A Technological Intrusion

Ranching, Mining, and the Human Impact of Natural Resource Development. RAYMOND L. GOLD. Transaction Books (Rutgers University), New Brunswick, N.J., 1985. x, 175 pp. $24.95. New Observations.

For generations the residents of Sagebrush and its surrounding ranches and farms have struggled with drought, insects, economic boom and bust, even illness far from state-of-the-art medical services. In doing so, these sons and daughters of the pioneers share a tenuous hold on the elusive Western dream of pastoralism and rurality—informal social life near family and friends amid the tamed gardens, small towns, ranches, and amber waves of grain in America's wide open spaces.

Through this struggle and the corresponding lifestyle, Sagebrush residents attain an important and valued goal, "being able to recognize practically anybody in the region, living in a stable and familiar environment, and being part of informal life-support systems," as Raymond Gold puts it. Far more than economic necessity integrates the various Sagebrush households; family, informality in business, deep utilitarian bonds with the natural wildlife and landscape of the area, unlocked houses and trucks, volunteer fire and ambulance service, sympathetic neighborhood child watchers, and other features of small town life create deep ties among residents.

Some time after the oil embargo in 1973, Sagebrush residents found themselves embroiled in a controversial situation stemming from the construction and start-up of a mine-mouth, coal-fired electrical generating station and associated strip mining on the outskirts of town. This technological change in Rangeland County would result in substantial social change because of in-migration and new demands for public and private services, but it took on added significance because the project came to be known piecemeal and without the openness and forthrightness to which Sagebrush residents were accustomed. Here is a description of the decision-making associated with the plant and its mining activity:

> The decision . . . was made by the company's board of directors after evaluating the technical feasibility of such a plant and the demand for electricity in the urban areas it served many hundreds of miles from the selected plant site. Residents of Sagebrush were given no voice in the 'go' decision which the board of directors made and were not even informed of the decision and its likely impact on their community until preparations for the project were all underway. In a word, the project was done *to* Sagebrush much more than *with* or *for* Sagebrush [p. 161].

Though the social consequences of this technological change transcend any effects the plant might have on the Rangeland County ranchers and farmers, the start-up and continued operation of the electricity generator depended upon the acquisition of leases from landowners, including the cattlemen, near Sagebrush. Thus, protracted and contentious relations between the conservative, patriotic ranchers and metropolitan-based corporate executives committed to technological progress and corporate growth became central to the fate of this small western town.

In analyzing Sagebrush and the social changes the community has been experiencing Gold has two primary concerns: the dynamics of community growth and change, viewed in the light of more than a century of sociological literature on the subject, and strategies of natural resource development and their consequences for corporate endeavors and the host communities.

The community–society typology is used in pursuing the first objective. Introduced by Tönnies's *Gemeinschaft und Gesellschaft* (1887), the typology provides two models of human values and behavior that can be used to characterize community life. Communal (*gemeinschaftlich*) values and behavior prevail when social interaction occurs principally on the basis of traditional or customary familial roles, long-standing obligation, and mutual trust. Social interaction qualitatively differs as people become committed more and more to the pursuit of rational efficiency and the maximization of economic profit. Complex, impersonal patterns of social interaction and (*gesellschaftlich*) values emerge, with people's interests protected formally by contract and law.

Gold, among others, argues convincingly with evidence from Sagebrush and elsewhere that the community–society typology represents neither antithetical categories nor stages in a linear evolutionary process. Moreover, the major concepts, *Gemeinschaft* and *Gesellschaft*, are strictly theoretical, ideal types. Thus, one would expect to find elegant manifestations of both forms of values and behavior in small towns or large cities and considerable variation in the observations coming from places with similar levels of urbanization and industrial technology.

Though this reasoning (of which there is more) may be mind-numbing to all but the most ardent student of the community, there is an obvious and important point. If we are to understand or anticipate the impact of technological change on residents of communities, we need to start with a model that accurately reflects the territory. That Gold does so in Sagebrush makes the work all the more distinctive, since rural areas throughout the world will continue to be attractive to energy development companies with the resources to produce large-scale technological and social change in communities, if not entire regions.

The *gemeinschaftlich* qualities of Sagebrush, interestingly enough, are on the ebb even before plans for mining and electricity generation are known among the ranchers and townspeople. The town business people and the cattlemen split apart on opposing sides as they begin to recognize the potential consequences of in-migration to Sagebrush by corporate executives, construction workers, and their families. One even finds rancorous conflict within the ranching community as some cattlemen realize that sale of leases to the energy corporation might save their ranches. As Sagebrush is besieged by public officials committed to energy development, guileful executives, and workers who chase cattle and trample grasslands on weekends with off-road vehicles, the cattlemen retreat to the *Gemeinschaft*—an inner structure of the community composed of extended family, inaccessible hunting and fishing sites, and friends as far away as Junction City. The internal conflict and retreatism experienced by the cattlemen and others

ultimately lead to a formal organization, the Rangeland Protective Association, a local interest group affiliated with the Mountain State Resource Council. Thus, through *gesellschaftlich* social action, the cattlemen and their Sagebrush allies are able to find out what is happening in their community and how their waning interpersonal trust can be restored.

