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To Hive or to Hold? Producing Professional Authority through Scut Work

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Abstract
This paper examines how professionals working in bureaucratic organizations, despite having formal authority, struggle to enact authority over the clients they advise, transforming their right to command into deference to commands. Drawing on a comparative ethnographic study of two professional groups overseeing compliance in university laboratories, I identify how choices about their task jurisdiction influence each profession's ability to enact authority over and gain voluntary compliance from the same group of clients. One group constructs its work domain to include not only high-skilled tasks that emphasize members' expertise but also scut work—menial work with contaminated materials—through which they gain regular entry into clients' workspaces, developing knowledge about and relationships with clients. Using these resources to accommodate, discipline, and understand clients, they produce relational authority—the capacity to elicit voluntary compliance with commands. The other group outsources everyday scut work and interacts with lab researchers mostly during annual inspections and training, which leads to complaints by researchers to management and eventual loss of jurisdiction. The findings show the importance of producing relational authority in contemporary professional–client interactions in bureaucratic settings and challenge the relevance of expertise and professional identity in generating relational authority. I show how holding on to, not hiving off, scut work allows professionals to enact authority over clients.

Keywords: professions, authority, autonomy, control, clients, scut work, dirty work, expertise, laboratories, relational authority, compliance, biosafety officers, health physicists

The system of professions describes an institutional truce in the division of labor: the transitory settlement of jurisdictional boundaries, adjudicated through duels of abstract expertise and fortified through institutional signals of credentialing (Abbott, 1988). Attaining jurisdiction within this system signals a

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profession's formal authority over a domain of work. Yet as professionals go about their daily work, their right to issue commands does not mean that others will respect that right and obey their commands. Instead, the enactment of professional authority in daily practice is a probabilistic achievement, because authority is relational. One party issues commands and another chooses, with varying degrees of choice and consciousness of choice, whether to obey (Wrong, 1979; Ewick and Silbey, 2003).

Scholars rarely consider professionals' struggles to enact authority over the people they advise, treat, or regulate. Early studies of the paradigmatic free-standing professions—lawyers and doctors—considered the possibility of unruly clients (e.g., Becker et al., 1961; O'Gorman, 1963; Freidson, 1970), but in those cases the professional–client relationship was voluntary. Clients went to such professionals when they needed their help and submitted to professional advice when they believed it solved their problems. Under this model, clients were free to consult another professional, and professionals could ''fire'' clients who challenged their authority. In the traditional professional–client relationship, if clients became too difficult or demanding, professionals had resources to encourage obedience or could dissolve the relationship.

The model of the paradigmatic professional working in a fee-for-service, independent practice is outdated. Abbott's (1988) idea of a system of professions freed scholars from handwringing over differences between a ''true'' profession and an occupation or a semi-profession, allowing them to focus on how expert occupations leverage abstract expertise and related techniques to control a class of problems (Barley and Tolbert, 1991). This grounded definition opened the concept of the professional to a variety of tasks and expert occupations, including advisory work (risk managers), oversight and assessment work (internal auditors), and regulatory work (industrial hygienists). At the same time, expert work, even the prototypical professional work of doctors and lawyers, was increasingly observed in bureaucratic organizations rather than in independent practice (Briscoe, 2007; Noordegraaf, 2011).

Despite a substantial change in how we think about professions, our conceptualization of clients and the professional–client relationship has not changed. When organizations vest authority over domains of work in expert occupations (e.g., Anteby, 2010), professionals take responsibility for a class of problems and tasks. In doing so, they inherit a related set of people—clients embedded in the organization either temporarily (e.g., admitted patients) or permanently (e.g., fellow employees)—that they will advise and instruct. Clients are the people a professional advises and treats, and it is through clients that the professional fulfills his or her mandate in the organization. Often the relationships between professionals and their clients are not voluntary, and clients may not feel they need or may not appreciate professional advice, which has implications for the professional–client relationship.

PROFESSIONAL AUTHORITY OVER CLIENTS

Professional authority relies on a mix of formal authority (Weber, 1978), the structural right to command granted through the attributes of licensing and credentialing, and manifest authority (Wrong, 1979), the situational capacity to achieve obedience to commands (Freidson, 1968: 26). The achievement of formal authority signals a structural right within an organizational or institutional

system to give orders, reinforced by the ability to reward and sanction others (Weber, 1978; Perrow, Wilensky, and Reiss, 1972). When formal institutions such as state licensing boards endow a profession with the sole legal right to diagnose and treat, clients have little choice but to seek out a licensed practitioner. Although few professions attain complete closure (Weeden, 2002; Ranganathan, 2013), the formal mandate of a profession offers levers to coerce and encourage respect of authority (e.g., required signatures, access to materials, or referrals).

Even though professionals have the formal authority to treat and advise clients, they must also cultivate manifest authority, the capacity to successfully order or forbid specific actions (Wrong, 1979: 35). When authority is conceived as a capacity (manifest authority) rather than an attribute (formal authority), its production is always a probabilistic outcome because it relies on a subordinate's participation (Ewick and Silbey, 2003). Manifest authority depends on the subordinate acknowledging a professional's authority, assessing it as legitimate, and obeying it. When subordinates do not perceive the order giver as legitimate, they are unlikely to respond to commands, ignoring or resisting orders. Manifest authority, in other words, is the outcome of social transactions (Emirbayer, 1997).

Freidson (1968: 28) noted, ''. . . the horse may be led to water by institutions limiting the directions his paths take, but how may he be made to drink?'' Formal authority may bring the client to the professional, but manifest authority causes clients to listen to and accept the professional's advice. Clients submit to professional directives when they believe in the professional's superior competence in relation to clients' problems and that the received advice will solve their problems (Freidson, 1968). Professionals often present their knowledge in abstract ways to impress clients and obfuscate the basis of their advice (Van Maanen and Barley, 1984; Abbott, 1988). This discourages clients from questioning professionals and keeps ''all serious [assessments and] judgments of competence within the circle of recognized colleagues'' (Hughes, 1958: 141). Performances of expertise (Evans and Collins, 2007), demonstrations of rare capacities, may also increase the clients' belief in professionals' prescriptions, thereby conditioning obedience and securing dominance. Professionals further secure their clients' deference to expertise by ''hiving off'' (Hughes, 1958) or delegating any work that does not emphasize their expertise. Jettisoning work that places the professional in a physically dirty, socially stigmatized setting protects the image of expertise and the status of the profession.

But expertise as a means for obtaining clients' obedience, achieving manifest authority, relies on the conditions of the traditional professional–client relationship: the relationship is voluntary, the client depends on the professional, and the professional's advice is in the client's interest. In traditional relations, the professional has formal mandate over a problem, and clients visit voluntarily and when needed. Clients depend on surgeons, priests, dentists, and accountants at particular moments, such as when they need a medical diagnosis, are in trouble, have a toothache, or need to complete their income tax forms. Voluntary submission occurs when a professional's advice serves a client's interests. Clients listen when they believe a professional's knowledge and techniques will address the problem at hand. Further, compliance is the client's responsibility. Clients may question or disregard professionals' prescriptions, neglecting their advice to exercise, pray, floss, and save receipts. Ironically,

clients' inability to comply with advice increases their dependence on the professionals and often improves the professionals' lot, as clients need more expansive and expensive treatment (Barley and Tolbert, 1991). In the old free-standing professional model, resistance to professional advice, the failure of manifest authority, was not a problem but an annuity for the profession.

The conditions of many contemporary professional–client relations are different. Contemporary professions—groups that control an area of work through abstract expertise and proprietary techniques (Abbott, 1988) and that operate according to occupational logics (Van Maanen and Barley, 1984)—control a wider range of problems and increasingly work in bureaucratic organizations (e.g., Noordegraaf, 2011). When organizations delegate authority over specialized areas of work to professionals or employ professionals to perform legally mandated tasks, the notion of client takes on a new twist. First, clients may be assigned to professionals through organizational processes or captured by professionals because of regulatory mandates. This creates difficult conditions for enacting authority because clients may not want advice and may resent being the charge of a profession. It is also not possible for professionals and clients in these situations to ''fire'' each other and terminate the relationship. Second, the traditional direction of dependence (client depending on professional) may be flipped. The perceptions of the adequacy and validity of professional practices depend on the clients' acquiescence and regular subjugation to professional advice. Professionals rely on their clients to follow their treatments in order to demonstrate the appropriateness and value of their knowledge. This is particularly true when professionals depend on a specific group of clients (Abbott, 1988: 124). Third, professional advice solves an organizational problem that may create other problems or inconveniences for the client. Deferring to the profession may address the issues of the profession, the organization, or the state, but it may not be in the self-interest of the client. Compliance may even interfere with the client's own goals and daily routines.

Finally, contemporary professional–client relations are increasingly embedded in bureaucratic organizations. Managers can monitor the professional–client relationship and assess whether a professional's practices are guiding clients' behavior in a way that fulfills organizational goals. When clients do not comply and professionals do not achieve their professional mandate, managers may use their formal authority to intervene in how professionals work. Professionals may be more likely to maintain their autonomy from managers when they develop strategies for inducing clients' compliance. Although managers hire experts with jurisdiction over a task, it is their ''sheer capacity to accomplish this task better or faster'' that the organization values (Eyal, 2013: 869). Professionals must demonstrate to managers that they can work with clients to put their advice into action and achieve results. For example, organizations hire internal auditors to ensure organizational compliance with accounting standards and will likely defer to their decisions and ways of work. Internal auditors ask managers and accountants, who thereby become their clients, to adopt particular practices in order to keep the organization in good standing. It is the managers' and accountants' practices on which the internal auditor gives professional advice, and their obedience to that advice shows the value of professional practices and keeps the organization in compliance. The professional–client relationship is not voluntary, and the auditors depend on their clients to fulfill their professional mandate. Managers can

adjudicate any struggles between auditors and their clients and through such adjudication processes may take steps to alter professionals' practices.

