

# The Symbol and its Referent: An Issue for Library Education

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The great need of the library profession today is to formulate a professional philosophy that will meet the rapidly changing needs of society for recorded knowledge. *We must re-define our role in society...*[and] make of the library the agency it should be in the total communications process....

*We must put our intellectual house in order* or we will lose control of many functions relating to the communication of the written word that are properly our own.... *This need lies at the base of every other problem of librarianship....* I am deeply disturbed by the malaise that has so long gripped our profession, its shallowness, its sterility, its intellectual immaturity, and *I see no remedy but to probe deeply, however great the pain.*—Jesse Shera<sup>1</sup> [emphasis added]

## Psychophysical Interactionism

THE FUTURE OF LIBRARIANSHIP and library education is intimately bound up with the complex interrelationships of the physical symbol and its symbolic referent. But the physical symbol is always a sensible datum functioning as the means of communication to or from the intellect; thus, it belongs to a different order of being than the symbolic referent, which always constitutes an ideative reality. This has definite implications. It means, first of all, that the relationship of symbol to referent is inherently dualistic and psychophysical, because human communication cannot occur unless physical realities (*ta physika*, which exist as atomic bodies in motion) are used as symbols and wired

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up to formal realities (*ta psychika*, which subsist as ideas in the mind). It means, secondly, that the psychophysical existents and subsistents which constitute the symbols and referents of human communication must be capable of interaction: they cannot be creatures from completely different orders of reality which constitute parallel universes that are something alike but mutually exclusive and forever incapable of influencing one another. The separate worlds of form and matter *do* come together in man; and it is in man, if anywhere, that the problems of human communication must be resolved. Finally—and most importantly—it means that librarianship, which is intimately involved with the communication of knowledge, is thereby deeply involved with the mind-body problem of philosophy, since (1) knowledge is composed of formal subsistents in the world of mind, whereas (2) all expressions of knowledge consist of physical existents in the world of atoms in motion. The mind-body problem implies, furthermore, that the librarians and their educators have identical requirements and similar functions, both must be able to discern the system implicit in librarianship, the latter in order to explain it and the former in order to implement it; but neither can do either unless the interordinal relationship of physical symbols and ideative referents is understood. This relationship constitutes the major philosophical issue of the library profession in the twentieth century. Library education, surely, must ultimately rest on a sound philosophy of librarianship. That philosophy clearly must be dualistic, psychophysical, and interactive. Since all of the elements for constructing such a philosophy are available in the writings of form-philosophers like Abraham Kaplan, George Herbert Mead, and Karl Popper, this paper presents the dualistic philosophy of psychophysical interactionism as something for library education to consider—but not as something for immediate implementation in its curricula.

### **The Two Worlds of Philosophy and the Mind-Body Problem**

All philosophies struggle to understand the meaning of the differences between (1) the physical world man lives in, and (2) the formal world of the spirit that lives in man. The world man lives in constitutes the temporal mode of objective becoming, the natural order of the material universe whose physical existents include everything that exists in a physical way. The formal order of the noetic universe, on the other hand, is the permanent mode of subjective being, the world within man whose metaphysical subsistents and their derivatives lie completely beyond the material universe and include everything that exists

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in a nonphysical way. These differences, which are implicit in Greek thought from the very earliest times, became fully explicit in Plato and have persisted throughout the Western intellectual tradition.

Greek philosophy is based on one metaphysical assumption, two philosophical systems, and three basic questions. The first philosophers of science were the Ionian materialists, monists who avoided the dualism of mind-body metaphysics by assuming the perfect unity of life and matter. Thus, they accepted the monistic version of hylozoism, the belief that matter was alive; and they tried to answer the most basic cosmological question implied by that belief, the question of ultimate substance: "What is the living *physis* made out of?"

In Southern Italy, however, the second wave of matter-philosophers developed leanings toward a twofold reality. The Pythagoreans of Croton, whose problem was also to understand the material *physis*, created a scientific formalism based on a definity-indefinity dualism derived from number mysticism: they argued that (1) all existents are defined space or time, because space-time, though undefined, is infinitely definable as physical objects (space materialized) or physical processes (time materializing); (2) the elements of objective reality are mathematically determined, since definity is quantifiable and numbers constitute the defined forms, primary patterns, or mathematical models of observables; and (3) observables are material realizations of their forms. Philosophers at Elea discovered the dualism implicit in hylozoism, which suggested that matter (*hylōs*) was somehow different than life (*zōē*), or at least different from the noetic structure (*logos*) underlying the sensory patternment of change. Matter, they argued, could not be both a constant (because it was always there, forever like itself) and a variant (because it was alive—and therefore embroiled in ceaseless change). This discovery shattered the monistic unity of Ionian materialism and split Italian materialism into opposing camps of extreme monists, who polarized over the postulates of permanence (*stasis*) and impermanence (*kinesis*) and joined battle over the second cosmological question of scientific matter-philosophy, the question of motion: "Do things exist in a permanent state of Being, or in a temporal process of Becoming?" Parmenides and the Eleatics took the extreme rationalist position: they were skeptics as to sense data, who, by accepting the postulate of permanence completely (and completely rejecting the postulate of impermanence), became so "addicted" to Being that change could not exist at all and everything but permanence (*stasis*) was unreal. Heraclitus, the mirror obverse of Parmenides and a wet blanket if there ever was one, took the extreme sensualist position: he was wholly committed to Becoming, a total skeptic as to intellection, who reversed

Eleatic procedure (by accepting impermanence completely and rejecting permanence the same way), formulated his infamous doctrine of the flux (*panta rei*: all things flow, motion is all there is, everything but change is an illusion, and so on), and concluded that impermanence ruled the cosmos because process (*kinesis*) was the only reality.

The result was an either-or controversy of extreme monistic views (in which everything stood perfectly still or moved frantically about), a standoff of permanence *v.* impermanence that opened an unbridgable gulf between the Parmenidean philosophy of Being and the Heraclitan philosophy of Becoming. This controversy was seen as ridiculous by the common man; but it became a challenge to the new breed of “reconcilers” in philosophy, the Aegean followers of Leucippus and Democritus, who succeeded marvelously well in bridging the unbridgable gulf between Parmenides and Heraclitus by combining the ideas of Being and Becoming in the atomic model of matter. The *atomoi* were physical permanents moving freely in space: they were qualitatively alike, because they were always the same; but their patterned combinations were never the same, because they were quantitatively distinct. Atoms, that is to say, varied only in their arrangements; and this enabled the matter-philosophers to account for everything that is—at least in the materialistic view of reality.

The significance of pre-Socratic materialism for the history of Western philosophy is difficult to overestimate. It rescued the Greeks from their fascination with Oriental mysticism by directing their interests to the cosmos and opening the way for the spiritual life of Greece to become intellectual, scientific, and cultural (rather than mystic and theological). It is the source, moreover, of the most fundamental contributions ever made to Western science. These include (1) making logical and ontological distinctions between order (in the intelligible world of mind) and disorder (in the sensible world of matter), and (2) reasoning from observed disorder in the *physis* to an ordering principle in the *metaphysis*. These two contributions are virtually sufficient to account for the modern scientific belief that natural phenomena can be explained by natural law: the matter-philosophers of Archaic Greece believed that the physical variants of Becoming were incomprehensible unless they were secured to the rational constants of Being; and we therefore believe that there is order in a phenomenal world governed by law. That is their most basic cosmological legacy to Western civilization—the powerful materialistic faith that natural law is real, that it does explain phenomena, and that it can be understood.

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The world known to science was thus constructed as a mechanics of swirling atoms before philosophy was confronted by Athenian immaterialism, which constructed another model of a very different world. The third question of Greek philosophy, therefore, was the humanistic question posed by Socrates: "What is man?" Socrates marks an important turning point in the history of philosophy, for he was the foremost exponent of the "anthropocentric attitude to life," which "pervades everything felt, made, or thought by the Greeks."<sup>2</sup> He was not enamored with the physical world, to say the least: he was deeply interested, however, in the world within man; and that interest emerged from him as the potent philosophical tendency of humanism, which derailed scientific materialism at Athens and focused the attention of philosophers on "the study of man himself..., his nature and place in the world, his relations with his fellows."<sup>3</sup> He urged the Athenians to care for their souls because the soul was the man, whereas the body only *belonged* to the man: the human body was the physical technology of the soul, something the man found necessary and useful for interacting with the world around him; but it was not the man, because man was a formal thinking subject—not an objective mechanics of action.<sup>4</sup> He personified the *gnothi seauton*, a proverbial Greek maxim meaning "know thyself," which he also urged upon the Athenians: if you want to understand the human *Geistesleben*, he argued, you must begin with an introspective examination of the formal patterns in your own intellectual and spiritual life (to which alone you have personal and immediate access), learn to recognize the presence of similar forms in the expressions of other people, and end with the subjective ability to understand the formal meanings of human expression both generally and in the arts, literature, and philosophy. This recognitive approach to the study of immaterial form was the furthest thing imaginable from the analytical study of physical substance and content (which dissolved everything into atoms), because the subjective recognition of form and its intersubjective communication cannot be equated with the objective analysis and description of matter and energy. Thus Socrates constructed another world for philosophy—the new world of the human spirit—and opposed it to the physical world. The very different ways of thinking about these two worlds were then systematized in the form-philosophy of Plato and the matter-philosophy of Democritus and worked into a comprehensive philosophical synthesis by Aristotle, who gathered together all the threads of Greek philosophy clear back to Thales. Between them, Democritus and Plato constitute an ontological

dualism of scientific and humanistic outlooks which has dichotomized the entire history of philosophy, because "this division of philosophers into materialists and teleologists—matter-philosophers and form-philosophers—is perhaps the most fundamental that can be made in any age, our own included."<sup>5</sup>

The resolute persistence of these two worlds, once constructed in antiquity, has been astonishing. Nothing in Western thought has escaped their influence, for the Greek disjunction of reason and the senses which supports it, though shot up often enough, has never been shot down. It has been observed, for example, by William James—whose natural realism and anti-intellectual pragmatism identify him with matter-philosophy—that philosophers tend to be "sentimental" humanists (like his enemies) or "hard-hearted" scientists (like himself). This is his "celebrated dichotomy" of philosophical temperaments, "the tender-minded being Rationalistic (going by 'principles')," the tough-minded "being Empiricist (going by 'facts')." James was referring to the defensive religionists and arrogant scientists of his own day, to be sure. But "even so," says Ayer, "he does succeed in characterizing two broadly opposing tendencies which can be distinguished throughout the history of philosophy."<sup>7</sup> This grouping, or something like it, is ultimately inevitable, because to this day philosophy has only two main problems, of which all its other problems are subsets: *the nature of the physical world*, which includes all of the phenomenal objects of scientific inquiry, and *the spiritual nature of man*, which constitutes the noumenal basis of humanistic study.<sup>8</sup> This fundamental dichotomy has permanently polarized philosophers over the irreconcilable contradictions of physical monism and psychophysical dualism in the West. Zeller has explained how this happened when the monistic assumption of unity in Greek philosophy was confronted by the dualism of its major systems.