In addition to providing insight into the dynamics of community change, Gold compares and contrasts two forms of natural resource development, characterized as contentious and accommodative. Contentious development involves decision-making by energy or other resource producers with little or no consultation with indigenous groups. Discussion with local residents of the risks of pollution, estimates of population growth, anticipated changes in the school age population, potential housing and water supply needs, or the possible duration of an energy development project is avoided. Accommodative development involves local people in planning a project to the point of deciding whether a proposed development should take place and how, how fast, and with what controls. In the accommodative form, "development proceeds only if differences in interests and values and in the handling of ethical issues can be reconciled enough to make acceptable sense to all" (pp. 151–152). Considerable attention is given to specific recommendations for accommodative resource development based upon known cases, and Gold argues for this approach on ethical as well as economic grounds.

Though "Sagebrush" is a pseudonym devised by Gold to protect the many small western towns in which he has worked during the current years of energy shortages, it reflects a reality he has extensively observed. The book is based on more than a thousand interviews with representatives of Indian tribes, teachers, students, homemakers, financiers, ranchers, farmers, business persons, construction workers, clergy, physicians, and others. Gold and his associates traveled throughout Montana, Idaho, Wyoming, and North Dakota in their work, and the analysis of more than a decade of field notes certainly must have been a test of Gold's mettle. What is even more important about this book is the overriding rationale it provides for the accommodative strategy of natural resource development. According to Gold and others, people must adopt this strategy not only to comply with the law of the land but also to face a fundamental ethical problem. Should major technological developments continue in social contexts where they cause sweeping and irreversible changes to residents largely for the material benefit of people living elsewhere? Though Gold does not pretend to have an answer to this hard question, he believes that accommodative resource development will force participants to deal with it.

Though this book clearly has many strengths, it is not without problems. The voluminous wealth of field notes upon which the work is based causes the author problems with redundancy and sketchiness. A more fundamental weakness appears in the treatment of the deviousness and secretive dealings of the energy corporation. Why do executives of energy production companies engage in contentious natural resource development if this strategy results in conflict, production delays, high turnover in the labor force, and lower labor productivity? One gets some insights into this question at the end of the book in a discussion of corporate commitment to technological progress and narrowly defined notions of economic growth, but they do not match the depth of understanding the author conveys about rural values and social life, and one is still left searching for an explanation why scientists and engineers working for an energy development corporation behave in ways that alienate them from those who control the natural resources that are vital to the survival of a corporate enterprise.

In spite of these shortcomings, Gold brings sociology into the environmental impact assessment process in a way that will capture the interest of scholars, public officials, and the corporate world of natural resource development. His style is forthright and engaging, and his qualitative ethnographic approach gives the reader a view of the human social consequences of technological innovation that is uncluttered by the maze of technical considerations all too often dominant in the environmental impact assessment process. Gold set out to identify theoretically and practically important facets of social change occurring in small towns with large-scale energy production systems in progress, and he has done so in a sophisticated and telling way. One really does learn about home on the range in this book, and for that Raymond Gold should ride tall in the saddle.

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Intelligence Reexamined

Beyond IQ. A Triarchic Theory of Human Intelligence. ROBERT J. STERNBERG. Cambridge University Press, New York, 1984. xvi, 411 pp. $39.50; paper, $14.95.

Until 15 years ago, the major theoretical approach to understanding intelligence was factor analysis—a set of mathematical and statistical methods for identifying dimensions underlying the observed relationships between measures of mental performance. In essence, factor analysis, conceived by its pioneers as an exploratory enterprise, attempted to discover underlying order with little resort to theory derived from other data. In the 1970's and '80's, with the growth of cognitive psychology, it became possible to use more direct methods for the analysis of intelligent performance. *Beyond IQ* describes a significant program of research in this current phase of study. In 1977, Robert Sternberg's *Intelligence, Information Processing, and Analogical Reasoning: The Componential Analysis of Human Ability* offered an integration of psychometric and cognitive approaches to intelligence. Sternberg has now attempted to extend the inquiry further, conceiving intelligence not only in terms of the mind's work and what tests measure but "in terms of the context in which it occurs" (p. 43).

Sternberg classifies accounts of intelligence into two categories, explicit and implicit theories. Most investigation of intelligence is based on explicit theories, with psychometric factor techniques and information-processing analyses providing the relevant data. For all their utility, factor-analytic accounts are difficult to falsify, and explicit theories, in general, are weakened by uncertainty concerning the appropriateness of task selection. They fail to capture various aspects of real-world functioning deemed intelligent and are incomplete in not accommodating data on the contexts in which intelligence is used. Implicit theories derive from extant patterns of belief—people's informal conceptions of intelligence at different ages, in different cultures, and in different fields of work. Implicit theories can indicate aspects of intelligence that may be overlooked in explicit theories. Though this book deals primarily with explicit theories, its aspiration is a conceptualization that combines implicit and explicit theorizing—Sternberg's triarchic theory of intelligence.

The triarchic theory consists of contextual, experiential, and componential subtheories. The *contextual* subtheory