Although a profession may claim formal authority over a jurisdiction of tasks, manifest authority over clients is an interactional, momentary achievement that requires the continuous transformation of formal and expert resources into an effect on clients' actions. Clients' deference to professional authority is far from automatic. For example, managers and accountants may resent and resist an internal auditor's requests. Professionals cannot assume that clients will follow their advice merely because of their formal position and status. Instead, their formal position and status may be sustained because they can convince their clients to take their advice. This suggests that we need to problematize contemporary clients' obedience and subjugation, considering the authority that professionals enact with non-voluntary clients whose deference to professionals' instructions and demands produces the professional's mandate. The achievement of professionals' mandates may be particularly consequential when professionals work in bureaucracies. Clients may present unexplored challenges to professional authority, and professionals may require new strategies to elicit deference.

In this paper, I draw on an ethnographic study of two professional groups, biosafety officers (BIOs) who work with biological agents and health physicists (RADs) who work with radioisotopes. These groups were tasked with parallel responsibilities in the same organization but enacted vastly different relations with exactly the same clients. These differences became salient when the organization attempted to bureaucratize the professionals' work. The reorganization effort created a means for managers to hear clients' complaints—questions, concerns, doubts, and irritations—about professional advice and practices. The clients raised numerous questions about the BIOs' prescriptions but raised none about the RADs' prescriptions. The differences in clients' complaints and challenges to professional authority were surprising, because both groups had worked historically without regulators or managers noting problems and because during my fieldwork I noted that clients grumbled locally, among themselves, about the advice and practices of both groups. I present a comparative analysis of the two groups to show how the BIOs failed to exercise authority over the clients and how the RADs succeeded in doing so.

I analyze scut work as a means through which some professionals can produce relational authority over clients—the capacity to elicit voluntary compliance with commands—and maintain autonomy in relation to managers. Scut work is a term used in medical settings to refer to ''work performed in the treatment of patients that could otherwise be carried out by ancillary or paraprofessional personnel'' (Schwartz et al., 1992: 778–779), such as transporting patients, adjusting toilet seats, drawing blood gases, and performing challenging venipunctures (Kellogg, 2011). Abstracting from the medical setting, scut work is work that does not draw on or display professional expertise and requires additional interaction with clients in which the professional is observed doing work that is physically, socially, or morally difficult or dirty work (Hughes, 1958). Scut work is often considered problematic for professionals because it is assumed that audiences that see them doing low-skilled and often dirty work will question their status as experts. Beyond the risk to their image, professionals may also eschew scut work because they believe there is nothing to be learned from it (Casey et al., 2005; Petrany, 2013; DiBenigno and Kellogg,

2014). Many professionals do not believe that performing scut work will enhance their expert knowledge and techniques and do not see how scut work could improve their ability to advise clients or fulfill their mandate; instead, scut work distracts from work requiring professional knowledge and skills. Below I examine scut work as a means of developing knowledge of and relations with clients that enhances a professional's ability to exercise relational authority and, ultimately, maintain autonomy.

METHODS

This paper draws on ethnographic data to generate a grounded theory of relational authority—eliciting voluntary submission to commands—in contemporary professional–client relationships. The analysis considers the resources that support claims of professional authority and the basis of clients' deference and obedience. I conducted a comparative analysis of two groups that had similar resources, work responsibilities, and mandates, as well as a large number of clients in common. The data used in this paper, collected over two years, are from 71 laboratories that both groups oversaw. Despite many similarities and shared conditions, detailed below, the same clients raised numerous and repeated complaints to managers about the practices and advice of one group and no complaints about the other group. While clients' complaints can have serious negative consequences for professionals' control (Huising, 2014), it is less clear how professionals can control clients and stem complaints about their advice and practices.

Research Setting and Background

This project, conducted at Eastern University (a pseudonym), a major research university in the eastern United States with over 500 research laboratories, involved three sets of actors: professionals, clients, and managers (coordinators and managers). Like other organizations that house hazardous materials, Eastern had delegated compliance responsibilities to groups of professionals who operated independently from management and in accordance with their occupational norms. Each group was responsible for compliance related to a particular material. Health physicists (RADs) oversaw the use, storage, and disposal of radioisotopes in laboratories. Biosafety officers (BIOs) oversaw the purchase, use, and disposal of biological materials. The professionals worked with researchers (clients), including principal investigators (PIs), post-doctoral students, graduate students, lab managers, and lab technicians, to ensure that each laboratory complied with myriad federal, state, and local regulations. The professionals ensured that each lab had proper training, licenses, and equipment, and they inspected the labs as required. Financial transfers were made from the departments to the university administration for the RADs' and BIOs' expertise.

The administration reconsidered these arrangements in 1999 after the U.S. Environmental Protection Agency (EPA), as part of a higher education initiative, inspected Eastern. Although the inspectors found no major violations, they were alarmed that members of the organization could not identify the infrastructure and procedures—roles, relations, and rules—used to manage compliance. It was not clear to the inspectors whether the compliant conditions they

observed could be repeated or scaled, because the methods used—the actions, coordination, communication, and knowledge—were not articulated and codified. The inspectors concluded that Eastern lacked a sufficient compliance management system.

Eastern agreed to create a management system as part of a consent decree, which allowed it to avoid fines and public embarrassment over minor infractions. The EPA inspection and resulting consent decree were unrelated to the responsibilities of either the BIOs or the RADs; the EPA largely focused on chemical storage, use, and disposal. However, Eastern decided to create a management system that was to affect the responsibilities of the BIOs and RADs equally.

The major intended change under the management system was the reassignment of compliance responsibility from centralized professionals to the academic departments. Departmental administrators and researchers became responsible for ensuring that their daily research practices complied with city, state, and federal regulations. This would require that the professionals standardize and codify their knowledge, creating accessible operating manuals, inspection checklists, enhanced training, and new organizational roles. The availability of these tools would allow managers in the departments to direct and support researchers. The professionals would work at arm's length from the labs to consult on unique and emerging risks. Responsibility for three areas of compliance work was to be transferred from the professionals to the departments, who were to (1) oversee the disposal, storage, and collection of biological and radioactive materials; (2) know how to use biological and radioactive materials in a compliant manner; and (3) inspect the labs monthly and annually. The professionals were to continue to train the researchers and manage all licensing work, as well as handle non-routine responsibilities, including responding to emergencies and advising on new situations and emerging materials. Overall, the decision to create a management system signaled a shift from using a professional logic for managing organizational compliance to using a bureaucratic logic. Examples of this type of shift have been found in healthcare (Ruef and Scott, 1998; Waring and Currie, 2009), law (Anleu, 1992), and accounting (Covaleski et al., 1998).

To assist the researchers and academic departments with their new responsibility for environment health and safety (EHS) compliance, the position of coordinator was created. Each academic department hired a coordinator, whose job was to oversee laboratory compliance within the department, ensuring that researchers integrated concern for safety and the environment into their research protocols and practices (Huising and Silbey, 2011). Two new managerial positions were created to facilitate this shift and implement the management system: a management system (MS) manager, responsible for the design and implementation of the system, and an EHS manager, responsible for directly overseeing the professional groups and coordinating with the MS manager. Although these managers lacked the expertise of the RADs and BIOs, they had formal authority over them in the new organizational chart.

During the implementation of the management system, the professionals ''ambiguously accommodated'' (Prasad and Prasad, 1998) the managers. They neither raised concerns about the system nor changed their practices. They continued to work as usual and went through the motions required by the managers, but they refused to codify their knowledge, preventing the transfer of

compliance oversight to the academic departments. The management system was eventually implemented, although unevenly across the professional groups, through an emergent process. Researchers' complaints were the catalyst for managerial incursions. Complaints about the BIOs' advice and practices triggered a complex process through which the BIOs lost control over how they worked and were required to standardize and codify their work, allowing managers and other generalists to oversee compliance.

Ethnographic Data Collection

I used ethnographic methods to collect data on the work of the professionals and the interactions between the professionals and their clients, the researchers. I did not have a preconceived idea of the importance of these interactions. During the first four months, I focused on documenting the established work routines of the professionals. I spent five days a week shadowing both groups of professionals, observing the compliance work involving radiation (RADs) and biological agents (BIOs) and participating in the work of each group: meeting with researchers, collecting waste, organizing storage rooms, inspecting labs, and delivering supplies. I took detailed notes and typed these up at the end of each day. I also interviewed those doing the work and collected the documentation and record systems of each group. About halfway through my observation, the implementation of the management system began. After this intense period of fieldwork, I returned to Eastern several days a month, over 22 months, to attend meetings, observe interactions in the labs, and follow up with professionals about ongoing compliance issues. In addition, I conducted 61 semistructured interviews with professionals, coordinators, and directors and recorded another 95 informal conversations about the work and management system.

Data Analysis

Following an inductive analysis approach (Strauss and Corbin, 1998; Charmaz, 2006), I coded all data related to the professionals' work and interactions found in my field notes and interviews. Although I knew, through my data collection, that the two groups were different in a number of ways, I could not articulate clear systematic differences prior to my coding. These differences emerged as I began to combine my initial codes into broader categories. For example, issues of group membership, hierarchy, and division of labor were bundled into a broader category of group organization. As these categories emerged, I began to use an axial coding approach to identify the properties and dimensions of each, clarifying the similarities and differences between the BIOs and RADs, by category. Using this axial coding exercise, I wrote memos to elaborate these similarities and differences using examples from my fieldwork and quotes from the interviews and conversations. To refine these findings, I met individually with a professional from each of these groups and with two coordinators who had worked closely with the professionals to discuss my observations of each group and to learn how these observations compared with their experiences.

The salience and consequences of these differences did not emerge until I had a better understanding of the change process (Huising, 2014). I analyzed how the management system was eventually implemented through an

emergent process and unevenly across the professional groups. I identified researchers' complaints as the catalyst for any jurisdictional incursions the professionals faced. Further, the analysis showed that the BIOs lost control of significant aspects of their jurisdiction whereas the RADs did not, because managers received complaints about the work of the BIOs but not the RADs. This was surprising, as both groups had worked for several decades without organizational or regulatory problems. Further, during my participant observation I noted several instances in which the RADs had difficult interactions with the researchers.

After explaining this unusual change process and identifying the central role of researchers' complaints, I wanted to understand why the same clients responded differently to these two groups. I returned to my data and analysis to examine why researcher complaints surfaced for the BIOs when so few surfaced for the RADs. I considered the ''objective,'' or immutable, qualities (Abbott, 1988) of their jurisdictions, such as the materials, their legal mandate, or their clients, that might affect the professionals' abilities to control their clients or their clients' responses to their work. I also considered the ''subjective,'' or mutable, qualities (Abbott, 1988) of their jurisdictions that might affect the professionals' abilities to control their clients or their clients' responses to their work. I used an iterative, comparative approach to understand differences in the professionals' relations to their clients. Through this process, I identified similarities between the groups and differences that affected each group's ability to manage clients' responses.