Greek philosophy shows us the formative conditions of critical thought, in which an obstinate distinction between its two elements and their disruptive separation develop from the supposed serenity of their unified existence and original equipoise without realizing their latent promise of unity.... The original premise of Greek philosophy, the starting point from which it proceeds, is the harmonious relationship of mind with nature which is the distinguishing characteristic of classical culture generally; and it is only step by step, and virtually against her will, that philosophy sees a most basic distinction forced upon her.... Thus, the ultimate result of Greek philosophy is a dualism, which, for all of her critical efforts to resist it, she can no longer overcome; and the development of this dualism can be fully documented, even in the days of her greatest efflorescence.

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Nevertheless,...since the original presupposition of [unity in] Greek thought is progressively validated by the distinctive features which determine its character, the inability of Greek philosophy to reconcile its contradictions satisfactorily must also be explained by that selfsame presupposition, from which it never frees itself: the unity of mind and nature, which it requires and presupposes, is clearly the unbroken unity of the classical world view; and when this view of reality breaks down, there remains to philosophy no means of closing the gap which, from its own point of view, has no right to be there in the first place.<sup>9</sup>

The mind-body problem, which is derived from the explicit dualism of Plato's form-philosophy and Democritean matter-philosophy, is without question the most persistent problem of Western thought, because the rational communication of intellectual order, structure, and form is logically distinct and ontologically separate from the empirical description of physical objects, processes, and forces. One might think, therefore, that 2600 years of failure to bridge the gap between formalism and materialism might justify the inference that it cannot be bridged; but that is precisely the inference one cannot make in the West, because it demolishes the foundation on which philosophy was built—its monistic presumptions of unity between form and matter. This presumption is based, as Zeller indicates, on the “unwritten philosophy” of classical antiquity, the unverifiable postulate of ultimate rationality which assumes that man and the universe are somehow alike, that the universe is indeed orderly and intelligible, and that the human mind is capable of constructing a complete system of truth.<sup>10</sup> That is the magnificent pipe dream of ancient Greece: it is hopelessly idealistic and unrealizable; but the Greeks really believed in the possibility of creating one superscience for explaining everything; and the modern monists have followed them in trying to construct a scientific system so comprehensive and so airtight that, starting from any particular in the system, it could induce an all-inclusive premise from which the whole of reality could be deduced. This ambitious vision of reality, however, remains patently absurd (as it was anciently), for it still requires its seems to assume one of the two extreme monist positions first taken in antiquity: everything must be ultimately reducible to intellectual patterns, as in the form-monism of Parmenides, or to physical motions, as in the matter-monism of Heraclitus. Either of those positions, of course, annihilates the mind-body problem, which becomes a nonproblem if there is no such thing as mind and everything is matter or vice versa; but every other philosophical position faces the realities of mind and matter and wrestles with the problem of determining, if possible, how they relate to one another.

The modern philosophers, even though scientifically minded and monistically inclined, have not been able to avoid the mind-body problem. They learned, as their predecessors had already discovered, that the world of matter and energy is a temporal domain of physical Becoming perceived by the senses, whereas the world of form is an eternal realm of permanent Being whose patterned abstractions are discerned solely by thought. Each of these worlds has attracted adherents since the beginning of time, as described by Bertrand Russell.

The world of [formal] being is unchangeable, rigid, exact, delightful to the mathematician, the logician, the builder of metaphysical systems....The world of [physical] existence is fleeting, vague, without sharp boundaries, without any clear plan or arrangement....According to our temperaments, we shall prefer...the one or the other. The one we do not prefer will probably seem to us a pale shadow of the one we prefer....But the truth is that both have the same claim on our impartial attention, both are real and both are important.<sup>11</sup>

But *how* are these worlds related? That question has thus far defied adequate solution, although partial answers have been provided by the modern philosophers. Impatient with the metaphysical theories of their predecessors, they abandoned traditional philosophy and joined, almost to a man, in a massive effort to find a valid method for obtaining reliable information, regardless of the world it came from, because they were determined to get at the truth. "They were successful in the search for a sound method"; but once discovered, "it became the method of *science*,"<sup>12</sup> not a universal method for disclosing the truth about everything.

The difficulty was that philosophers continued to disagree on everything *except* the method of science....To possess a method is to have a way of deciding what questions may sensibly be raised, and how to progress toward definite answers. Scientists obviously have such a way [of deciding scientific questions]....As a result of the concentration on method, a few principles of sound inductive inquiry became firmly established; [and] from that time on they have commanded respect from every seeker for truth in the realm of observable fact.<sup>13</sup>

Thus, the methods of science have become effective and appropriate for obtaining information about the physical world of bodies in motion, which constitutes the subject matter of science. But all other aspects of the mind-body problem remain unresolved. The trouble is that modern science, far from realizing its self-defeating ambition to include all truth and encompass all reality, suffers (as science has always suffered) from "an intrinsic, built-in limitation upon the growth of scientific understanding"—an epistemological limitation of human logic that

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rests on a metaphysical "Law of [the] Conservation of Information,"<sup>14</sup> which corresponds to the physical laws of the conservation of matter and energy. This law has been stated by Medawar as follows: "No process of logical reasoning—no mere act of mind or computer-programmable operation—can enlarge the information content of the axioms and premises or observation statements from which it proceeds."<sup>15</sup> This law, which determines the limits of scientific knowledge, governs such things as (1) *mathematical theorems*, which "are merely a spelling out, a bringing into the open, of information already contained in the axioms and postulates"; (2) *deductive conclusions*, because deduction "merely makes explicit information that is already there" and "is not a procedure by which new information can be brought into being"; and (3) *inductive generalizations*, since no generalization "can contain more information than the sum of its known instances."<sup>16</sup> "Thus Law of [the] Conservation of Information makes it clear that from observation statements or descriptive laws having only empirical furniture there is no process of reasoning by which we may derive theorems having to do with first and last things."<sup>17</sup> To summarize the whole matter, that is to say, the scientist, specifically qua scientist, can say absolutely nothing—whether positive, neutral, or negative—about the metaphysical problems of philosophy or theology because "the propositions and observation statements of science have empirical furniture only."<sup>18</sup> If the implications of this law had been understood and respected, the methodological imperialism of modern thought could never have developed, for the physical methods of science would not have been transferred, in strict simian fashion, from physics, to chemistry, to biology, to physiology, to psychology, to sociology, and thence to the rest of the social sciences and even to the humanities; and mathematics, the intellectual technology of materialism, would not be applied to everything today.<sup>19</sup> It has taken a long time, but the modern philosophers have finally come to realize that "knowledge is not the simple affair it had previously been taken to be," and that they must distinguish "between truth as confirmable by scientific techniques and truth that can only be won in other ways."<sup>20</sup> Considerations like these have tremendous implications for the scientizing of librarianship and its repercussions in library education.

### **Librarianship and the Two Worlds of Philosophy**

*From chaos to Kaplan.*<sup>21</sup> The library profession, according to Shera, should adopt the philosophy of library education expressed in Abraham Kaplan's "The Age of the Symbol."<sup>22</sup> That philosophy, how-

ever, implies three things about librarians and their educators: (1) they have never isolated, much less resolved, the fundamental problem of librarianship; (2) they have forsaken the humanistic foundations of their profession in the name of science; and (3) they do not understand the occupational alignment of librarianship with the metasciences. Correcting these deficiencies is the key to cleaning up the mess librarianship is in; and its only alternative is learning how best to live with the mess.

The fundamental problem of librarianship is the unprecedented and ever-deepening involvement of the modern age with symbolism. Symbols clearly "occupy a larger part in our lives today than ever before"; and "the size of that part," as Kaplan indicates, "is growing exponentially"<sup>23</sup> because the knowledge explosion, which has transformed the modern era into an age of the symbol, is overwhelming everybody with its veritable oceans of information. "Theories about information," by which Kaplan specifically means "theories about symbol processes,"<sup>24</sup> constitute one of the basic cultural realities of the twentieth century, which has become increasingly immersed in this whole problem of symbolism and is currently struggling to stay afloat in it. According to Kaplan, therefore, it is the symbolic nature of our cultural environment which explains why "enormous changes at every level of modern society can be associated with the concept of *information* [emphasis in original]."<sup>25</sup> The growth of symbolism has caused, first of all, "the sheer volume of information," which makes it virtually impossible for anyone to keep abreast of developments in any field; it has also caused the "fantastic growth in the technology by [means of] which information is produced, processed, and transmitted" in the physical world; and it has created the "many intellectual disciplines" which have recently "come into being around processes of symbolization or have begun to focus...[on] the nature of language and symbolism."<sup>26</sup> Thus, the information problem and its technologies are merely the expressions of a deep-seated cultural anxiety caused by the unruly growth of knowledge in a symbolic environment that seems completely out of control. "From the standpoint of the theory of ideas," which is Kaplan's standpoint throughout, everything suggests that "ours is the age of the *symbol* [emphasis in original]."<sup>27</sup> He concludes that, given the context of relentless cultural change, it is "altogether understandable" that librarianship, which is "occupied centrally with precisely what underlies all these changes," should be "engaged in a search for some fixities in this flux, and concerned with re-examining the means...for the achievement of its purposes"; and he adds that "the problem of the profession is indeed a genuine problem and is a piece with a com-

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parable problem...faced by many other professions...[and by] society as a whole."<sup>28</sup>

Comment is necessary at this point, lest Kaplan's remarks be interpreted without reference to the mind-body problem or the two worlds of philosophy. He distinguishes sharply, for example, between (1) *the formal abstractions of information*, or the ideas that exist outside of the individual consciousness in an objective but nonphysical way as the intellectual products of countless human minds, and (2) *the physical manifestations of information*, or the symbolic data by means of which ideas are expressed and communicated in the physical world. When Kaplan discusses "the sheer volume of information," therefore, he is talking about ideas. When he speaks of "the technology by which information is produced, processed, and transmitted," however, he is discussing the means by which symbolic data, or the physical *manifestations* of ideas, are produced in the social order and used by human beings as instruments of communication. This ontological difference between the metaphysical nature of ideas (*ta psychika*) and their physical manifestations (*ta physika*) is absolutely essential to understanding Kaplan's thought; and that raises important informational questions about the psychophysical nature of the human involvement with symbolism. Does information reduce to something physical in the empirical world of matter and energy as in science? Or does it reduce to metaphysical patterns in the intellectual spirit world of ideas as in philosophy? Is information the machinery of communication? Or is it distinct from the communicative machinery? Our answer to these questions will disclose the presuppositions that dominate our thinking about information. If we think information is physical data (such as visual characters or speech sounds), we consign it to matter-philosophy; and that consigns us to the scientific study of information conceived as nonsymbolic realities in the physical environment. If we think of information as ideas, on the other hand, it belongs to form-philosophy; and that commits us to the humanistic study of information conceived as symbolic realities in the cultural environment.

