experience (realizing as a supervisor that there is always something to learn)  
___ Intellectual integrity  
___ Broad cultural perspective free from prejudice  
___ Interest in [technicians] as individuals and having a belief in their desire to learn  
___ Have a warm, sympathetic personality  
___ Have a sense of humor
21. (a) If you could design a training program for someone interested in pursuing a career in CRM, what would you rank as the most important classes needed for their preparation? (Rank the following from 1 to 16)

- Lithic Technology
- GPS/GIS
- Ethnographic Methods
- Research Design
- Archaeological Theory
- Theory of Culture
- Field Methods
- Statistics
- Physical Anthropology
- Illustration techniques
- CRM: Policies and Procedures
- Occupational Safety and Health
- Contemporary Native American Issues
- Historic Sites Materials Analysis
- Historic Preservation
- Basic Geomorphology
- Other

(b) Who should be responsible for this training?

- Academia
- CRM as an industry
- Organizations (i.e., SAA)
- Individual Companies
- Field Technicians
- Federal Government
- Other

22. Do you support the generation of a textbook which specifically examines cultural resources for use in academia (i.e., legislation, history, case studies, field methodology, research designs)?

Yes  No

23. What measures does your company take to ensure personal on-the-job safety?

24. (a) In preparing a work proposal, do you agree that OSHA regulations should be considered?

Yes  No

(b) Please Explain

25. Do you feel that contract competitiveness is stymied when budgets for safety per OSHA regulations at both the Federal and State (if applicable) levels are negotiated in RFPs?

Yes  No

26. Is it realistic to expect all CRM companies and/or organizations to adopt a standardized safety program which eventually would become a "boilerplate" inclusion in RFPs? (Note: Do not consider State regulations in your response as 22 states have established more rigorous requirements than the Federal regulations).

Yes  No

27. In order to promote safe behavior in the workplace, many companies have sponsored their employees' attendance to OSHA workshops and seminars. As contract technicians, by definition, are transient what would you consider to be the most logistically and economically feasible method for supplying them with safety training? (Please include in your response who you feel should be responsible for this training)

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28. **Check the five most serious threats to personal health and safety posed to field technicians:**

- Poisonous plants
- Back injuries
- Snake bites
- Bee stings
- Tick-borne illnesses
- Heat
- Frozen limbs
- Exhaustion
- Rabid wild animal bites
- Landowners
- Hantavirus pulmonary syndrome
- Repetitive motion
- Hunting
- Confined spaces
- Season
- "Telephone booth" units
- Accidental contact with buried utility lines
- Improperly maintained equipment
- Improperly used equipment
- Lack of personal protective equipment
- Agricultural chemicals
- Other environmental hazards
- Substance abuse
- Pit wall collapse
- Trench wall collapse
- Fatigue/Stress

29. **Of those, which one do you feel deserves immediate attention throughout the CRM industry?**

30. **Do you feel that the majority of academic programs fail to adequately prepare graduating archaeologists with "real world" skills and training?**

   Yes    No