PRODUCING AUTHORITY

Each group's responsibilities and resources were similar. Both groups were equally free to define their task jurisdiction—which work they did and which work they delegated—and had similar resources available to exercise their authority. Their task jurisdictions differed, however, and these differences affected the professionals' ability to manage and direct the behavior of their clients, with different consequences for the authority each of the groups exercised over the clients. Table 1 summarizes the similarity of the groups' resources, the differences in task jurisdiction, and the implications of these differences.

Table 1. Summary of Resources, Task Jurisdiction, and Implications of Differences in Task Jurisdiction Resources

	Biosafety officers (BIOs) Materials: Biological	Health physicists (RADs) Materials: Radioisotopes
	Resources	
Legal mandate	Oversee all regulatory and safety issues related to materials.	Same
Organizational mandate	Ensure organization is in compliance with regulations and researchers are safe.	Same
Expertise	Extensive legal and technical knowledge related to materials.	Same

(continued)

Table 1. (continued)

	Biosafety officers (BIOs) Materials: Biological	Health physicists (RADs) Materials: Radioisotopes
Task jurisdiction		
Advisory work	Secure license, materials, and equipment for labs. Train researchers. Advise on compliance matters. Inspect laboratories annually.	Same
Maintenance work	Delegated.	Collect and dispose of waste. Provide disposal containers and safety supplies. Monitor equipment and maintain records. Inspect at least monthly.
Response work	Delegated.	Respond to accidents and incidents.
Resource implications of differences in task jurisdiction		
Access to clients' workspaces	Annually for inspections and training.	2 or 3 times per month.
Local knowledge	Limited.	Extensive knowledge of operations of individual laboratories and compliance practices.
Relations	Limited and primarily with PIs. BIOs unaware of their lower status in these relations.	Extensive interaction with researchers in the laboratories. RADs aware of their lower status in these relations.

Parallels in Formal Responsibilities and Resources

Responsibilities. In terms of their responsibilities—their organizational mandate, materials, and clients—the two groups were comparable. Eastern University employed RADs to oversee compliance related to a range of radioisotopes, including unsealed and sealed sources (permanently sealed in a capsule), and employed BIOs to oversee compliance related to biological materials, including pathogens, toxins, viruses, fungi, and prions. Both groups were responsible for overseeing the three main areas of compliance: advisory, maintenance, and response. Advisory work involves securing appropriate permissions, equipment, and materials for labs to begin research or start a new line of research; training researchers; and advising on compliance matters. Maintenance work involves collecting and disposing of waste; providing labs with disposal containers and safety supplies; and inspecting labs, monitoring equipment, and maintaining records of compliance activity. Response work includes cleaning up large-scale spills and responding to accidents.

Each group operated as an occupational enclave, working in loose connection to the administrative bureaucracy and self-managing in relation to professional standards and legal requirements (Van Maanen and Barley, 1984). At Eastern, the groups demonstrated their accountability in an annual report, presented to the provost, that outlined the achievement of regulatory compliance and their activities for the year. A historical analysis of Eastern's records showed that in the prior 50 years no events, problems, or mistakes had upset this arrangement.

   The known risks associated with each group's materials are not substantially different. Those associated with the limited types of ionized radiation used in research are well known, and precautions against these dangers were established during World War II (Kraft, 2006). Although there have been small technological advances in measuring and treating the hazards, the dangers of the materials have not evolved or expanded. If spilled or splashed, most radioisotopes are easy to find, isolate, and monitor. Once detected, they can be wiped up using household cleansers, or the area can be covered until the spill has decayed (the half-life has been reached). This is also the case with many biological materials. In contrast with radioisotopes, however, the dangers associated with pathogens, toxins, prions, and viruses are, in extreme circumstances, unknown and emerging. Further, radioisotope materials decay with time, whereas biological material propagates. One could argue that the greater unknown dangers would strengthen the authority claims of the BIOs, but the BIOs did not leverage this potential resource.

   Labs across the university used radioisotopes and biological materials. Researchers use biological materials beyond the boundaries of biology departments, and, along with radioisotopes, these materials are found in engineering, chemistry, and physics laboratories. This meant that the two groups had 71 labs in common; researchers in these labs used radioisotopes and biological materials and thus interacted with both the RADs and BIOs. The majority of the overlap occurred in biology, bio-engineering, and research related to cancer and neuroscience. The data used in this paper are from the common laboratories.

   Resources. Both groups had similar mandates in the organization. Work with biological materials and radioisotopes required an internal license, which the BIOs and RADs helped scientists secure by consulting on research protocols and managing the application process. After a lab secured a license to work with the material, it was responsible for following detailed rules governing the use, storage, and disposal of biological materials and radioisotopes. For example, laboratories are required to use specified containment and protection equipment and to follow detailed disposal procedures. The RADs and BIOs were responsible for instructing researchers in these methods and ensuring compliance with rules and procedures.

   Because this work requires significant technical and legal knowledge, as well as intensive engagement with regulators, inspectors, and material suppliers, organizations hire experts to perform it. The risk of falling out of compliance is that individual labs or the organization as a whole may be prevented from working with these important research materials. At a minimum, each BIO and RAD held a bachelor's degree, although the majority held a master's degree, and a few held Ph.D.s. All professionals held, or were working toward, accreditation related to their field, either Certified Biological Safety Professional (CBSP) or Certified Health Physicist (CRAD). Accreditation requires at least six years of responsible professional experience and is awarded by the American Biological Safety Association and the American Board of Health Physics, respectively. At Eastern, most BIOs and RADs were active members of their professional community, participating in national associations, contributing to public policy, teaching as adjunct faculty, consulting, conducting research, or writing articles and books. In terms of expertise and accreditation, the two groups of professionals were similar.

Differences in Jurisdiction

Although formally the professionals had similar responsibilities and resources, the groups constructed their jurisdictions differently. Overall, the BIOs focused on the knowledge-intensive aspects of compliance and outsourced their maintenance and response responsibilities, whereas the RADs took direct responsibility for all areas of work related to radioisotopes. The origins of their choices relate to the preferences and styles of the professionals who established the groups at Eastern. University administrators accepted these differences, and employees, including the professionals, took them for granted.

Differences in the task jurisdictions of the groups were not the result of differences in materials, expertise, organizational resources, or workloads. RAD and BIO groups in other universities construct their task jurisdiction in various ways, indicating that there is no objective set of constraints, either legal or material, that force the configurations found at Eastern. Both groups were established as their materials became important in research protocols: the RADs in 1949, when there were only a handful of labs working with radioisotopes, and the BIOs in 1977, when there were only a handful of labs working with biological materials. The groups began with very different ideas about task jurisdiction. As the use of the material spread across more labs, the groups had to make choices about whether to adjust their choices. They did not. As the number of labs using radioisotopes grew to well over 100, the RADs continued to handle all the work related to compliance. As the number of labs using biological material grew to well over 200, the BIOs continued to focus on the expert work. Because the university was willing to fund different approaches to managing compliance, the groups were able to take different paths in the face of similar organizational resources.

The reasons for the different jurisdiction choices are interesting, but they do not affect the main findings of this paper—the importance of and counterintuitive ways of exercising authority over clients—except to suggest potential boundary conditions. Further, the findings in this paper are not an artifact of differences in the number of labs each group oversees. The complaints I examine in this paper are from the 71 laboratories that the RADs and BIOs have in common and in which they both oversee compliance. Although researchers in these labs had more complaints about the BIOs, the more important observation is that the researchers' complaints about the BIOs were escalated to managers, whereas the researchers' complaints about the RADs remained with the labs, circulating among researchers.

Advisory work. The BIOs focused on advisory work combined with inspections. They conducted annual reviews of the research programs and experimental procedures using, for example, recombinant DNA, viruses, pathogens, and toxins. Relying on research protocols that described the experimental work and materials, the BIOs assigned each laboratory a biosafety level ranging from 1 to 4.[1] They also recommended suitable protective equipment, security, signs, and safety training. Principal investigators (PIs) submitted research protocols, along with the appropriate biosafety practices, to the university's Committee on Assessment of Biohazards, chaired by the chief BIO, for approval. The BIOs

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[1] These are risk levels, with 1 being the least risky and 4 being the most risky, developed by the Centers for Disease Control and Prevention.

described themselves as ''facilitators'' of this process and provided hands-on assistance before and during the approval process; as the chief BIO explained, ''Our job is knowing the research and making sure it is approved [for licensing].'' They also inspected the labs and trained researchers annually. During these infrequent, arranged visits, the BIOs interacted almost exclusively with a designated biosafety contact in the laboratory. In addition, the BIOs interacted with researchers during annual training sessions.

The RADs did the same advisory work as the BIOs. They reviewed experimental procedures and safety precautions for using radioisotopes, and PIs submitted their protocols for approval to the University Radiation Committee, chaired by the chief health physicist and registered with the Nuclear Regulatory Commission. Like the BIOs, the RADs had the opportunity to learn the scientific procedures used in laboratories and to recommend suitable procedures for storing and handling radioisotopes.

Maintenance and response work. The BIOs delegated all maintenance and response work, including delivering safety and disposal material, validating autoclaves (sterilization equipment) and biosafety cabinets, and collecting waste, to contractors, the facilities department, and lab technicians. The BIOs hired a contractor to collect and process all biological sharps—needles, pipettes, broken glassware—and solid waste. Any emergency response or cleanup in laboratories was managed using one-off arrangements with a contractor. Workers from the facilities department maintained the eyewash stations and other emergency response tools. The labs purchased disposal material (bins, bags, tags, and related signs) and safety supplies, and they treated and disposed of all liquid and solid waste. This involved running all waste through the autoclave and setting it out for disposal. This was an important responsibility: each lab had to ensure that any biological materials attached to waste were no longer active, that the waste was labeled appropriately, and that it was picked up. The lab was also responsible for monitoring and calibrating the autoclave.