These two assumptions and the studies they imply are not antithetical. They are very different, however, because science analyzes the physical behavior of symbols, whereas humanism recognizes the formal meanings of symbolic referents. Scientific theories of the physical symbol are paralleled today by humanistic theories of the symbolic referent. But the progressive librarians, who invariably think of themselves as "scientific," have always preferred the former to the latter; and that underscores Kaplan's point: what is needed is a truly comprehensive theory of communication that integrates the realities at both ends of a

wire connecting human beings to their physical and cultural environments—a psychophysical theory that explains all of their complex interactions with both of those environments. And finally, Kaplan's remark about "intellectual disciplines," which explore the symbolic environment, cannot be understood without reference to "empirical disciplines,"<sup>29</sup> which investigate the physical environment. "Empirical" means "observational"—an important point, since the empirical disciplines always produce *knowledge of empirical realities that can be observed*, no matter how theoretical such knowledge may become, whereas the intellectual disciplines can only create *knowledge of intellectual realities that cannot be observed*, although they can be thought and communicated as thought. This important distinction between two orders of knowledge has been overlooked by the information professionals. They have confused first-order knowledge about empirical phenomena, or the intellectual knowledge of physical realities required by science, with second-order knowledge about knowledge, or the knowledge of intellectual realities required by librarians. That clearly reveals the nonscientific character of librarianship: it is not concerned with realities; it is concerned with knowledge, which always consists of human subjective *reports* about realities. "Human knowledge," as Kaplan reminds us, "is something which is *known* to very, very few human beings,"<sup>30</sup> although it is used by everybody [emphasis added].

Humanism, according to Kaplan, provides the basic foundation of librarianship. It has also given birth to symbolism, which not only creates the central problem of librarianship but sounds "the keynote of all humanistic problems," whose function is to clarify subjective questions "instead of obscuring them as traditional scientific methods have done."<sup>31</sup> The human use of symbols during the Golden Age, as a matter of fact, was responsible for introducing the new outlook of form-philosophy into the Western intellect—an outlook derived from humane concern for the symbolic forms of Athenian immaterialism, not from scientific interest in the cosmos. Western thought began as matter-philosophy in Ionia and continued as matter-philosophy in southern Italy and the Aegean. At Athens, however, it boarded a teeter-totter balanced on the shoulders of Socrates, where it has teetered and tottered ever since. Before Socrates, all philosophers were materialists; with Socrates, however, the materialists were confronted by the genius of a superb form-philosopher; and after Socrates, it has been two for the seesaw all the way.<sup>32</sup> The formalists initially dominated the teeter-totter and controlled its use for over 2000 years. The materialists overpowered

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the formalists in the scientific revolution of the seventeenth century A. D., however, and have since controlled the business end of the teeter-totter. The tremendous success of this scientific revolution in thought has made things difficult for humanism in the Western civilizations, where materialistic ways of thinking have invaded all aspects of modern life. There are signs of modern discontent with materialism, however, as Socrates has made it forever impossible for the people of any Western culture to maintain an exclusive scientific interest in the outside world, without wondering about the world within. This discontent is inevitable, necessary, and desirable in librarianship, which is an intellectual discipline based on rational form, because one cannot fight realities: one can only find out what one's realities are and go along with them. Kaplan argues that librarianship and library education must eventually come to grips with the form-philosophy of critical humanism. "The humanistic basis is there, and [it] will and must remain as a basis."<sup>33</sup> That explains the knowledge orientation of librarians: their need to know about the actual uses human beings make of information "must always remain fundamental"<sup>34</sup> to librarianship because it is fundamental to humanism itself. That need cannot be met by scientific knowledge about external nature. It calls for knowledge of human nature, and that, says Kaplan, "is nothing other than knowledge of people," or more specifically, knowledge "of the various ways in which...[people] generate and transmit and interpret *ideas* or information."<sup>35</sup> These remarks carry two important implications. They imply, first of all, that librarians require an instrumental knowledge of behavior as the human means of dealing with information; but they do not require scientific knowledge of human behavior per se. And secondly, Kaplan is clearly not talking about information-as-data in the form of graphemes (visible squiggles on paper), phonemes (audible wrinkles in the atmosphere), or electrochemical impulses (the circuitry of our nervous systems and computers); he is thinking of information-as-ideas and struggling to understand (1) how human beings bring ideas into existence, (2) how human beings communicate the ideas they bring into existence, and (3) how human beings interpret the ideas they bring into existence and communicate.

From this repeated emphasis on information-as-ideas, Kaplan concludes that students of librarianship should be grounded in knowledge about knowledge by getting to know ideas. He therefore supposes that, "sometime in the course of training," the student will have studied (1) the sociology of knowledge, (2) the history of ideas, and (3) the structure of inquiry, "not merely in some area...of special interest to him but in broad historical and cultural terms."<sup>36</sup> And he further supposes that

library education not only contains humanistic “beliefs about what men are like...and how they make use of ideas” but also inculcates such humanistic values as the love of learning, the love of ideas, the love of truth, “and even...the love of books.”<sup>37</sup> But Kaplan is overly optimistic here, and it must be noted that the library educators have seldom included intellectual studies of this sort in their curricula. Most of them have not been interested in Karl Mannheim, for example, who created the sociology of knowledge in order to study the impact of social organization on ideas; nor have they ever taken seriously the social epistemology proposed by Jesse Shera (the mirror image of Mannheim), who urged the library profession to study the impact of ideas on social organization.<sup>38</sup> Philosophy and intellectual history, furthermore, have never been compatible with the ultrapragmatic interests of librarians and their educators, who have always managed to avoid the history of ideas as though it were the plague. And the continuing addiction of library educators to the scientific models of “research” is tragically interesting: they see no difference between the intellectual structure of inquiry and the operational procedures of research because their interests are overwhelmingly utilitarian; and they have therefore opted for the researcher’s view of critical inquiry by training their students to concentrate on the functions and outcomes of research. But Kaplan’s emphasis on “the *structure* of inquiry” is slanted toward the observer’s view of research precisely because librarians are not researchers: they are the philosophers of research whose function is to attend the research interests of other people. They cannot do that properly, however, unless they know which of the many intellectual strategies of research are and are not compatible with the specific research interests of their patrons. Thus, Kaplan’s emphasis is squarely on the *thinking* that underlies all forms of research, not on the operational procedures and functional apparatus that grind the specific content of “scientific” research into practical results and conclusions. The intellectual loves of ideas, learning, and truth, moreover, are indeed appropriate values for librarians. But, says Shera, “Kaplan weakens this admirable list by adding...‘the love of books.’”<sup>39</sup> Shera’s point is that librarians should think in terms of their intellectual functions, not in terms of their communicative tooling: when they swoon with ecstasy over a monograph they are like emotional mechanics who go into raptures at the sight of ratchets and wrenches. The library profession, finally, has not followed Kaplan’s humanistic recommendations. It has followed the advice of information science, which stems from an empirical commitment to the modern version of ancient matter-philosophy. The result has been the scientiz-

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ing of a humanistic idea-business that cannot be scientized; and the only possible remedy for this condition is to return librarianship to its humanistic foundation.

Kaplan has consistently argued that librarianship is an intellectual discipline based on the philosophical study of ideas, not an empirical discipline based on the scientific study of facts. Its foundation, therefore, is intellectual as in the humanities, not observational as in the sciences. "This intellectual foundation," he now says, "can be provided by nothing other than the...metasciences,"<sup>40</sup> specifically because the metasciences are disciplines that study the intellectual structure of knowledge—not disciplines that use knowledge to study something else. This argument means that librarianship cannot line up and salute with the analytical disciplines which study scientific *phainomena* (sensibles that cannot be thought) because it owes allegiance to the recognitive disciplines which study humanistic *noumena* (thinkables that cannot be sensed). When Kaplan refers to "the mathematical sciences as a basis for library education,"<sup>41</sup> therefore, he is not saying that librarianship is some sort of geometry or algebra: he is saying that the students of librarianship have much in common with the students of mathematical and verbal logic (who study formal relationships) and little in common with the students of physics and chemistry (who study physical objects and processes, and magnetic, electrical, and nuclear forces). Lest we misinterpret Kaplan on this point, however, we should read very carefully the following important statement about the metasciences.

These are sciences not about subject matters provided by man and nature, but about subject matters provided fundamentally by our *ideas* about man and nature, or by our language, or by our ways of transmitting and processing...information....I mean disciplines like mathematics, logic, linguistics, semantics, and, in the narrower sense, theory of information, and maybe cybernetics [emphasis added].<sup>42</sup>

Editorial emphasis on the third occurrence of the word "about" in this statement has misled everybody as to its meaning. But this emphasis is better placed if the italics are transferred to "ideas," since Kaplan's whole point is that the metasciences are form-oriented disciplines that study human thought, not matter-oriented disciplines that study the objects of sensation. No one can distinguish between (1) "sciences...about subject matters provided by man and nature" and (2) sciences "about subject matters...*about* man and nature," because the former is ultimately the same thing as the latter. Thus, the contrast he makes is the classical distinction of Western philosophy, the fundamen-

tal distinction between (1) physical "subject matters provided by man and nature" and (2) formal "subject matters provided by our *ideas* about man and nature"—or about anything else. That is a distinction we can live with and must accept, or the whole concept of the metasciences becomes meaningless.

The metasciences, which study thinkables, include many disciplines that are closely related to science. But these disciplines, according to Kaplan, "then range off into other related metasciences"<sup>43</sup> which, if extended far enough, would ultimately include the studies of linguistics and semantics and the subject matters of art, literature, philosophy, and history. It is important to understand this broadening of the metasciences, which originally included only the formal disciplines of science. The term *metascience*, was originally coined "as a name for the study of scientific inference" by John O. Wisdom in order to make a clear distinction between science and the philosophy of science.<sup>44</sup> The study of scientific procedure, according to Wisdom, is really two studies: (1) the study of scientific practice, which includes methodology or the study of scientific methods; and (2) the study of scientific inference, or metascience as the philosophical study of scientific propositions.<sup>45</sup> The philosophical study of scientific knowledge, in other words, must be carefully distinguished from the scientific study of phenomena. This distinction is basic because "knowing about knowledge," which includes knowing about scientific knowledge, "is not the regular business of scientists,"<sup>46</sup> although it is precisely the business of specialists in the psychology, sociology, history, philosophy, or librarianship of science. Metascience, that is to say, "is concerned with the logical, epistemological, and ontological aspects of science,...not with the individual or social behavior of scientists" or with phenomena: it does not add, therefore, to our knowledge of the world; but it does inform the intellectual faculties of abstract understanding and practical judgment by ordering (and thus by deepening) the knowledge we already have.<sup>47</sup> Thus, the phenomena observed by scientists belong to the factual order of science, which they study by observational methods; but the formal order of science, which can only be studied through the utterances communicated by scientists, includes all of the thinking scientists do about the phenomena they observe, and all of the information they communicate about observed phenomena—whether they communicate it orally, by writing, or otherwise. This means that the formal order of scientific inference, which was originally the sole concern of metascience, is distinct and separate from the factual order of science. Does it also mean that scientific inference is a microcosm, a model of the larger

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concern for human inference generally? It does indeed. Kaplan's extension of the metasciences to include all of the formal disciplines, with even philosophy among them, is fundamentally sound; and his alignment of librarianship with the metasciences is also sound because he correctly identifies its realities as formal and classifies them with the similar realities of its fellow disciplines, which are all derived from form-philosophy. Collectively, they constitute the only defensible basis for the knowledge business of librarianship, because turning away from the formal structure of knowledge means turning toward its empirical content. If the librarians go for content, however, they must either become encyclopedists who go for all of it, or specialists who go for some of it. But Kaplan rejects both of these options, because encyclopedism "is a possibility that has forever vanished," whereas "a narrow specialism...would fail dismally"<sup>48</sup> to perform the broad knowledge functions of librarianship. The library profession, he insists, must be classed with the metasciences.