In contrast, RADs took direct responsibility for all maintenance work—the purchase, delivery, monitoring, and disposal of radiation materials. For example, they developed a waste disposal system for packaging, storing, and disposing of or shipping the waste. They inspected labs at least once every two weeks, checking for contamination using a Geiger counter and taking wipe samples from the floors and sinks for additional analysis. They delivered disposal supplies and calibrated Geiger counters. They also ensured that the required signs and equipment were in place, that the radiation material was locked up, and that the researchers were not eating or drinking in labs.

Implications of Differences in Jurisdiction

While the BIOs focused on their advisory work, the RADs took, in their words, a ''soup to nuts'' approach and handled all responsibilities—advisory, maintenance, and response work—related to radioisotopes. Because of these jurisdictional choices, the BIOs were rarely in the laboratories except for annual trainings and inspections, while the RADs spent significant time in the laboratories doing menial, repetitive, and often dirty tasks. Having a regular, unannounced presence in the labs exposed the RADs to an additional body of

Table 2. Relational Authority Practices and Consequences

Practice	Biosafety officers (BIOs)	Health physicists (RADs)
Use opaque knowledge and practices	Primarily used to conduct work and in relation to researchers.	Used, when necessary, to conduct work or in relation to researchers.
Implications	Relying on one resource—expertise—to exercise authority.	Do not emphasize expertise or use opacity of expertise to exercise authority.
Accommodate client	Not used	Help researchers with practical, operational matters.
Implications	Researchers complain that compliance work places an undue burden on them.	Researchers appreciate help and enter into exchange of information and consent.
Discipline client	Not used	Correct errors and misunderstandings face to face in laboratories.
Implications	Researchers complain that compliance advice is unclear or inappropriate to their circumstances.	Researchers attempt to follow requirements, and problems remain within the laboratory.
Understand client	Not used	Listen to, empathize, and coax compliance from researchers.
Implications	Researchers express anger and frustration about compliance requirements.	Researchers blow off steam and RADs defuse anger. Researchers try to comply.

knowledge they could use to manage and control researchers. This access also allowed the RADs to understand their status relative to the researchers and to create relationships of dependence. I describe these differences in detail and offer examples, and table 2 provides a summary of the differences in the groups' practices and the consequences.

Knowledge implications. Advisory tasks allowed the BIOs to accumulate significant scientific knowledge. They felt it was important to educate themselves about each lab's scientific program. As one BIO said, ''We know the regulations, but we also have to know the science.'' For example, when a BIO reviewed a research protocol that involved working with a new vector (an organism that transports pathogens between hosts), she read the relevant recent journals and findings. Following the licensing procedure, the BIOs continued to monitor the progress of the laboratories by reading each lab group's webpage, as well as similar lines of research in major journals such as *Lancet, Cell*, and the *Journal of the American Medical Association*. The BIOs were focused on PIs and scientific knowledge. They learned about researchers and what they did in laboratories primarily by reviewing the written experimental procedures, ''the recipes'' of scientific work, and reading the final publications, the ''literary residuals of laboratory inquiry'' (Lynch, 1985: 3). They were not exposed to daily life in laboratories, to the cadre of researchers—technicians, students, post-docs, and lab managers—in the lab, or to the work involved in producing these orderly, clear, and conclusive documents. Their focus on formal descriptions and findings of science meant that they did not include the daily, situated, pragmatic aspect of laboratory work in their role of ''supporting science.'' Therefore their perception of what is involved in producing science was rather narrow and idealistic.

In addition to the knowledge of each lab's written protocols, the RADs' broad jurisdiction generated specific knowledge about each laboratory and the researchers in it. They also had a more general appreciation of laboratory life. Laboratories are social spaces in which groups of people spend long hours together in pursuit of results, which can create tension and emotion that is amplified by the difficulty of the activity of science. Scientists must tinker with protocols, improvising and developing workarounds, in order for them to work (Lynch, 1985). A post-doc who had been working around the clock for several weeks explained the tinkering to a RAD: ''Biology is just about doing the experiment over and over until it works.'' Further, the work is often mundane— washing dishes, measuring materials, and fixing machines—and involves working long days in close proximity to others vying for the same space, materials, and machines (Latour and Woolgar, 1979).

Doing maintenance work allowed the RADs to learn firsthand what happened in labs. A RAD with 40 years of experience at Eastern explained that the information and signals picked up in the course of working in a lab are important sources of knowledge in overseeing compliance:

> Labs have a rhythm and a mood. You can see the tenseness on people. This could mean that they are close to fruition on something, they are getting ready to publish, or are near a major discovery. These are the labs you have to watch . . . I get nervous . . . that's when they make mistakes [don't comply or have accidents] . . . I need to look closer, go more often. When you come into a lab you have to look around, look at the people and listen . . . .

Working in the labs, the RADs came to know the ethos and temperament of each lab as reflected in its hours, cleanliness, and organization, and they developed a collective verbal dossier on each laboratory. Some labs had a standing order for waste pickup; others called and expected an immediate pickup. Some labs were talkative and social, others quiet and serious. ''Schwartz's lab is a hot lab'' or ''That could only happen in Mikaso's lab'' were common ways the RADs talked about laboratories.[2] The knowledge of labs they generated by doing maintenance and response work was knowledge they could use to work with the researchers on compliance.

The RADs observed that compliance was peripheral in lab life and noted the sometimes poor integration of training, rules, and expectations into daily practices. Although many researchers try to comply, this effort is balanced with other priorities and often their own judgment about what is safe or compliant. The RADs saw how their policies and procedures were understood and implemented in labs. These observations signaled how one might address infrequent or failed attempts at compliance. Some labs did not care and never would. Some people were new, and others had slept through the training session. Some situations were stressful because of funding issues or the stage of the research. All of these observations were important information for ensuring compliance. The RADs could learn which procedures or people required extra coaxing. They learned which researchers had to be threatened and which researchers just needed to be teased in front of their colleagues. Working in

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[2] All names are pseudonyms.

the labs gave the RADs insight into how they might be able to influence the behaviors and decisions of researchers.

In contrast, the BIOs had a limited understanding of laboratory conditions. Even though eating and drinking in laboratories are forbidden, researchers indulge. Coffee cups and snacks are hidden in drawers, and water bottles are stashed behind books. For those familiar with labs, this is a universal infraction of a rule that must be continuously enforced. But a BIO, being largely unfamiliar with the ins and outs of laboratory life, was surprised to find a six-pack of beer in a lab fridge during the holidays. Rather than discuss this as an infraction and amend the situation with the researchers in the lab, the BIO hastily approached the PI overseeing the lab. The BIO treated the issue as a significant deviation: ''This is a serious issue we needed to deal with right away.'' In contrast, when the RADs found such infractions, they approached researchers immediately and directly to discuss them. Because they were in the labs almost weekly, they were able to contextualize the infraction as an anomaly or relate it to a pattern of noncompliance and adjust their response. A RAD explained, ''If you find a coffee cup in the trash in a lab, you don't take it too far. You balance the small things with the big things.'' Because the RADs were regularly in the labs, they were familiar with researchers and the conditions in which they worked, and they therefore managed laboratory compliance as a lab-specific, continuous, hands-on process.

Relationship implications. The BIOs engaged in client-differentiation strategies (Abbott, 1988), preferring to work most frequently with the PIs and only annually with the researchers. They assigned the technical work that involved frequent interaction with students, lab techs, and post-docs to paraprofessionals. I observed the great pleasure they received from working with and knowing the faculty members. For example, at a blood-borne-pathogens training session, a BIO suddenly, and with much fuss, offered a young woman standing at the back of an overfilled room a chair after he realized she was a new faculty member. On another occasion, a BIO dashed across the street, and was almost hit by a car, just to say hello to a famous PI. The BIOs went out of their way to develop relationships with PIs.

The BIOs attempted to use their scientific knowledge to connect with researchers. For example, a BIO explained, ''I try to build rapport with the labs by asking them about how their research is going and trying to learn more about their research.'' Another BIO tried to break the ice in biosafety training sessions by discussing recent scientific findings with the researchers. In enacting their responsibilities, they had an affinity with learning the science but also with the scientists themselves. A BIO explained, ''We want to relate to them [researchers] as peers.''

Despite these efforts, the BIOs' lack of familiarity with the daily challenges faced in labs created difficulties when they interacted with researchers. Because the BIOs were unfamiliar with the daily talk in laboratories, they seemed unaware that researchers did not see them as peers and that within the university status hierarchy there was a significant gulf between them and the researchers. Further, they had difficulty understanding the basic research circumstances. Mundane, common decisions such as how to dispose of mixed waste—waste contaminated with biological materials and either radioisotopes

or chemicals—did not register with BIOs. A new graduate student working in a nuclear facility asked a BIO for advice in such a case: "If I have a sharp [a hypodermic needle] that is contaminated [with radioisotopes] and has blood on it, where do I dispose of it?" The BIO provided an incorrect answer, even after several clarifying questions, because she could not relate to the common, practical issue of mixed waste.

The RADs interacted with regulators, administrators, and faculty members and, because of their routine work activities, had ongoing regular relationships with the researchers and technicians in labs. This was not only the largest group of clients but also the group that through their decisions and habits ensured that the professionals kept the university in compliance. Further, the RADs realized that if they upset those working in laboratories—post-docs, graduate students, or lab techs—the PIs would learn about it in the next lab meeting. It was important for RADs to have constructive relations with everyone in the laboratories to get their work done. By being in the labs, the RADs could build relationships with researchers: regular interactions in which there were expectations about the roles each party played, the relevant topics, and the patterns of relating. The RADs engaged the researchers, as they worked in the labs, by simply checking in and asking how things were going or whether the researchers needed anything. The interactions focused on radioisotopes, but in many labs a friendly banter about sports, politics, or the weather emerged. The RADs were familiar to the researchers, and researchers expected that they would enter the lab, ask questions, and work around and near the benches.

The RADs were aware, sometimes painfully, of their status with researchers. Researchers sometimes spoke negatively about them, referring to them as a "nuisance," a "pain in the ass," or a "pimple on the ass of progress." Researchers did not mind the RADs working quietly in the labs and appreciated them when they needed help doing something, such as dealing with a spill or a missing source, but they were unhappy when the RADs made changes or demands of them. A RAD described a situation in which he had to announce new waste-disposal practices. A faculty member introduced him to the lab: "This is Mike, and he is here to tell you about some bullshit." Mike acknowledged that "they [the researchers] laugh at us when we leave. They make jokes but that is life . . . we have to do our job." The RADs also recognized that the PIs had complete control over their labs and could choose to ignore them or make their jobs difficult.