They have this centrality...for an intellectual reason, because there is central to them the concept of structure, of order, of form, which seems...to be the central concern also of library science. I am unable to conceptualize any alternative. Either you are [humanists] interested in order, structure, form, or you are [scientists] interested in substance and content; and in the latter case, you must resign yourself to mastering some increasingly narrow subject area and to doing whatever you can...as little assistants or magic helpers...to the people working in the area.<sup>49</sup>

The close affinity of the metasciences with librarianship is thoroughly appropriate in the broadened sense of metascience as the inclusive study of human inference generally, though not in the narrow sense of exclusively scientific inference. This broadening of the metasciences is important, for otherwise they do not qualify as the occupational peers of librarianship. When properly understood, however, librarianship and the metasciences are plainly meant for each other. But the postwar librarians have identified librarianship with information science, and the information scientists are "aligning themselves with the natural sciences, which deal with physical phenomena."<sup>50</sup> The librarians, meanwhile, must "deal with ideas and knowledge and their communication; hence librarianship is much closer to the humanities than to the 'hard' sciences."<sup>51</sup> This contradiction between the humanistic realities of librarianship and the scientific outlook of the postwar librarians is tearing the profession apart. The excessive pragmatism of the librarians and their educators has thus far prevented them from formulating a defensible philosophy of librarianship. Nor have they been able to

recognize the intrinsic merit of Kaplan's recommendations. The American system of librarianship is therefore short-circuited at the battery—which explains why there is currently no juice in the system, and why the physical methods of science are inappropriate for studying the formal realities of librarianship.

*From Kaplan to Mead.* From Kaplan's "philosophy of library education, fragmentary and ill-defined though it may be," says Jesse Shera, "must be derived the objectives of the library school."<sup>52</sup> That strong endorsement of Kaplan's symbolic views is closely related to the last recommendation offered by Shera to the library profession. "I submit that librarians must look to 'symbolic interactionism' for the proper foundation of a theory of librarianship."<sup>53</sup> Symbolic interactionism, which "refers to the [psychophysical] process by which people relate to their own minds and the minds of others,"<sup>54</sup> was created by George Herbert Mead, who rejected the study of social phenomena by mechanistic methods devised for the study of natural phenomena and imported into the social sciences from physics. Mead has thus become the nemesis of those social scientists who follow the physicists in assuming the identity of natural and social phenomena. The natural order is a monistic unity that includes everything physical and nothing else: it does not resent being studied (because matter has no mind and cannot think), nor has it ever punched a scientist in the nose for writing something in his notes. But the social order, unlike the natural order, is an ontological dualism constituted by (1) an empirical social order, which consists of people as behavers who do things, and (2) an ideative social order, which consists of people as thinkers who know things. Humanists regard the empirical social order as secondary and instrumental because it functions as the only means of access to the ideative social order; but scientists treat the ideative social order as nonexistent and regard the empirical social order as a subset of the natural order. Science, that is to say, studies the behavior of human beings without reference to their minds, whereas humanism studies their behavior instrumentally—as the symbolic means of access to their minds. Thus, by rejecting the monistic reduction of social orders to their physical manifestations and by accepting Cooley's "theory of the mental nature of human society" (which regards human organizations "as existing in the minds of...individuals"), symbolic interactionists argue that "the essential nature of society is found in the social bonds that exist between human beings through ideas and feelings."<sup>55</sup> It therefore investigates the psychophysical interaction of the empirical social order and the ideative social order by studying the relationship between the physical

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symbol and its symbolic referent. Accordingly, it regards human interaction as social and symbolic, for "nearly every movement, sound, odor, or touch of another human being acts as a symbol which we learn to interpret."<sup>56</sup> This instrumental use of sensible symbols is fundamental in human communication, since most of what we know can be expressed as stimuli to be interpreted by others. Thus, "we can move our bodies in ways that can be seen," we can control sounds that can be heard, and "the [physical] environment can be manipulated to create sensory information for others to perceive."<sup>57</sup> The consequence of all this is the ability to communicate, for "any of these humanly produced stimuli can be employed as symbols which represent what we know,"<sup>58</sup> provided only that interacting communicants employ the same rules for attaching meanings to stimuli. This clarifies the communicative function of physical symbols. We create symbolism by attaching subjective meanings to various kinds of physical data and using them as instruments of communication, and communication is impossible unless these data are made to function instrumentally (and invisibly) as symbolic signs: they must arouse ideas in the mind without getting in the way.

If some [physical] object [or process] is to act as a sign, the interpreter must shift attention from...[itself] to its referent. Every stimulus...provides us with information about itself. [But] a sign...results in two types of knowledge—that which is intrinsic (knowledge about the sign) and that which is not (knowledge about the referent)...*This shift of attention is produced unconsciously....Our attention is so thoroughly focused on the referent that signs are [wrongly] said to take on the meaning of that which they refer to [emphasis added].*<sup>59</sup>

The dual nature of the social phenomenon determines the methodologies of symbolic interactionism, which are essentially subjective because the meaning of things to the conscious self is basic and primary in human communication, whereas phenomena are instrumental and derived. But meaning belongs to the formal realities of the ideative social order, which can only be reached by going through the physical realities of the empirical social order. One does not simply react to the behavior of other people, that is to say: one evaluates it subjectively (by interpreting it as it occurs) and acts in accordance with the subjective meanings one attaches to it. One cannot do this, however, without making inferences from others' behavior about their intentions, which must be communicated by means of their behavior because intentions cannot be observed. There is no other way of dealing with the ideative social order: it can only be accessed symbolically by means of the empirical social order because human communication is an intersub-

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153. Shera, *The Foundations of Education for Librarianship*, p. 111.
154. \_\_\_\_\_ . *Documentation and the Organization of Knowledge*. Hamden, Conn.: Archon Books, 1966, p. 121.
155. Ibid.
156. \_\_\_\_\_ . *Knowing Books and Men; Knowing Computers, Too*. Littleton, Colo.: Libraries Unlimited, 1973, p. 262.

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which he shares with the other animals.”<sup>63</sup> Their researches, therefore, “make no reference to man’s distinctive characteristics,”<sup>64</sup> which set his rational forms of behavior apart from the behavior of nonhuman animals.

A notable example is the reinforcement theorists, who emphasize operant conditioning and behavior modification. Their focus is on observables, the overt responses of organisms. From the study of rats, chickens, and other animals, they have shown the efficacy of rewards, or positive reinforcers, in shaping behavior. Aiming at “objective” knowledge, operant-oriented researchers contend that...thinking, or mind, are subjective, and therefore inappropriate for science. They insist that the behavior of the human animal can be studied with the same concepts, the same techniques, and the same...success as in the study of other animals.

The reinforcement...[or analytical] approach to human behavior is based upon a positivistic conception of science. A basic premise of the positivist viewpoint...is...the [monistic] contention that the behavior of all organisms is essentially similar and that conclusions obtained from the study of animal behavior can also explain human conduct....Closely related [to this approach] is...determinism, which views...animal and human action as sequential and invariable.<sup>65</sup>

The symbolic interactionist view of human behavior is the polar opposite of this. It distinguishes all forms of instinctive behavior from the rational conduct of man, which constitutes a distinctively human kind of behavior controlled by symbolic processes implicit in thinking subjects who are constantly involved in the communication of knowledge. Distinctively human behavior, in other words, “is considered to be qualitatively different from nonhuman behavior, and therefore requires its own specialized concepts, theories, and research methods.”<sup>66</sup> Symbolic interactionism, accordingly, is “grounded on [formal] assumptions about man’s distinctive characteristics and on researches dealing with man himself”<sup>67</sup> as an active thinker who knows things and guides his behavior by what he knows; it cannot be grounded on the physical assumptions of scientific materialists about the commonalities of human and nonhuman animal behavior because man is the only animal who communicates with his fellows through the sophisticated use of symbols.

Communication by means of significant symbols...involves words or gestures intended to convey [subjective] meaning....It is not the [physical] noise of the words or the physical movement of the gesture...which communicates, but the meaning for which the noise or...movement stands as a symbol. Both the communicator and the observer have...to learn the meaning of...words or gestures in order to communicate symbolically,...[although] communication by natural

signs takes place instinctively and spontaneously [among all of the animals].<sup>68</sup>

It is therefore the peculiar nature of human subjectivity which explains the unique ability of human beings to communicate symbolically, since the meaningful manipulation of significant symbols requires specifically human conceptual and linguistic skills that are lacking in the rest of the animals.

The focus of symbolic interactionism on the study of distinctively human behavior also accounts for its rejection of analytical methods, which stress the observer's objectivity and impersonal detachment from the empirical social order as in science, and its acceptance of recognitive methods, which require the observer's intimate and personal involvement with the empirical social order as in the humanities. Most of the social scientists, "impressed with the dramatic achievements of the natural sciences, have sought to apply similar concepts and techniques to the study of human beings."<sup>69</sup> This is a mistake, according to the interactionist perspective, because "human conduct is guided by interpretation and intention" as it emerges under the intelligent control of an active conscious self; it is not triggered by "mechanical, automatic reactions to stimuli."<sup>70</sup> Insofar as "human action and interaction are voluntaristic or intentional, they are...emergent and unpredictable."<sup>71</sup> Symbolic interactionism thus requires researchers to investigate the covert processes of subjective interpretation and volition by which rational behavior is constructed and controlled; and they cannot do this, since those processes occur only within the intelligent consciousness of human beings, without thinking themselves into the skins of the people they study and viewing things from the inside out. This requirement always baffles the detached impartial observer, for human subjectivity is the one thing science cannot study objectively: you cannot hover aloof and distant over the people whose subjective processes you are studying by refusing to experience the roles and functions they perform in the social order. The subjective processes which generate rational behavior in a human being must be communicated to observers through intimate familiarity with the empirical lives of the people they observe. There is no other way to do it. Yet, the analytical procedures of science constitute the dominant mode of inquiry in all of the behavioral disciplines, where researchers shun immediate experience with and direct examination of the empirical social order. But "no amount of simply observing behavior from the outside will provide an understanding of actors' views...and hence...of their conduct,"<sup>72</sup> in spite of the overwhelming preference for

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such things as ambitious theories, intricate research designs, elaborate models, and servile adherence to the canons of scientific inquiry.

What is needed is a return to the empirical social world. No theorizing, however ingenious, and no observance of scientific protocols, however meticulous, can substitute for developing a direct familiarity with what is actually going on in human group life. Symbolic interactionists encourage first-hand acquaintance with the sphere of life under study. Thus, their preferred research techniques tend to be sensitive participation and direct observation, rather than experimentation under artificially controlled conditions. This demands intimate contact with what is going on, free exploration in an area of concern, getting close to the people involved in it, seeing action in a variety of situations, noting problems and observing how they are handled, being party to conversations, watching life as it flows along. The nature of the empirical social world must be experienced, discovered, dug out by a direct careful and probing examination of that world.<sup>73</sup>

The symbolic interactionist imperative, in other words, is to respect the instrumental nature of the empirical social order as the means by which the ideative social order is communicated, and to "organize a methodological stance to reflect that respect."<sup>74</sup>

The following assumptions about symbolic interactionism are derived from the requirements of cognitive consistency in the study of formal objects. They are necessarily different from the physical assumptions of science, which aligns ratiocination with factual observations.<sup>75</sup>

*The formal realities of mind cannot be known empirically* because they cannot be observed: they can only be recognized and evaluated philosophically through communication by means of observable symbols. The two general theories of knowledge are rationalism, which goes by the coherence theory of truth and utilizes the referential capabilities of natural language, and empiricism, which follows the correspondence theory of truth and exploits the descriptive capacities of mathematics. Symbolic interactionism belongs to the former because it studies formal objects which are communicated by natural language but cannot be described mathematically, and rationality is its only criterion of truth. Factual propositions, on the other hand, are evaluated by the dual criteria of rationality and observability, because the correspondence theory of truth combines the necessary condition of rational consistency with the sufficient condition of empirical observability: one explains something provisionally, looks carefully at what the explanation is, and adjusts the explanation to fit the facts of observation. Factual statements are therefore "safer" than formal statements, because formal objects are immune to experimental testing: they cannot be put

under a microscope or heated with a bunsen burner to see how they "behave." With formal propositions, however, "the round will be won if logical consistency [alone] is respected"—that is to say, if the rules of rationality within their ideative system are not breached.<sup>76</sup>

*Human beings are intelligent subjects living in two environments: (1) the physical environment, which ultimately includes all the matter and energy of the cosmos, and (2) the cultural environment, which includes all ideative realities available for study outside of the subjective consciousness of individuals. If man lives within the physical landscape of the universe, so to speak, he also lives in the cultural "weather" of his fellow human beings. Thus, the physical environment is shared by all of the animals; but only "man can have a culture—an elaborate set of meanings and values—shared by members of a society, which guides much of his behavior."*<sup>77</sup>

*Intelligent subjects select, interpret, reject, accept, and transform their environments by determining the purposes and directions of their rational behavior and controlling its construction; they are not passive organisms responding mechanically to internal or external conditions. This proposition constitutes "an important tenet of most humanistic views of conduct," which assumes that "human beings are...participants in creating their own destinies."*<sup>78</sup> They construct their environments, for "whatever may actually be 'out there,' individuals will structure their worlds...by what they perceive and conceive them to be."<sup>79</sup>

Man is not a passive organism buffeted by organic drives and environmental forces, such as sexual impulses or organizational structures. He is an active agent, who constructs his behavior in the process of social interaction. He selects and interprets his environment, and thus in some sense creates it. Man's behavior, therefore, is not wholly determined by antecedent conditions, because rational conduct is constructed in a process he controls as it emerges from him.<sup>80</sup>

This constructive process depends on the interpretation and communication of meanings, because "human beings normally intercept what others are doing, or intend to do, and construct their behavior in terms of what they take into account."<sup>81</sup> Thus people define their situations and "indicate their definitions to one another in order to interpret each other's meanings within the situations in which they are acting."<sup>82</sup> The meaning of social interaction is therefore determined by a subjective process of self-indication: it is not the result of antecedent conditions but "depends on what is taken into account and assessed in the situation in which behavior is actually formed."

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An individual makes indications to himself of things in his surroundings, and thus guides his actions by what he knows....Instead of being passive, therefore, he selectively participates in his environment....It is how he interprets things in the action he is constructing that determines his behavior, which is not caused by internal drives or external stimuli. The process of self-indication exists in its own right, and must be accepted and studied as such.<sup>83</sup>

*Access to the human cultural environment is provided only through symbols.* "Man has a distinctive capacity for symbolic communication"<sup>84</sup> which enables him to think and to encode ideas in objective reports that go into the world for others to utilize and, in some cases, to store for retrieval and reuse. This is accomplished by symbolism through the objectification of thought. Since "thinking is strictly a symbolic process,"<sup>85</sup> however, and since the physical symbol is the only objective means of communication, the cultural store of objectified ideas is accessible only through symbolism.

*All aspects of specifically rational behavior are symbolic.* Distinctively human interaction with one's self and others is always carried out by means of symbols and their interpretations. Rational behavior cannot be explained, therefore, unless thinking and language are understood because human beings attach meanings to symbolic stimuli and act on the basis of those meanings, which "are socially derived through interaction with others rather than inherent in the stimuli themselves."<sup>86</sup>

*The subjective meanings of symbols can be learned by human beings only through communication.* Rational conduct is "specifically learned in symbolic communication,"<sup>87</sup> where the self selectively constructs its social objects from its interactions with the symbolic environment. Thus, "all social objects, including the self as a social object, become meaningful definitions of situations because they are interpreted as such by the individual self."<sup>88</sup> But subjective meanings and interpretations, even though learned by a self, cannot be observed: they must be communicated to others or remain forever with the self. This makes communication indispensable to the exploration of subjective questions. It also means that understanding rational behavior requires observers to account for the meanings of things to an interpreting self—something they cannot do unless those meanings are communicated to them through symbols.

*Natural language can refer to the subjective realities of mind; but human subjectivity can neither be described by applied mathematics nor explored by pure mathematics.* "Man is distinctive in having language,"<sup>89</sup> which is the natural consequence of his unique ability to

think. The natural languages are referential, however, whereas mathematics is descriptive. This means that natural language can refer the mind to ideas about anything. But mathematics is securely tied to the natural universe: it can only describe physical actualities or explore physical possibilities. Mathematics is thus "an instrument for application to physical problems."<sup>90</sup> It was invented as a way of accounting for physical objects and processes in the world of matter and energy, which cannot be adequately described in words. "The axioms of arithmetic and geometry are based on the physical processes of counting objects and measuring distances";<sup>91</sup> and the differential calculus "is a direct attempt to put physical notions of velocity and acceleration into precise terms."<sup>92</sup> Mathematics is thus the intellectual technology of materialism, an artificial language whose "utmost abstractions are the true weapons with which to control our thought of concrete fact"<sup>93</sup>—which explains why mathematics cannot control our thinking about abstract form. Natural language, on the other hand, "is the primary mechanism leading to the individual's mind and self";<sup>94</sup> its verbal abstractions, therefore, function as our best means of intersubjective communication.

It is obvious that symbolic interactionism has great significance for communication theory. The mind, by using the human body as its technology of interaction, can review information from the world and program its voluntary movements to act in or upon the world. Thus, we can utilize physical data—either as objects of analytical study for the realization of technical ends, or as the symbolic instruments of subjective communication. But the objective study of physical data-as-phenomena, in which knowing is instrumental to sensing truly, is virtually never distinguished from the subjective study of ideas, in which sensation is instrumental to knowing and to communicating what is known. This distinction is basic, however, for we can neither think nor communicate thought without utilizing common nouns, formal abstractions representing nothing real except the concrete instances which exemplify them. The physical datum is therefore indispensable to the human study of anything outside one's own consciousness. It performs two informational functions, however, which are constantly confused by materialists: it functions in hard science as the primary *id quod*, that physical entity which is studied; but in the human sciences it becomes the instrumental *id quod*, that physical entity by means of which subjective realities are studied and communicated. Hence, the factual datum is essential in creating and communicating the concepts and images of both science and the human arts. The only issue here "is the nature of the relevance," since facts "are as relevant to metaphysics as to experimental science, but not in the same way": they

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are "instrumental to the discovery of metaphysical truth," but "constitutive as evidence...[in] experimental science."<sup>95</sup> That issue comes down to an essential difference between the analytical and recognitive methodologies; it must be clearly understood, therefore, because "sense knowledge is either instrumental [to the recognition of subjective realities] or it is not."<sup>96</sup> This fact often escapes the materialist, who may believe, for example, that he is studying music when he is actually studying musical acoustics. "If sense knowledge is instrumental, then it is a means by which we know [subjective] things. If it is not instrumental, then the sense object is that which is known."<sup>97</sup> But "one kind of knowledge cannot be partly instrumental to...other kinds of knowledge....It is *wholly* so, or not at all [emphasis added]."<sup>98</sup> The ability to detect physical data by means of the senses is thus the necessary condition of human communication, the indispensable means of recognizing all subjective realities except one's own; but the sufficient condition can be met only in the mind's ability to recognize the subjective realities symbolized by sensation. It is the common failure of materialists to distinguish the two informational functions of physical data in human communication that underlies the recurring crises of communications theory, for the difference between the objective study of factual data and the subjective use of factual data for studying ideas is absolute: what you are studying is one thing; but learning from your study, and communicating what you have learned from it, are entirely different matters.

Symbolic interactionism thus constitutes a very real alternative to the analytical methodologies of scientific matter-philosophy in the study of human behavior. It originates with attempts by social psychologists to steer a middle course between the Scylla of psychology, with its kinds-of-people theories, and the Charybdis of sociology, with its kinds-of-situation theories. The battle over these two perspectives began in 1908, when the cases for psychological and sociological determinism were presented by Edward A. Ross, who argued that a child raised without social interaction under the influence of psychologists who minimized the importance of social forces could only become an idiot, and by William McDougall, who argued that human behavior was caused by instincts, powerful impulses, and innate predispositions to act: take them away, he said, and a person would be paralyzed and unable to function—"like a wonderful clockwork whose mainspring has been removed."<sup>99</sup> These arguments, which have "persisted in subtle but significant ways right down to the present time," have created dissatisfaction "with the fact that there are two social psychologies thriving in the land."<sup>100</sup> The psychological version "comes perilously close to being a social psychology without people" because it treats

human interaction "as though the important differences between the human and nonhuman environments could be ignored."<sup>101</sup> The sociological version, on the other hand, makes "different but no less serious errors" by assuming that people are like "empty receptacles into which culture is simply poured," that they are more or less equivalent as receptacles, and that "the process by which they are filled can be taken for granted."<sup>102</sup> Thus, psychology continues to push its kinds-of-people theories, which imply that inherent characteristics determine human behavior, while sociology clings to its kinds-of-situation theories, which portray people as mindless organisms responding mechanically to impersonal forces expressed through their environmentally induced behavior. Small wonder that symbolic interactionism calls for a plague on both their houses!