Producing Relational Authority

Differences in the BIOs' and RADs' task jurisdiction generated differences in access, knowledge, and relationships that affected each group's ability to control its clients and produce relational authority. As summarized in table 3, I identified three main ways that the RADs created the capacity to elicit clients' voluntary compliance: accommodation, discipline, and understanding. Although the RADs' practices may not have produced many of the status and image benefits of belonging to a profession, they created ballast and resilience in the organization.

Table 3. Relational Authority Practices

Practices	Rationale	Resources	Contribution to relational authority
		Accommodate clients	
Help clients	''It takes a sense, you have to think and look around for things that might be happening.'' ''Knowing what they need and bringing up other things that they may need—like extra containers. You don't just bring the basics. You look around and see how you can help them.''	*Required*—credible knowledge of lab life, familiarity with researchers, frequent presence in labs.	Clients are appreciative. Clients (most) experience a sense of indebtedness and engage in exchange.
Do not worry about your image	''A lot of people want to be viewed for all of their knowledge . . . they want to eliminate the bridge to the academy and in trying to do that I think they see themselves as less important if they actually have to move the drum [of waste] . . . . What do I care what others might think?''	*Generated*—local relationship and sense of reciprocity.	Professionals can extract concessions, information, or compliance when needed.
		Discipline clients	
Form shared understanding of problem	''Each time I train them [new researchers]. 'This is how you do this. This is how you do this.' And then I just keep an eye on them, make sure that they're doing the things they are supposed to.'' ''Compliance happens one lab at a time, so you have to get out into those labs and find out what needs doing.''	*Required*—credible knowledge of lab life, familiarity with researchers, frequent presence in labs.	Client saves face and learns expectations.
Alter own methods or clients' methods	''You're contaminated. Your P32 [container] is contaminated. The front is hot. Take some count-off [cleaning fluid] and wipe the container down.''		Professional learns about clients' behaviors and rationales.
Fix social scene, repair relations	''If you find something in a lab, you fix it. No one complains, there is no record, no one outside the laboratory knows about the problem and you have a good reputation, a good relationship with the researchers.''	*Generated*— understanding of local interpretation of rules.	Rules and procedures agreed to, and problems are contained to local space.
		Understand clients	
Reiterate rules	''Okay, sign here [*delivering radioisotopes*]. Now remember this has to be locked in the freezer. The lab doors also need to be closed.''	*Required*—credible knowledge of lab life, familiarity with researchers, frequent presence in labs.	Client has opportunity to express anger.
Listen to complaints	''When we walk into a lab, into an incident, if we are on a first name basis with people it is easier to get things done.''		
Absorb frustration	''I heard what bothered them, and as I heard what bothered them I said this is so fixable.''	*Generated*— understanding of why rules create frustration.	Professional can defuse anger.
Empathize	''The most important part of how we operate is through relationships . . . if you have good relationships, people [researchers] are aware of the requirements.''		Rules and procedures accepted. Complaints are not elevated.

Accommodating clients. Most clients believe they are special or want to be treated as such. High-status clients such as PIs often believe they should be served, their researchers accommodated, and, where possible, their labs granted exceptions. Because the RADs regularly worked in the labs, they understood their place in the organizational status hierarchy. They knew, unlike the BIOs, that they were not the researchers' peers and that compliance was largely a peripheral concern in the daily routines of labs. Although adaptation of rules and practices was rare, the RADs realized that by making accommodations and going out of their way to help researchers in other ways, they might be able to extract some reciprocity from labs on issues of compliance or create an ongoing exchange relationship. Accommodating researchers also gave the RADs a form of credit with the labs that covered any small complaints about and frustrations with their rules.

During my time in the field, I observed the RADs accommodating labs during accidents—cleaning up minor spills the researchers were supposed to handle, physically taking researchers for medical care—and addressing other problems, such as a missing radioisotope source and leaking sinks. There were also more public examples of accommodation. In a biology department meeting, the professionals were asked to explain the process for moving several labs. After 70 minutes of discussion, the administrators and faculty members learned that they would need to hire expensive external technicians and consultants to move their chemical and biological material, because the BIOs would not do the work themselves and believed that graduate students could not be trusted to move the materials and that faculty members could not be relied on to supervise the move. When they turned to the topic of radioisotopes, the meeting chair turned to the RAD and asked whether they should book another meeting to continue the discussion. The RAD, annoyed by the long-winded conversation and arm's-length approach to moving the chemical and biological material, said,

> I am going to finish this in less than five minutes, in fact, maybe less than that. . . . I trust your graduate students. I trust your faculty. I work with these people every day of my life so here is what we are going to do. You are going to set a schedule. Two days before the move you are going to stop working with radioactive material or I can't help you. But if you are willing to set that schedule we will come in on the day you stop using it and we will survey everything. The next day we will make sure that everything is packaged. . . . We will move the material and then we will set up your labs and when people get there they will hit the bricks running (he snaps his fingers) but you have got to promise me those two days. If you can't do that then we have an issue.

The RAD's performance, in which he fully accommodated researchers, angered those responsible for moving other materials. After the meeting, a faculty member and the department administrator approached him and thanked him for helping the labs, explaining, ''You are the only one who ever sticks up for us.'' In the space of five minutes the RAD, by accommodating the faculty, had established a buffer against future complaints and problems. The faculty member in the meeting, the RAD explained later, became welcoming and supportive of the RAD's work in his lab.

In another situation, one of the more demanding professors had a problem. His lab was being moved into a smaller space during building renovations, and this worried him. He cornered a RAD and inquired about the lab space the RADs used in an adjacent building's basement, wondering if perhaps he could borrow it for a few months. The RAD immediately agreed to show him the lab and discuss the possibilities. Within a few days the RADs decided to inconvenience themselves and lend their space to the professor.

> We moved him. We moved his dry box. We moved all of his refrigerators. We physically moved his stuff . . . forever grateful to me. He told me things about this place . . . about the faculty, and [his] department, and other departments that were invaluable pieces of information for me . . . when he retired he thanked me for all I helped him with. I said you don't understand how much you have helped me. He didn't know.

I also saw the most senior RAD climb into a vent room and change the exhaust filters, a physically difficult and very dirty job, because they were interfering with fume hoods in several labs and it would take several days for an external contractor to come in and do the work. Clearly this had nothing to do with being a technical–legal expert on radioisotopes, but the labs understood and appreciated this as a favor in an ongoing relationship.

Although the BIOs, too, were able to accommodate cases, they rarely did. For example, I attended a meeting on the establishment of a new research institute. After the lab manager explained the nature of the institute's research, the BIO spent 90 minutes explaining all of the detailed requirements: the need for a license; particular waste containment; the appropriate signs and stickers, waste bins, bags, and containers; training; and management of material containment, use, and disposal. The lab manager, learning there were no written instructions, wrote furiously throughout and closed the meeting, saying, ''Okay, I have a list of 19 things we need to do.'' It was overwhelming, because the lab manager would have to do everything himself. The BIOs were known for this ''shotgun blast'' approach: firing information everywhere and expecting others to catch it. After the new institute was established and the labs were up and running, a series of complaints emerged about the difficulty of receiving information about the process. As a result, the BIOs were asked to codify their knowledge and procedures for lab setup and lab moves. The BIOs were eventually required to change their practices and codify them in procedures that the researchers could consult, which meant that going forward lab managers could largely circumvent the BIOs on lab-setup issues.

This situation illustrates the underlying pattern I observed repeatedly. The BIOs did not provide laboratories with hands-on assistance on many operational issues. They would come when called and instruct labs, but they did not engage with researchers in the laboratory to understand their practices and needs or offer to work with them in the laboratory to make compliance easier. Because the BIOs did not take care of problems in the laboratory through detailed interactions with the researchers and in ways that left the researchers satisfied, researchers took their issues to the managers. The researchers complained about the BIOs' advice when they didn't understand, agree with, or like it, and these complaints created an opening for managers to interfere with how the BIOs worked. Because managers had the goal of bureaucratizing the BIOs' work, they used these complaints to understand the BIOs' practices, codify

them, and hand them off to others to oversee. Had the BIOs gone beyond their advisory work and kept a regular presence in the labs, they would have been aware of how researchers worked and responded to their advice, and they may have been able to head off questions, frustrations, and complaints about their work.

The BIOs worked to create knowledge dependencies that the researchers found irritating, and their unwillingness to accommodate clients led to complaints about their practices, particularly when such practices meant that researchers had to spend extra time or effort on compliance. In contrast, the RADs went out of their way to create numerous practical, operational dependencies. Because the RADs understood the pressures of research and the needs of researchers, they had ideas for helping them. The help offered often did not require expertise or was not part of the RADs' mandate (e.g., sharing their lab or changing filters). The researchers responded to these favors with gratitude and a sense of indebtedness. Such actions generated more resources—information and relations—that further helped the RADs do their jobs. The RADs understood that these efforts would bring them ties and indebtedness that would at some point be useful in organizational struggles. A RAD explained, ''It's my basic belief that the only way we get our jobs done well is by having personal relations.'' The practice of accommodation is similar to ''indulgency patterns,'' which engender reciprocity and control in the direction of the indulger (Gouldner, 1954; Anteby, 2008a, 2008b).

Disciplining clients. Even when clients wish to comply with professional prescriptions, misunderstandings, bad habits, and lack of time can interfere. Thus professional prescriptions require regular follow-up, and clients' practices require correction. In a laboratory context there are several reasons why deference to professional prescriptions may not occur. Frequent changes in laboratory membership as undergraduate and graduate students and post-doctoral researchers come and go can make knowledge of compliance uneven. Researchers can also forget the details of training; regress to old, incorrect habits; or, in a rush, omit a required action. The RADs and BIOs encountered two similar incidents concerning the disposal of sharps—needles, pipettes, or broken glassware—that demonstrate the two groups' different approaches to the continuous disciplining the researchers required. The RADs checked in with each laboratory continuously, which had the advantage of making the disciplining procedure a private, interactional affair during the course of their regular maintenance work. For example, a RAD found a contaminated hypodermic needle in the incorrect disposal container, a serious potential danger. A researcher had placed the needle in the trash without a protective container. The RAD approached a researcher, who defended the disposal method: ''This is what we were told to do.'' Further, the researcher complained, the training was confusing and poorly delivered. The RAD listened for several minutes and then said, ''We need to move forward. First, you all need to be retrained. I will call someone in our office and get that set up. Second, you need to fix your own mistake. I will leave you extra plastic bags and a sharps container. You need to get all of the sharps out of that bag and into the container.'' The researcher apologized and was satisfied with the retraining idea but continued to complain about the lack of waste disposal information. The RAD continued to listen as

the researcher repeated her complaint several times. The RAD was empathetic and admitted that this might be a problem. He left his number and told her to call with any questions. The RAD followed up with the lab manager a few days later, and within a week, the RADs retrained the lab.