The basic weakness of either perspective is its determinism, "the tendency to treat human behavior as the product of antecedent conditions, and to see people as surrounded by internal or external forces that play upon them and determine their behavior."<sup>103</sup> These approaches, which are derived from the physical presuppositions of science, deny the possibility of voluntarily creating indeterminate behavior because they deny the existence of active subjects who intentionally orchestrate the rational forms of their behavior in an intelligent process of interaction with the world and with other intelligent subjects. But symbolic interactionists tend to reject the natural, biological, social, and psychological variants of hard determinism, and to accept only the softer forms of cultural determinism which give people a significant amount of control over their actions. They assert, therefore, the undetermined quality of much human behavior, which they see as a rational but unpredictable performance conducted by an active but unpredictable intelligence. Thus, symbolic interactionism becomes a mediating perspective, an alternative view which focuses on realities that are neither in people nor in their environments, but in the cultural process of interaction itself. These realities, which are largely but not wholly interpersonal, require observers to pay as much attention to the behavior of others as they give to the behaviors they study or to their social system and its organizational structures. And because of this, interactionists also tend to reject physical explanations of behavior, which are derived from such things as the formulation and testing of hypotheses, organizational theories, structural-functional analysis, systems theory, survey research, historical and comparative studies, and operations research. Instruments like these, according to symbolic interaction theory, are not able to cope with the critical study of human subjectivity because they cannot deal

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with the tricky interface between the physical symbol and its metaphysical referent.

*From Mead to Popper.* The philosophies of George Herbert Mead and Karl Popper are similar in some ways, though not in every respect. Popper is far more systematic and comprehensive than Mead. But both accept the existence of highly active selves, who interpret and modify their environments by directing their attention and diverting their energies to whatever interests them; both believe that the self "emerges in interaction with...other selves and with the artefacts and other objects of his environment";<sup>104</sup> and both allege, while believing that predispositions to perceive the world and to learn language are unique biological potentials of man, that the self must actively construct its own perceptual and linguistic realities. Thus Popper regards "the view that our perceptions are 'given' to us as a mistake," arguing that we must learn to "see," for example, because vision is not passive "but consists in an active interpretation of coded inputs"; and he concludes that we are able to learn the complex symbols and meanings of language and to interact with our natural, social, and cultural environments because "we have a genetically based innate curiosity and an exploring instinct which makes us active."<sup>105</sup> Mead could only concur wholeheartedly with this; but he was a pragmatist who disliked Plato, and he may have had serious reservations about the blatant dualism of Popper's revised platonism.

Popper follows Plato, "who transcended the duality of body and mind by proposing a third world of forms or ideas,"<sup>106</sup> in dividing the intellectual pattern-world of traditional form-philosophy into its subjective and objective components. This division sorts all reality into three logically distinct and separate worlds, which Popper calls Worlds 1, 2, and 3. "The whole material world (the entire cosmos, with all its matter and energy, including human brains), is World 1,"<sup>107</sup> which contains everything that exists in a physical way. Thus World 1 circumscribes all physical objects, processes, forces (and force fields), and conditions, which include all biological and inorganic organizations of matter and energy and all artifacts created by human beings (e.g., tools, machines, documents, works of art, music) for the achievement of rational ends. In studying the natural realities of World 1, therefore, the mode of communication and the learning process are natural. Everything in the personal psyche of an individual, on the other hand, is World 2, "the world of your subjective experiences, which includes all of your thoughts, memories, ideas, imaginings, creativities, and so on. It is the world of your inner spiritual life, the world you know and live in all the time you are conscious, from the moment you wake up until you

go to sleep. That's World 2,"<sup>108</sup> the world of the human mind with all of its predispositions, desires, and intentions. It is an active, critical world, which includes all of the subjective processes of knowing: it therefore constitutes the private world of your subjective conscious intelligence, which creates all of the ideas you are capable of thinking; and it can only be "known in others by inference from symbolic communications."<sup>109</sup> World 3, finally, contains all of the objective products of knowing, which include all ideas of any kind whatever that are available for study outside of the individual conscious intelligence. In studying the formal realities of World 3, however, the mode of communication and the learning process are "not natural," as in the study of physical phenomena, "but cultural and social,"<sup>110</sup> since they exist outside of the mind in an objective but nonphysical way and cannot be sensed. Nevertheless, "they are powerful tools for changing World 1," although they can affect physical realities "only through human intervention":<sup>111</sup> the objective ideas of World 3, that is to say, can interact with the subjective mind in World 2; and the subjective mind in World 2 can act in turn upon the phenomena of World 1. World 3 thus constitutes the whole domain of civilized culture constructed by human creativity. "The music you hear all around you...is from World 3. We live in the cultural environment of World 3," which is just as objective and "every bit as real as the physical environment of World 1."<sup>112</sup> What you are doing whenever you express yourself in any way constitutes World 3 behavior, because "the whole of culture and civilization, and particularly of language, is World 3."<sup>113</sup>

World 3 is the world of knowledge in the objective sense....It comprises the expressions of scientific, literary and artistic ideas...preserved in codified form in libraries, in museums and in all records of human culture. In their material composition of paper and ink, books are in World 1, but the knowledge encoded in the print is in World 3, and...[the situation is similar] for pictures and all other artefacts. [Some] most important components of World 3 are the theoretical systems comprising scientific problems and the critical arguments generated by discussion of these problems....World 3 comprises the records of the intellectual efforts of all mankind through all ages up to the present—[it is] what we may call the cultural heritage [of the human race].<sup>114</sup>

Separating the objective component of the formal order from its subjective component does not prevent either of those components from interacting with each other or with the natural order. But it does oppose the modern philosophies of psychophysical parallelism,<sup>115</sup> which not only separate the natural and formal orders but seal them off completely and prevent them from influencing one other in any meaningful way;

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and it accepts the Greek disjunction of human reason and the senses, which creates the traditional philosophy of psychophysical interactionism, also known as dualist interactionism, or “the commonsense view that people are composed of two distinct and separate entities.”<sup>116</sup> Thus, “the nonmaterial entity from World 2, the world of the spirit, is the self-conscious mind—the soul or psyche which constitutes the self”; and “the material entity from World 1, the world of physical realities, is the human brain and the body it controls.”<sup>117</sup> This effectively demolishes the foundation of scientific identity theory, the parallelist belief that the mind and the brain are the same thing or different views of the same thing, because it identifies thinking with the human mind in World 2 and implies that the brain, which constitutes an extremely important part of the human body in World 1, is not a thinking organ: it is a behavioral control center used by thinking. “Anything the body does to, with, or for us,” according to Eccles, “is done through the brain, by means of the brain.”<sup>118</sup> The natural activities of the human body, therefore—whether voluntary, involuntary, internal and covert, external and overt, or whatever—are all controlled by the brain; but there is no evidence that the brain does any thinking: that notion results from wishful thinking in the minds of monistic materialists who deny the existence of minds and define thinking in physical terms.

Dualistic interactionism holds that the self-conscious mind and the nonconscious brain interact with each other in both directions.... Popper and I believe, as dualist interactionists, that the subtlety of our whole existence lies in these two entities. That’s dualism: the spiritual or mental side of human existence is rooted in the mind; the material side is rooted in the brain; and there is interaction between them.... This interaction should be conceived as a flow of information, but *not* as a flow of energy. Whenever I say anything or write something, for example, there is an intense flow of information between my mind and my brain, in which my thoughts alter and control my brain. Whenever we think or express what we are thinking, there are very fast, intensive interactions both forwards and backwards across the frontier between our thoughts and what we are saying. And we do that all the time, in every aspect of our waking lives.<sup>119</sup>

This ties the human aspect of the traditional mind-body problem to Popper’s “brain-mind liaison,”<sup>120</sup> the frontier of interaction between the mind and that part of the brain which enables the mind to interact with the rest of its brain and thereby with the rest of its body. Thus, the mind “is intimately associated with its brain...and is not...directly associated with the remainder of the body.”<sup>121</sup> That simplification should be avoided because it creates false problems; and “the body-mind problem

of the philosophers is just such a simplification."<sup>122</sup> The real problem, according to Eccles, "is a brain-mind problem and nothing else."<sup>123</sup>

The neocortex is a great folded sheet in our skulls, about 20 inches square by 1/8 of an inch thick, which contains everything directly associated with the mind.... There are more than ten thousand million nerve cells in this sheet, and all of them are connected to one another .... These individual neurons are arranged in small ensembles, or modules.... This arrangement in modules, with about 4,000 nerve cells per module, reduces the number of functional units...to something like 3 or 4 million.... The individual neurons are thus...in perpetual communication...over the whole surface of the brain.... Its 4 million modules are interconnected, too.... These modules are always lighting up, as it were, with patterned excitations.... If you could look at this patterning, if you could take off the top of my skull and observe my brain with the right scientific equipment for recording simultaneous electrical events, you would see that my brain is in a scintillating state...when I am thinking deeply, with countless electrical patterns occurring on it.... The brain with its 4 million modules, as a matter of fact, resembles a great TV screen—except that TV patterns are generated from only about a million modules. These neocortical modules... constitute the basis of our whole brain action in relation to the mind.<sup>124</sup>

The TV screen, however, displays spatial patterns exclusively, whereas the neocortex creates both spatial and temporal patterns. In terms of spatial patterns, therefore, the cortical modules indeed resemble a TV screen, which "has an infinite capacity for displaying still or moving pictures of all kinds—by generating patterns from only a million modules."<sup>125</sup> This says a lot about the tremendous patterning capacity of the liaison brain, because "our neocortical modules outnumber those of the TV screen by 4 to 1!"<sup>126</sup> But the temporal patterns of the neocortex are even more revealing. Take the sound spectrum, for example: the eighty-eight keys of a piano do not amount to much when compared with the 4 million modules of the liaison brain; and yet the piano, "which has the same four parameters as the brain, creates the whole vast richness of piano music."<sup>127</sup> Just think of what that means: the marvelous performances of brilliant compositions by geniuses like Beethoven and Mozart "are produced with only 88 modules, whereas the human brain has 4 million. The brain, in other words, is like a piano with 4 million keys; and the mind is the piano player."<sup>128</sup> Thus, the joy of music, like the very wonder of being human itself, is the result of interaction between the mind and its brain.

This brain-mind liaison suggests the instrument-instrumentalist analogy so repugnant to the monist-materialists, who reduce the whole of reality to mindless machinery for which there are no intelligent

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machinists. For Popper, however, who accepts the platonic notion of a ghost in the machine, the human psyche indeed uses its somatic machinery as its only means of interacting with its physical and cultural environments. The mind-body relationship, therefore, is something like the relationships of driver-to-automobile, viewer-to-TV, pianist-to-piano, pilot-to-ship, programmer-to-computer, and so on. "Like the pilot of a ship," says Eccles following Popper who follows Plato, "the self in each of us observes and takes action at the same time"<sup>129</sup> by evaluating information from its sensory system and controlling the behavior of its motor system. This we can do because "we normally have access to our brains,"<sup>130</sup> which are to us as computers are to their programmers: "the human brain, and the body whose behavior it controls, is the computer; and the conscious self, whether you call it the psyche or the soul or the spirit, is the computer programmer."<sup>131</sup> This psychophysical relationship, expressed in Popper's important analogy of mind/programmer and brain/computer similarities, has been elaborated by Eccles:

It is useful to think of the brain as an instrument, as our personal computer, if you like....But if the brain is an instrument, we are the instrumentalists....You are not your brain, in other words; but you *are* the programmer of your brain. You are very like the computer programmer, because you program your brain to do all sorts of things, [and] you read all kinds of patterns out of it....We are always doing that to our brains, which are like computers only infinitely more intricate and marvelous. This is a simple analogy that everyone can understand. It helps us to see how the thoughts, perceptions, ideas and memories which make up our experiences can be programmed into our personal brain-computers so that we can express them to others, how we can receive back the expressions of others, and thus how whole new complexes of thoughts and understandings can be created. All this, of course, is a highly selective process. We choose whatever we like from the myriad outputs of the brain by focusing... on this or that....And we do have the ability to concentrate our attention—to switch our brain, as it were, onto anything we choose.<sup>132</sup>

This explains Popper's brain-mind liaison perfectly; and "the very latest research on the neocortex suggests that the brain actually has this ability to function as a sophisticated computer versatile enough to do everything we have imagined it could do."<sup>133</sup> These are important considerations, for "we are each given a unique computer, our brain, which functions as our sole means of interacting with—of receiving from and giving to—the physical and cultural worlds in which we are immersed. That is the essential thing about dualistic interactionism."<sup>134</sup>

But that is also an issue which has always separated matter-philosophy and form-philosophy. It is not surprising, therefore, that

Popper's platonistic rejection of materialism has elicited materialism's democritean rejection of Popper. Descartes really started something when he retained the two worlds of form and matter from traditional philosophy but followed early modern thought in accepting only efficient causes and rejecting all final, formal, and material causes: this effectively eliminates all metaphysical concepts of teleological causation-by-pull, confines all causes to the physical world, resurrects the billiard-ball concept of atomic causation-by-push, and demotes the secondary qualities of matter to near-zero status. It means that nothing in Worlds 2 and 3 can cause anything within themselves, in each other, or in World 1; but it also means that World 1 can "cause" Worlds 2 and 3, which must somehow evolve out of matter and energy. Thus, "materialists don't exactly deny the mind"; but they *confine* it to a prison of their own making, and "they don't give it any effective action on the brain, or therefore on our performance."<sup>135</sup> If their account of the mind-brain relationship is correct, then we ourselves, as conscious human beings, "would merely be the passive spectators of the performances of our own bodies as dictated by our brains"; and we would be deluded by "our beliefs that we can really make decisions, and that we can have some control over our actions."<sup>136</sup>

In general, materialistic theories hold that mental events can have no effective action on brain events—that no matter what you think or desire, your brain will go right on performing in its own way whether you like it or not, because there is nothing you can do about it. Thus, the physical world of the brain is closed to any conceivable outside influence, such as the mind's influence on the brain as postulated by dualist interactionism. This closedness of the physical world is what materialists insist upon....<sup>137</sup>

Popper has shown us a way to avoid the paradoxes of psychophysical parallelism by opening the closed system of materialism in the scientific study of social, psychological, and cultural realities. He has done it by creating a humanistic philosophy of science in an age that likes to create scientific philosophies of humanism. This has caused an uproar among materialists; but it should also cause rejoicing in the human sciences, which include librarianship and library education, because "a vast amount of our experience of the most subtle or trivial kinds is explained by this hypothesis [of dualist interactionism]—things which cannot be explained at all by materialist theories of the mind and the brain."<sup>138</sup>

### **Toward an Alternative Librarianship and Library Education**

As librarians and library educators, we have clearly aligned ourselves with the wrong intellectual tradition because we have failed to see

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that *librarianship is formal structure, not physical substance*. We must somehow get this truth through our heads, because virtually all of our false assumptions and wrong ways of doing everything are derived from the mistaken belief that librarianship is a thing of substance. This is best seen, perhaps, against the background of Shera's "Chicago philosophy" of librarianship and library education.

Librarianship is rooted in epistemology—knowledge about knowledge itself....*Librarianship is the management of human knowledge*—[it is] the most inter-disciplinary of all the disciplines... and because it is concerned with the philosophy of knowledge it is potentially the most philosophical of all the professions. It should...[be] a synthesis of the human intellectual adventure.... Therefore, the primary aim of education for librarianship should be the training of the intellect in matters pertaining to human knowledge, and its goal should be the achievement of the highest wisdom in promoting the utilization of knowledge for the benefit of mankind [emphasis added].<sup>139</sup>

Librarianship should therefore be an intellectual profession based on the formal structure of ideas and organized by knowledge theory; but it has become an empirical mechanics based on the material substance of physical data and operated by action theory. Thus, Machlup has observed that "library science is clearly empirical in all its aspects," and that "every phase of research in this field is practical-empirical."<sup>140</sup> He was absolutely right, of course, for today's librarianship is unfortunately that way; but he could not have been more wrong, because he overlooks the all-pervasive anti-intellectualism which has converted library science into the ultrapragmatic perversion he perceives it to be. Shera, who sees this problem clearly, has ended his lifelong involvement in the library profession with a parting swipe at the simplicity and undesirable consequences of its pragmatism.

In the American character, there has [always] been a strong strain of...pragmatism, and this is...clearly evident...in librarianship. The major figures in...American librarianship were doers rather than thinkers; they were concerned with process rather than purpose. [Thus] they devised and taught in their library schools routines and procedures [for handling documents], and with the advent of online networks and access to data banks, they are doing it more than ever today.<sup>141</sup>

This sentiment is familiar to librarians, as Shera has made similar statements before. What may not be familiar to those unfamiliar with philosophy, however, is the fact that pragmatism and anti-intellectualism are more or less synonymous, as are their antonyms, rationalism, and intellectualism. The overly pragmatic outlook of

American librarianship in all things, which merely reflects the all-inclusive nature of the larger American pragmatism, is responsible for the vigorous anti-intellectualism of today's librarians. It was not until his own day, according to William James, that pragmatism "has...generalized itself, become conscious of a universal mission, pretended to a conquering destiny. I believe in that destiny,"<sup>142</sup> he says—and so do the librarians he inspired with that belief. The United States has always been a nation of talented tinkers: there is something to the quip that pragmatism is a philosophy for cowboys and engineers who dislike abstract ideas; but pragmatism is the beloved national philosophy of America, and attacking it can be as dangerous as criticizing baseball or apple pie. Hunt defends it as "plausible reasoning," for example, which permits us, when faced with a problem, "to make a skilled guess at an answer" without coming "to that answer by formal deductive means"; he even calls it "our *natural* mode of reasoning," arguing that "we are pragmatists by nature," and that "our pragmatism...is not anti-intellectual" because it constitutes the kind of "effective intellectuality" that appeals to practical people everywhere.<sup>143</sup> For all that, however, pragmatism and anti-intellectualism are so similar as to be almost identical. We find "the signs of revolt against intellectualism"<sup>144</sup> in scores of writers; but "in James pragmatism [actually] becomes a revolt against 'intellectualism' because he tacitly identified this with rationalism."<sup>145</sup> And James despised rationalism: it "is far too intellectualistic" for pragmatism, which therefore "turns her back upon the intellectualist point of view altogether."<sup>146</sup> So, pragmatism suggests anti-intellectualism. Anti-intellectualism, meanwhile, also smacks of pragmatism, for it "suggests the revulsion from ideology and the *a priori*, from the abstract thought of the century and a half preceding [the 1890s]...It recalls the influence and prestige of William James,"<sup>147</sup> which extends to writers as different as Durkheim and Sorel. Pragmatism, especially when based on the natural realism of James and Dewey, is notorious for exalting action over thought; and anti-intellectualism "is virtually equivalent to Jamesian pragmatism"<sup>148</sup>—although many pragmatists continue to resent that term for describing their tough-minded philosophy. All of the above, furthermore, was acknowledged by William James himself, who placed pragmatism squarely in the mainstream of Western matter-philosophy.

It agrees with [materialistic] nominalism...in always appealing to particulars; with [materialistic] utilitarianism in emphasizing practical aspects; with [materialistic] positivism in its disdain for verbal solutions, useless questions, and metaphysical abstractions. All of

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these [variants of materialism], you see, are *anti-intellectualist* tendencies. Against rationalism as a pretension and a method, pragmatism [as a pretension and a method] is fully armed and militant...It has no dogmas and no doctrines save its [materialistic] method.<sup>149</sup>

Despite its widespread acceptance among information professionals, therefore, pragmatism is an indefensible philosophical stance in the librarian for two reasons: (1) it constitutes an experientially biased philosophy of action derived from scientific materialism; and (2) librarians are in the knowledge business, not in the action business. The gut-mistake of the American librarians and their educators is the forlorn attempt to reduce their knowledge problems to action theory in order to solve them scientifically. But action theory cannot resolve the knowledge problems of librarianship because theories of knowledge (epistemology) are not reducible to theories of action (ethics/sociology/science) or vice versa; and the net result of their spectacular failure to resolve knowledge problems scientifically is the measure of their anti-intellectualism.

There is a way out of our anti-intellectual pragmatism, however, in the critical philosophies of humanism. We could take a lesson from anthropology, for example, which has found a formula for creating the philosophy of any discipline by spelling out its metaphysics, its epistemology, and its ethics.<sup>150</sup> Here is a way for us to construct our own philosophy of librarianship, because metaphysics, epistemology, and ethics constitute the irreducibles of philosophical analysis—the necessary ingredients in any recipe for cooking up a critical philosophy of anything. We will have to apply this formula to ourselves in order to do it. We should do it in order, too, by formulating our metaphysical beliefs about the realities we actually deal with before considering the derivative problems of thinking (epistemology) or acting (ethics) in relation to those realities. Our metaphysics must come first, though, because metaphysics deals with fundamental Being, with actually being real. We ourselves have to be in order to think, for unless we exist in the first place we can neither think nor do anything at all; and our realities are like unto us: they too, must be, for if they do not exist we can neither know nor do anything about them.

What, then, are the ultimate realities of librarianship? Do they reduce to atomic complexes with electrochemical properties in the physical world of matter and energy? Or do they consist of matterless patterns in the formal world of the spirit? Most would agree, I think, that our ultimate realities are related to information. But information means *physical data* to the matter-philosophers and *ideas* to the form-philosophers. We can therefore accept ideas (and reject data) as our

ultimate realities or vice versa; but we cannot have it both ways, for ideas belong to the formal universe whereas data are experiential givens in the physical universe. This means that the implicit ambiguity of "information" must be resolved in order to eliminate the confusion which results "when the same word, information, is used in a dozen different meanings in different areas of inquiry."<sup>151</sup> Since natural realities exist only in physical or nonphysical ways, however, these multiple meanings are all subsets of only two basic meanings: either information reduces to physical data (something in the sensible world) or it reduces to ideative forms (something in the intelligible world). We must make an intelligent choice here, and the choice we make will determine what we think about, how we think about it, our theories of truth, the languages we use, our modes of communication, and so on. The received version of librarianship is inherently problematic because it has clearly opted for the physical concept of information-as-data. But librarians are not scientists descended from the matter-philosophers through Democritus, Bacon, and Einstein. Librarians must grapple with the knowledge aspect of human life, not indirectly and instrumentally as scientists who use knowledge as their means of understanding physical phenomena, but directly and fundamentally as humanists trying to understand ideas because they are concerned with knowledge reports about anything that interests human beings. Thus, their real concern is human subjectivity; and for that, the communication of information-as-ideas is absolutely indispensable. We cannot therefore sacrifice the linguistic concept of information-as-ideas to the mathematical concept of information-as-data. Mathematics can communicate man's physical knowledge of empirical realities; but librarians cannot communicate man's formal knowledge of intellectual realities without natural language. Why then should library educators so overwhelmingly prefer the mathematical communication of physical knowledge to the verbal communication of formal knowledge? The exorcising (by virtually unanimous incantation) of language studies from library education has encouraged "the enthusiastic manipulation of new statistical tools" by librarians, and has literally littered the literature of librarianship with the "meaningless use of mathematical symbols...and homespun 'applications' of information theory and other scientific subject matter—all intellectually embarrassing and professionally unimportant."<sup>152</sup> The magnificent mumbo-jumbo of mathematics, meanwhile, has never helped a librarian orient a patron to the landscape of ideas.