Despite the confusion about the training and disposal requirements and the researcher's displeasure at being disciplined, the managers never heard about the problem. Such situations were common. The RADs were continuously monitoring and correcting practices through informal interaction with the researchers. They addressed mistakes or deviations from prescribed protocols as they occurred and in context; thus the correction was specific and customized. It was not part of an inspection or formal evaluation, so there were no formal records or repercussions. The intervention was private; thus the individual or lab could fix the mistake and did not lose face. These local and informal interventions were possible only because the RADs were in the laboratories frequently and maintained relationships with the researchers.

In contrast, the BIOs checked on researchers' compliance practices only in annual inspections, which had the disadvantage of making the disciplining procedure a relatively public, administrative affair. They reprimanded labs formally through those inspections for failing to follow disposal procedures for biologically contaminated sharps. The BIOs had outsourced the pickup of bio sharps to a contract company that stipulated that all bio sharp waste must be collected in large red boxes lined with plastic bags and placed in the hall outside the lab door for pickup. Labs received warnings about overflowing bins and bins with old waste. In one lab, the BIO noted emptied bins that had sat outside the lab for so long that students were using them as garbage cans. Some laboratories were not using the approved bins or plastic bags that identified the waste as contaminated with biohazards. The BIOs reprimanded another lab because it had been using the bio sharps box to dispose of sharps coated with chemicals. A lab manager expressed frustration: ''[There is a] sharps issue. What goes in the container when and how? We have sharps with chemicals, sharps with bio, and sharps with both. The rules change accordingly. I just get them trained and then they say no red bags, gray bags. . . . if you want compliance, you have to have some standards. I'm just telling you what it is like in the trenches.''

These annual reprimands upset researchers because they were truly confused about how to dispose of biological sharps, and the BIOs offered only limited support. The junior BIO pointed out that the activity of collecting the discarded sharps might help the group improve compliance in the labs. He explained that when the contractors found bio sharp waste containers ''in new places''—outside labs that have never produced this waste before—they notified him so that he could visit the labs and make sure they were aware of and following procedures. He had ''found several new labs [using pathogens] in this way.'' A colleague countered this, arguing that labs were required to contact the BIOs to register and get a license. Whereas the junior BIO had noticed, like the RADs, that local work in labs generates information that can be used to improve compliance, the senior colleague did not understand why this would be necessary if the labs followed administrative procedures. This response demonstrates a lack of understanding of how labs run, their priorities, and their notice of BIO rules and requirements.

Angered by the BIOs' inspection findings and a lack of information about disposal procedures, the researchers escalated their confusion about disposal

procedures to managers. This prompted the managers to investigate and eventually led to removal of this work from the BIOs' jurisdiction, a significant blow to the group's credibility. Not only was the BIOs' ability to oversee this task revoked, but to add insult to injury, managers asked the RADs to do it. The RADs agreed in exchange for additional human and financial resources.

By understanding compliance as a shared, interdependent accomplishment, the RADs maintained control of all tasks and responsibilities related to radioisotopes in the organization. Because of their regular interactions with lab personnel, they knew the challenges involved in implementing and maintaining compliance advice. Work in labs created an opportunity to discipline individual researchers or labs privately and allowed the RADs to preserve or, when necessary, repair the social context in which compliance occurred. Had the BIOs spent more time in labs, they would have similarly realized that compliance must be continuously taught, negotiated, and managed at the material surface of the organization. To work with the labs to produce compliant outcomes, they needed insight into the researchers' preferences and the ethos and history of the lab. They did not understand the importance of customizing their approach to the social aspects of the situation.

Understanding clients. When professionals' prescriptions are difficult or inconvenient to implement, clients can become frustrated. Because following prescriptions conflicts with other priorities or interests, they may attempt to challenge the prescriptions' necessity or value. An example of a frustrating compliance prescription relates to lab doors. Both the RADs and BIOs required that a lab's doors be closed at all times and locked when no one was in the lab. These rules were written into the laboratories' local licenses by the professionals and explained during training sessions and inspections. The RADs required this of labs using any type of radioactive material; the BIOs required this of labs classified as Risk Level 2 or higher. The lab-door rule was unpopular with researchers because it was onerous. Researchers must, with hands full, regularly leave the lab to work in warm rooms, place items in freezers, wash glassware, and retrieve materials from storerooms; thus opening and closing doors was inconvenient and, as they argued, potentially dangerous. One researcher complained, ''We have trouble keeping our doors shut. We would have to get up and close our doors about 40 times a day. Can we have our doors fixed so that they shut automatically? . . . I think it's more dangerous in our lab to keep the door shut. We have people coming in and out with chemicals all the time. If you have to keep opening the door with chemicals in your hands, there's more chance of a spill.'' They argued that it was more convenient, and perhaps safer, to prop the doors open.

The researchers were similarly annoyed and irritated by the RADs' and the BIOs' lab-door requirements, but the RADs' presence in the labs gave researchers the opportunity to complain about the requirements and vent their frustrations and anger. When this happened, the RADs listened, absorbed the researchers' frustrations, empathized with them, and finally coaxed them into complying. The RADs were available to do this—and credibly so—because of their work in the laboratories. They understood how compliance could be frustrating, because they too had to abide by it, and they often knew who was frustrated and why.

The RADs would correct researchers when they found doors open. Researchers complained about the rule: ''I can't lock the door every time I have to do something in another room. I'll be locking and unlocking the door all day.'' This would invariably start a barrage of complaints, with voices from around the lab agreeing that they did not like the requirement. A RAD listened to this, smiling. He empathized: ''I know, I know, but it's the rule if you are going to use these materials. . . . you gotta close your doors.'' The researcher acquiesced: ''Okay, I will try.'' The RAD pointed his finger at her and said, with a big grin, ''I'm watching you.'' Over the next two days the RAD returned to the lab, poked his head in the door, and waved to the researchers who had learned about the reprimand. The RADs understood that this demanding policy would be implemented only through empathy followed by persistent, personal coaxing of this prescription.

In these discussions, the RADs' primary role was to listen to the researchers' frustrations and to empathize with and absorb these frustrations. Then they gently explained the need to contain the radioisotope materials. The RADs accepted this often-repeated interaction as an important part of their job. Achieving compliance, even momentarily or somewhat regularly, required ongoing discussion. Part of the reason they could successfully absorb frustrations is that they were credible empathizers, because the researchers also saw RADs struggling with doors. When lab doors were locked, the RADs had to wait or return later to perform their tasks, and when lab doors were closed, they would have to set packages down and maneuver carts and equipment as they opened the doors. Any contamination also affected the RADs, because they were touching the same doors.

In contrast, researchers complained to their PIs and to each other about the BIOs' door-closure requirement. Each year, the BIOs would inspect the labs and, when warranted, admonish researchers for leaving their doors open, spurring a new conversation within the labs about the problems with the policy. But the BIOs neither knew that researchers were unhappy with this policy nor understood the practical problems associated with implementing it. They also provided no outlet for or absorption of researchers' anger and frustration. Several researchers seized on the implementation of the management system as an opportunity to complain about this policy: ''Why do we have to keep our lab door closed? Is there an alternative way to comply?'' Department coordinators discussed the ongoing discontent with closing lab doors and brought it to the EHS manager, asking that the professionals clarify their advice and identify which regulations specifically required that the lab doors be closed. They explained that the rule created difficulties for researchers and that, if not required by law, it should be reconsidered. The BIOs admitted that there was no specific regulation requiring the doors to be closed; it was a policy they had created based on their professional judgment. Upon learning that no law required that doors be closed, the coordinators recommended abolishing the rule. In this case, although a standard policy existed, the coordinators used a problem to unpack the technical and legal basis for the advice to labs and changed the practice to convenience researchers. A BIO summarized the situation: ''The coordinators asked why does it [closing doors of BL2 labs] have to be done? A seven-page standard operating procedure came out of this debate and dialogue. The policy was changed. . . . This undercut our authority.'' Every

Biosafety Level 2 sign at the university that read ''Door must be closed'' was replaced.

Although the two groups of professionals had created and enforced the same requirement that lab doors be kept closed, only complaints about the BIOs' requirement had reached the managers. In continuously absorbing frustration and coaxing compliance, the RADs prevented complaints from escalating and aggregating in the organization. By visiting the labs frequently and talking with researchers, the RADs reminded, reinforced, and cajoled compliance from lab members. An important part of this work involved acknowledging the difficulties of complying. The RADs' knowledge of the individual labs and researchers facilitated their ability to do that. In contrast, the BIOs were unable to exercise authority over the researchers, because they did not have continuous conversations with researchers in which they could diffuse frustration and relax tensions.

Professionals, Clients, and Managers

Researchers' challenges to the legitimacy, accuracy, and necessity of the RADs' and BIOs' instructions and advice were continuous. Accommodating, disciplining, and understanding researchers enabled the RADs to produce relational authority over the researchers. The BIOs were less able to enact authority, and the resulting client challenges were central in the ongoing struggle between the professionals and the managers developing and implementing the management system. The clients became a conduit in the old and ubiquitous tension between managers' efforts to control and professionals' efforts to work autonomously. The researchers' complaints and defiance were not a potential threat to the RADs' and BIOs' autonomy until Eastern agreed to create a management system. Eastern hired managers to develop and implement a system intended to shift professionals' compliance work to the academic departments. To do this without the professionals' consent, the managers had few options but to leverage the researchers' questions, irritations, and complaints to learn about the work. The management system included mechanisms—meetings, roles, new routines—for capturing, among many things, complaints from the laboratories.