The next question, once we have identified the realities of librarianship, is: What are the best ways of thinking about those realities? Again, there are two alternatives that correspond to the two views of

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what those realities are. If our ultimate realities reduce to physical data, the best ways of thinking about them are empirical. A strong commitment to experiential learning by observation and experiment must then follow, because (as implied by words like emPIRical, exPERiment, and exPERience) emPIRicism means that the human mind gets its food for thought through the POREs of the human sensory body. It also follows that the methodology of librarianship and library education will be controlled by the numerate data mongers, mathematical wizards, and statistical button counters of physical science. That, as a matter of fact, is precisely what has happened. By accepting materialistic ways of thinking about our formal realities we have reified information (by reducing ideas to data) in order to study it scientifically. This is a classic instance of the hypostatic fallacy: we have transferred ideas, which belong to the intelligible world of nonphysical order/structure/form, to the material world of physical realities by endowing them with a substance (*hypostasis*) they do not possess. That is why our information professionals have reduced the study of information to data science, and why we have swallowed the whole scientific package, which includes telecommunications engineering (chasing electrical disturbances through electronic mazes), general system theory (a formal way of thinking for application to empirical studies), cybernetics (controlling physical systems by means of physical feedback), and all the rest. We are out of our skulls if we elect to follow this analytical mode of thinking any further into its blind alley, because librarianship is formal idea science, not physical data science. If our ultimate realities reduce to ideas then the best ways of thinking about them are rational, not empirical. This implies commitment to the recognitive methods of critical humanism, which are essentially introspective and perceptive as in the arts, not observational and reflective as in science. But the study of ideas by the recognitive methods of humanism, in which facts/data/phenomena are used as instruments of communication, has not been (and doubtless cannot be) systematized like the methods of science, in which facts/data/phenomena are analyzed as objects of study. These two functions of data—as objects of study or as instruments of communication—must be disentangled because scientific information about physical data is wholly instrumental to human communication—as are the data themselves.

Finally, we must ask ethical questions derived from action theory. What is the librarian's job? What is the function we must perform in the best of all possible ways in order to qualify as librarians? It is simply orientation to information, provided only that information is conceived as ideas, not as data. Librarianship is intellectual cartography, the

human art of orienting people to ideas—a knowledge service that constitutes its entire product, the only legitimate contribution it can make to anyone under any circumstances. Action theory is therefore subordinate to knowledge theory in librarianship, for everything the librarian does specifically qua librarian is instrumental to the performance of that intellectual function. But another word of caution is necessary, lest the professional function of librarians (which is derived from knowledge theory) be confused with their administrative function (which is derived from action theory): the professional function is to orient patrons to objective knowledge in the cultural environment, whereas the administrative function is to manage the human and nonhuman physical resources of specific library operations as a means of performing the professional function. And that brings up the sixty-four dollar question: What is the best way of performing the librarian's professional function? No one knows the optimal technique for orienting patrons to knowledge. But creating that technique is clearly an intellectual problem in which action is subservient to knowledge. It is not the other way around, for this is not a practical problem that can be resolved by the anti-intellectual "solutions" of an inordinate library pragmatism. In the end, however, we must come up with a best way of orienting patrons to ideas or forfeit all hope of achieving professional status. This means negotiating the psychophysical interface between (1) the intellectual structure of knowledge, and (2) the librarian's technology of access to knowledge; and that is an intellectual problem to end all intellectual problems. Yet, problems like this "have received almost no attention and certainly no intensive exploration"<sup>153</sup> from the library profession.

If we were ever to take this point of view seriously, it would drastically overhaul our current perceptions of librarianship. "There are tides running, and currents moving beneath the surface," says Shera, "that can dramatically reshape the coastline of librarianship so familiar to us today."<sup>154</sup> We can ignore these influences "and follow the sabretoothed tiger to extinction"; or we can "see in them the vision of a new heaven and a new earth"<sup>155</sup> with a virtually unlimited potential for enriching our profession. I am irretrievably committed to Shera's vision of a neolibrarianship. I see it as a comprehensive synthesis of knowledge in which ideas about anything that is known can be located and correlated with ideas about anything else that is known. I also see it, not as a subculture of information science, but as the larger discipline that includes information science among its ancillary subcultures. Information science can help us with our communicative tooling; but that is all it can do for us—unless it abandons the physical methods of science as a means of solving formal problems—because there is a lot more to our

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profession than building bigger and better bulldozers for pushing characters around. Science cannot explain intersubjective communication because there are no objective explanations of subjectivity; and human communication cannot occur until the output of some information-as-data system has been transmuted into information-as-ideas by a self-conscious mind. Not by a nonconscious brain, mind you, but by a self-conscious mind. This has definite implications for library education. Shera saw them, too, for he offered an interdisciplinary alternative to the study of information science at Western Reserve. He was trying to build an exhaustive synthesis of knowledge about the intellectual structure of the various disciplines in order to familiarize librarians with the objects and methods of study in all of the subject matters. He was struggling to put the shattered Humpty Dumpty of knowledge together again, to rebuild its fragmented *analytika* into a comprehensive interdisciplinary unity for librarians to study as a whole in relation to its parts. He did not exactly succeed in this, but he was at least pointing in the right direction. And that prompts the following remarks about the rigorous interdisciplinarity of librarianship.

All professions are interdisciplinary to some degree because they all draw freely on their supportive disciplines in the academic colleges: medicine, for example, is nourished by physics, chemistry, anatomy, biology, zoology, and so forth. But librarianship is totally interdisciplinary. It is not a subject matter: it is a way of relating to subject matter. It has a direct relationship to every discipline there is, which means that the supportive disciplines of librarianship include everything in the liberal arts curriculum as a bare minimum, and much else besides. The reluctance of library educators to face the truly overwhelming implications of this comprehensive interdisciplinarity is understandable; but overwhelming or not, those implications must eventually be faced. Library educators should therefore oppose the continuing rejection of difficult intellectual problems by the action theorists, who perpetuate the supernarrow views of librarianship and research that have plagued library education from its inception. Their "manageable realism" shows up in many ways, including (1) its deification of descriptive studies (which are always dignified as "research"); and (2) its addiction to the researcher's view of critical inquiry (and the nearly total exclusion of other viewpoints, such as the observer's view of research). As to the former, the factual account of what is always leads empirical researchers to consider the physical aspects of library operations: they are thus derailed onto the behavioral function of the librarian (and of the physical system he manages qua administrator); they cannot investigate the librarian's professional function as the manager of ideas; their studies

have both a pronounced recency-bias and a limited shelf-life (sometimes only a few weeks before going out of date); they cannot make normative judgments (because good realists do not discuss what ought to be); and they cannot produce those larger kinds of scholarly studies which will still interest librarians centuries hence. And as to the latter, the library schools apparently think they are training researchers who become librarians in order to pursue their own research interests. There is nothing wrong, of course, with having librarians who can function as researchers; but our major involvement with research is maieutic: we are intellectual midwives whose job is to assist patrons in giving birth to their researches. In order to do that, however, we must concentrate on the formal structure and intellectual strategies of research. But the library schools, by failing to see that the librarian's patrons are all researchers (varying from superelementary to ultrasophisticated), have emphasized the functional substance, content, results, conclusions, implications, and other outcomes of research. This fundamental error should be corrected forthwith because, as Kaplan reminds us, librarians are not researchers: they are the philosophical observers of research who must function as research counselors to their patrons.

The research potential of librarianship, finally, is truly enormous. It includes applied research into the immediate problems of library practice; but it also includes basic research into librarianship as a field of study, any of its supportive disciplines, the entire geography of knowledge, the role of the sensible symbol in all forms of human communication, and the nature of human critical inquiry into anything. If this research potential could ever be released, it would free the educators of librarianship from their bondage to its practitioners. In the prestigious professions, educational policy is determined by basic research, not by practice—and certainly not by “practical” research into the mechanics of practice. The function of professional education is to reduce the results of basic research to teachable procedures for the skillful application of knowledge. Educators cannot do that, however, if they are always running to the practitioners and technicians to see what should be going on in their classrooms. The application of knowledge always presupposes the existence of knowledge to be applied, because one cannot apply nothing. But practitioners seldom create the knowledge they apply: they get it from their educators, who got it from the researchers who created it. In medicine, for example, most of the basic research is done by the Ph.D.s—by scientists, that is to say, who are nondoctors in the medical schools or in the supportive disciplines. Their research, meanwhile, is continuously evaluated for its medical significance by the educators; and the M.D.s must check constantly with

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their educators to see what should be going on in their practices. That's the way it is in professions like medicine, architecture, and engineering. It's not that way, though, in librarianship: it's the other way around, because library education, to say nothing of librarianship itself, has never been oriented to basic research. Ad hoc applications abound, of course, but they do not qualify as research. Our profession "is a vast accumulation of technical details rather than a body of organized abstract principles that can be applied in concrete situations."<sup>156</sup> The skillful application of knowledge by librarians is therefore next to impossible, as knowledge must exist (because it has already been created by basic research) before it can be applied to anything.

The educators and practitioners of librarianship have always done their housework and done it well; but we can never get the what, the why, and the how of our act together unless we do our homework. Our goal is visible if we have the vision to see it. We do not have to settle for managing the physical symbols of knowledge by becoming notation mechanics, for we are fully capable of becoming intellectual cartographers who can create an authentic geography of knowledge and map its objective features. In order to do that, however, we will have to follow something like Shera's five-point program in the snippet at the beginning of this paper: (1) we must "formulate a professional philosophy that will meet the rapidly changing needs of society for recorded knowledge"; (2) "we must re-define our role in society" and "make of the library the agency it should be in the total communications process"; (3) "we must put our intellectual house in order or we will lose control of many functions relating to the communication of the written word that are properly our own"; (4) we must recognize that "this need lies at the base of every other problem of librarianship"; and there is one final necessity, if we intend to do any or all of those things: (5) we must "probe deeply, however great the pain." But the way has been prepared for us: it is currently available in the form-philosophies of critical humanism, and we can follow it if we are not afraid of difficult intellectual work and if we have the will and the stamina to do it.

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