In table 4, I show the complaints researchers raised about the practices of each group during my time in the field. All seven complaints about the RADs' practices were resolved within the confines of the laboratory, but only two of 13 complaints about the BIOs' practices were. When they were not resolved, researchers escalated their concerns, and managers took action. The table shows how the complaints that escalated to managers were resolved and their implications for professional autonomy. The researchers' 13 complaints about the BIOs' compliance advice and practices related to confusion or misunderstandings about significant aspects of compliance, such as disposal of biological waste and risk categorization decisions. The BIOs resolved two of these with researchers in the laboratories but were either unaware of or did not resolve the remaining 11 directly with researchers.

In the course of resolving researchers' complaints about the BIOs, managers took control away from the BIOs of several core tasks in their jurisdiction. This loss of autonomy occurred in two stages. First, the BIOs were required to standardize and codify their advice related to many of the complaints by writing

Table 4. Researchers' Complaints and Implications for Professionals' Autonomy

Complaints (paraphrased as questions)	Complaints and consequences for professionals' autonomy
RADs	
Resolved locally: 1. Why do licensing procedures take several weeks? 2. How do we dispose of sharps contaminated with radioisotopes? 3. If the radioisotopes are locked in the fridge, why do the lab doors need to be closed? 4. How do we decommission a lab? 5. How do we recalibrate Geiger counters? 6. Why don't we receive reports on the film badge readings? 7. What are the procedures for reporting a radioisotope spill?	No escalation to managers; no consequences for autonomy
BIOs	
Resolved locally: 1. How is autoclaved waste to be labeled and packaged for collection? 2. Why do licensing procedures take several weeks? Not resolved locally, escalated to managers: 3. How should liquid biological waste be decontaminated? 4. What can be poured down the drain? 5. Can non-human primate blood be treated and poured down the drain? 6. What are the steps for setting up a lab to use biological materials? 7. How do we fix negative air pressure issues in labs? 8. What needs to be done to move a laboratory using biological materials?	Managers require that BIOs **standardize** and **codify** prescriptions to address question and related issues. Compliance **oversight transferred** to departments.
9. How do we disinfect eyewash stations, and how often?	Managers require that BIOs **change** and **codify** prescription. Compliance **oversight transferred** to departments.
10. Why do the lab doors need to be closed when particular biological materials are present?	Managers **transfer responsibility and resources** to RADs.
11. What is the process for disposing of biosharps? 12. What is the difference between a BL2 and a BL2+ lab rating? 13. How do we deal with evidence of mold or mold smells?	Managers require that BIOs **standardize** and **codify** prescription, allowing them to assess BIOs' work.

standard operating procedures. Several of their policies, ranging from laboratory containment to personal protection to waste disposal, were determined to be problematic. As a result, the managers asked the BIOs to take into consideration operational constraints in laboratories and to alter their standard operating procedures in ways that suited the researchers. For example, the BIOs were no longer able to provide customized, discretionary advice to labs about the handling of biological materials and the treatment of biological waste in laboratories. The BIOs also lost opacity in their procedures for determining the risk

levels of labs. Second, because these new procedures made the BIOs' practices transparent, they facilitated the transfer of their work to department managers. Each department could now oversee compliance related to the treatment and disposal of waste and assess issues related to licensing, security, and laboratory moves.

Researchers raised seven complaints about the RADs' advice and practices, which also stemmed from confusion or irritation with important compliance practices, such as disposing of contaminated waste and reporting researchers' exposure to radioisotopes (see table 4). But through the relational authority strategies described in this paper, the RADs addressed researchers' irritations, challenges, questions, and problems with the RADs' requirements in the labs. The researchers did not bring these complaints to the attention of managers and ask for changes. Because challenges to the RADs' practices did not emerge from the laboratories, the managers did not have opportunities to scrutinize the RADs' practices. By working directly with the researchers to enact their authority, the RADs created a buffer between themselves and the managers.

DISCUSSION

As professionals increasingly work in and for bureaucracies, they are assigned clients with whom they must work to achieve their professional mandates. In such situations, clients may not rely on, seek, or value the professionals' expertise. The implication of contemporary professional–client relationships is that professionals are likely to experience difficulty achieving manifest authority over clients. Clients may ignore or resist professional advice, prescriptions, and treatments. If clients successfully challenge professionals, denying their authority and preventing them from fulfilling their mandates, they may draw managerial attention to the validity or necessity of professional advice, threatening professionals' autonomy. This suggests that professionals must pay attention to how they will exercise authority over clients and develop strategies to induce clients to follow their advice. Clients' deference to professionals' authority produces evidence of professionals' competence and the efficacy of their expertise, reinforcing their autonomy.

I found that scut work facilitates the production of relational authority, the capacity to elicit voluntary compliance from clients. When professionals do scut work, they interact with clients more often and in a different way. As they do menial work in the service of the client, they expand the basis of their relationship and learn more about their clients. Scut work provides crucial opportunities through which professionals can leverage their expert knowledge and skills to achieve their professional and organizational mandates. In many contemporary professional–client relations, professional scripts and practices that reinforce distinctions between professional work and scut work cut professionals off from important resources that allow them to accomplish their obligations.

In this study, professionals who claimed a large set of tasks, including scut work, gained access to the spaces, information, and actors that allowed them to control clients' responses to their advice. The RADs worked regularly in laboratories to provide practical help to researchers, ensure that researchers knew how to comply, and absorb their frustration. As a result, researchers became dependent on them, complied voluntarily, and understood the

prescriptions to be in their interest. In contrast, the BIOs focused on work that leveraged their legal and scientific knowledge and attempted to use that knowledge to create interdependencies with researchers. They ignored the possibility of creating material, operational dependencies such as those the RADs created and buffered themselves from labs and researchers by delegating the scut work to others. This division of labor deprived the BIOs of important resources. Whereas the RADs worked at the material surface and within the social realm of the laboratories, ensuring that these were in good working order, the BIOs excluded themselves from this level of work and relations.

These differences in client approaches and jurisdictional boundaries, the result of historical choices, were of no significance at Eastern before the implementation of the management system. Prior to this, these choices did not produce differences in recorded failures, accidents, or problems. While the choices were not tied to different materials, levels of expertise, or mandates, the reason for the choices is less important than the finding that these different work routines matter for professional authority. The finding that scut work generates important resources for exercising authority in relation to clients, and as a result protects professionals' autonomy, is one of several contributions this study makes.

Relational Authority over Clients

This study opens up new avenues of research on professions by reconceptualizing the professional–client relations found in many contemporary settings. As our understanding of professionals has evolved beyond functional analyses of what constitutes a profession toward analyses of the system of professional work and the role of expertise (Abbott, 1988), our understanding of clients must also evolve. Clients may not seek out or value professional guidance, but professionals must work through clients to demonstrate the role and value of their expertise, particularly in bureaucratic settings. Thus clients are a relatively unexplored source of challenge, and the expected roles and rules through which professionals and their clients interact (Abbott, 1988) require revision. Professionals may be dependent on and vulnerable to their clients, and clients may have the upper hand in dealings with professionals. In this case, professionals must consider how to disrupt this dependence and create relations and conditions that induce clients' acquiescence. Reshaping this dependency may allow professionals to mete out advice successfully, thereby demonstrating the benefits of their expertise and protecting their jurisdiction in the organization.

In this study, clients did not openly challenge professionals' advice and prescriptions when the professionals created conditions that made clients feel dependent on them, made compliance seem voluntary, and made clients believe the professionals understood their interests and provided advice that took those interests into account. The professionals were able to enact authority over their clients when they created perceptions of a traditional, rather than contemporary, professional–client relationship. In fact, compliance was not truly voluntary; the RADs depended on researchers for evidence of compliance, and often the RADs' advice did not align with the researchers' primary interests. The RADs shaped and managed the researchers' understanding and perceptions of the relationship through their scut work in labs. Through relationships of exchange and understanding, clients became enrolled in the

RADs' professional mandate, reinforcing and assuring the continuance of the professionals' authority in the organization.

According to the literature, professionals can successfully exercise authority over outsiders through formal and expert resources (e.g., Abbott, 1988). Although these resources are useful in day-to-day inter-professional disputes (e.g., Barley, 1986) and traditional professional–client relations (e.g., Freidson, 1970), this study shows that these resources are unlikely to be efficacious in contemporary professional–client relations. Rather than assuming that their formal position and recognized expertise will induce clients to comply, professionals must ''attempt to win the consent of the governed'' (Selznick, 1949: 13) by engaging in social transactions with their clients that create a basis for obedience.

Scut work is an unexpected means through which professionals can reshape client relationships and responses. By being in clients' spaces and interacting with clients, professionals can offer practical help that may offset their demands, encourage compliance, and create dependencies. Professionals can also observe the context in which clients operate and how that context might interfere with prescriptions and treatments. This allows them to modify practices in a way that makes them seem part of regular routines and, eventually, become taken for granted. Further, by working in the same conditions and demonstrating hands-on knowledge of the client's situation, the professional can demonstrate that the advice is, despite acknowledged inconveniences, in the clients' best interest. This sort of access to clients and their daily grind is likely to require that experts perform scut work. Instead of always being advisors offering expertise, professionals may have to be workhorses who offer practical help or assistants who pick up less glamorous tasks that ensure compliance. I find that by holding on to scut work, doing the menial and usually dirty labor that professions are encouraged to hive off (Hughes, 1958), professionals can enact authority over clients, preserving their autonomy from managerial oversight (Hughes, 1958; Abbott, 1988). This is contrary to the established idea that unique expertise and opaque inference processes are the source of professionals' advice and treatment (Abbott, 1988).

The findings also identify an unexplored lever in the classic struggle between professionals and the bureaucracies in which they work. Clients, when relatively content with the professionals' practices and interactions, are a resource that professionals can leverage against managers to support their autonomous ways of working. Conversely, client dissatisfaction with and complaints about professionals are a resource that managers can leverage to challenge and interfere with professional practices and autonomy. Such a counterintuitive strategy makes sense when clients' behavior and complaints can affect how an important audience, such as managers, perceives the value of professionals' practices and when clients' behavior may prevent professionals from treating problems in their jurisdiction.

Professional Resources, Scut Work, and Dirty Work

This study shows that there may be significant advantages to controlling all work related to the client and not ''hiving off'' (Hughes, 1958) any of it. This finding runs counter to an established principle in the professions literature, that a profession is better off when its members delegate work that does not

demonstrate their expertise (Hughes, 1958; Abbott, 1988). My findings suggest that professionals should consider whether the work they are tempted to cast off might enhance their capacity to solve expert problems and achieve their professional goals. Studies of technicians, who do significant scut work, show that professionals may lose important information about their clients and about how their advice falls short in particular circumstances (Barley and Bechky, 1994; Barley, 1996). Although such roles both buffer professionals and broker knowledge about clients and problems, professionals may include it in their jurisdiction to ensure they have direct experience and high-quality information about their clients. This is particularly important when misunderstandings about professionals' advice or clients' situations can be escalated in the organization and adjudicated by administrators. But even if this is not the case, professionals may believe that this information will improve their ability to diagnose and treat clients. For example, some surgeons believe that scut work improves their ability to care for patients and that physicians who look after their patients in a complete way, including via scut work, are role models (Pratt, Rockmann, and Kaufmann, 2006: 251).[3]

This suggests that it is important for scholars and practitioners to make a distinction between scut work and dirty work. Scut work may generate resources that facilitate the exercise of authority and performance of expertise. While scut work is usually dirty, not all dirty work is scut work. Dirty work is not necessarily lower-skilled work, and when it is lower skilled, it may not include tasks that have the potential to inform higher-skilled work. For example, surgeons and gastroenterologists perform dirty work that most would consider high skill (not scut work), and street cleaners perform dirty, lower-skilled work, some of which could inform the work of urban planners (scut work) and some which would not.

When scut work is dirty, professionals can estimate the resources gained through scut work against the accompanying taint. The RADs' scut work enabled their continued autonomy, but at a cost. First, the group's work, dress, and tools did not generate a white-collar, professional image. They did physical work in and around the labs that was literally dirty, so they wore clothing and shoes suited to this work and were more likely to be seen carrying work tools than laptops. Researchers would likely be surprised to learn that the RAD lying on his back under a lab bench checking a sink trap held a Ph.D. in nuclear medicine. Second, RADs interacted daily with clients who often treated them poorly. With time, some researchers came to treat them well, but because turnover in labs is continuous, there were always new PIs, post-docs, and graduate students who lacked basic respect for them and their work. The RADs worked on bringing the labs into compliance and were less worried about impressions. They believed that if they worked with the labs they would be in good standing with the researchers and PIs. In contrast, the BIOs presented a stereotypical professional image in their interactions. They wore office attire, were never dirty, and did not perform menial tasks in labs. Despite the negative consequences for their image, however, the RADS were able to enact authority over their clients and maintain their autonomy.

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[3] See, for example, one surgeon's defense of scut work as a valid part of medical training (http://ohiosurgery.blogspot.ca/2009/10/in-defense-of-scut.html).

My findings suggest that the analyses concerned with professional image and identity problems identified in interview studies (e.g., Pratt, Rockmann, and Kaufman, 2006; Vough et al., 2013) have captured only part of the story. In documenting situated patterns of action and meaning systems over an extended amount of time, this study shows that in doing certain tasks, professionals do take hits to their image, but they also develop resources that allow them to implement and demonstrate their professional capacities. In this case, there is a net gain to doing scut work. Some professionals may focus on claiming and playing a role, but most clients are concerned with getting things done and are more impressed by professional advice that meets their needs and that is efficacious in complex situations than by professionals' image displays. Professionals who do not worry about upholding a stereotypical professional identity but who instead focus on material practices that help them achieve their mandates may be more successful in maintaining authority over their work. Managing identities in relation to clients, which arguably the BIOs did, may mean that professionals constrain their client interactions and have fewer resources to draw on to understand and work with their clients. While professionals may worry about the effects of scut work on their status and identity, it may create overall positive effects in their interactions with clients.

Autonomy from Managers

For scholars who examine organizations as a terrain on which control is continuously contested, this study complicates the nature of the struggle by creating a triangular configuration among professionals, managers, and clients (Lopez, 2010). Clients may be enrolled in jurisdictional struggles between managers and professionals. Clients' complaints may be mobilized by managers as reasons for change, and the specific dissatisfaction may indicate what should change. Clients' and managers' interests may align in ways that infringe on professionals' control. Alternatively, clients and professionals might work as allies and, in the process, ignore management's requests and changes. By allies, I do not mean that clients become active supporters or defenders of a professional group but that clients enter into exchange relationships, do not circulate complaints beyond the relational transactions, and try to implement the professionals' advice. Client satisfaction—high ratings, repeat collaborations, and referrals—may be cited by professionals as a reason for the status quo or may convince managers that upsetting the status quo may be costly.

Given this, relational authority strategies protect professionals' practices and techniques from managerial interference. Where professionals are embedded in bureaucracies, they would be wise to closely manage their relationships with clients so as to keep managers out of their business. While these strategies serve to protect professionals and the profession more generally from outside interference, they may also have broader societal implications. Buffering diagnosis and treatment from politics, financial pressure, and clients' requests not only maintains the perception of professionals as independent experts but also can ensure that particular types of expert, technical, and legal work proceed as professionals see fit. Professionals may continue to wield control over domains of work they know best and for which they are committed, at least ideally, to principles and communities beyond their organization. Researchers design clinical trials. Engineers decide when spacecraft launch. Actuaries determine what

rates will fund pension plans. To fulfill broader professional mandates and principles, professionals need to understand how they stand vis-à-vis their clients and work to ensure that clients perceive dependencies, come to value professionals' advice, and submit to professionals' requests.

Although this study has focused on established professions, the findings also have relevance for understanding the politics of knowledge work in a post-industrial economy in which knowledge-based groups operate in organizations with a mix of formal and expert authority. Like the professional groups I observed, these experts also face the challenge of garnering acknowledgement of and compliance with their expertise in the organization. They must find strategies that ensure regular and near-automatic obedience to their commands to accomplish their tasks. Experts who fail to exercise authority and elicit obedience put at risk, at least initially, their autonomy and ability to self-regulate and evaluate their work.

Boundary Conditions and Future Directions

Several factors condition this study's findings. First, the researchers' long-standing complaints about the BIOs' advice had implications for professional control only because Eastern adopted a management system. For clients to be a threat, there must be some sort of accountability system through which their experiences and complaints can be captured, accumulated, aggregated, and brought to an authority that can disrupt professionals' claims. The implementation of accountability systems depends on managers' decisions, external shocks (such as an EPA inspection), or clients' alliance or affinity groups (e.g., AARP). Alternatively, clients' complaints can be articulated and accumulated via social media. As organizations increasingly pay attention to their mention on these forums, complaints may draw the attention of senior managers or other authorities who hold professionals responsible. Without an accountability mechanism, clients' complaints have limited implications.

Second, the university setting, a professional bureaucracy, has particular implications for the broader application of these findings. In this case, the clients, located on the academic side of the organization, had higher status than the professionals, located on the administrative side of the organization. Academic laboratories tend to be intractable governance sites because researchers enjoy an unusual degree of autonomy and deference, and they often have limited tolerance for external interference in their research protocols and laboratories (Huising and Silbey, 2013). Although it could be argued that graduate students, laboratory technicians, and undergraduate students had lower status in the organization than the professionals, the fact that these researchers are tied to the research programs and priorities of the PIs elevates their status in the organization. Should the RADs have made a graduate student unhappy or interfered with his or her experiments, the PI would have intervened, so in effect all researchers had higher status than the professionals did. This difference in status between clients and professionals will not be the case in every setting. Low-status clients may also need to be controlled, but it is more likely that in these cases expertise will be sufficient to compel silent compliance. It is unclear what kinds of strategies, if any, might be necessary when the professional groups and clients are on equal footing or when the clients are relatively less powerful.

Additionally, the clients in this case were also members of expert occupations; however, the researchers were not interested in challenging the RADs' and BIOs' jurisdiction for the purposes of claiming this jurisdiction for themselves. In other settings, the clients may be potential jurisdictional competitors. This would likely return us to more familiar stories of inter-professional struggles (Barley, 1986; Bechky, 2003). This study also considers embedded clients who are fellow employees. It is possible that the dynamics of external client relationships require different strategies. Future research in this area could examine how relative client status influences the need for and forms of relational authority. Differences in the abilities of embedded and external clients to threaten professionals' authority also require further investigation. We also require insight into managers' efforts and practices for enrolling and controlling clients in relation to professionals. Under what conditions, and through what sorts of interactions, do clients decide to align their interests with those of managers?

Third, the nature of the work of the professions studied may not translate to other settings. The RADs were not constrained by the existence of an organized group of paraprofessionals who might compete for the work they did in the labs. For pharmacists, doctors, and lawyers, there are established groups of paraprofessionals who act as mediators between the professionals and their clients in many interactions. In these situations, professionals would have to employ other methods of relational authority, as they could not take on this work, which has been hived off. It may also be untenable in some professional work environments for the professionals to take on menial client tasks. When professionals cannot claim the technical and service work related to their expertise, they must either ensure that related work groups consistently broker high-quality information about the clients or find other sources of client information in order to find means of enrolling clients. When work is already carefully divided among related occupations, the strategies identified in this paper may not be possible. But the notion that clients may pose a threat is still relevant in these situations. Further research in such settings may consider the role of clients in inter-occupational struggles and the ways in which various related professions enroll the same client.

These findings, relevant to professionals who wish to exercise authority, are also of broader societal relevance. Modern society is predicated on the expert division of labor. The state and the public often presume that members of a profession can exercise authority and expect that they can produce particular outcomes, such as safe workplaces, sufficiently funded pension plans, educated students, and prudent accounting practices. When clients influence professionals' practices in ways that prevent professionals from producing these outcomes, either directly or indirectly, the effects may be felt far beyond the profession. Spectacular examples of client control failures can be extracted from accounting practices at Enron or WorldCom. Less spectacular, but no less serious, examples abound. This study identifies a set of practices that professionals use to develop relational authority over their clients and ensure that they can achieve their mandates, which often yield desired organizational and societal outcomes, such as public safety, clean drinking water, safe food products, and the absence of fraudulent or illegal practices. As we continue to rethink the relationship between professions and their clients, further

understandings of dynamics and implications of this relationship are sure to be uncovered.

Acknowledgments

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