Chapter 6 The Applied Metaphysic of Corporal Education

§ 1. Standpoint and Major Acroam of the Applied Metaphysic

Human beings living in Community are the establishers, designers, and operators of their own social institutions. Every human institution is created by man for a purpose and is intended by its makers to serve that purpose. A system of education is no different in this from any the other of man's social institutions. The reality of an institute subsists in an *Unsache*-thing, a "happening" that affects the lives of those who have instituted it. Those entrusted and appointed to work the institution are therefore the agents of its effects on the Society that created and maintains it.

This treatise is concerned with the institution of scientifically systematic public education in general. In this volume, its interest lies specifically with that type of institution called public instructional education. More specifically still, its concern is with the deduction of fundamental general principles for making this institution one which is congruent with the nature of being-a-human-being, an endeavor that calls out for the establishment of a social-natural education science. The applied metaphysic of public instructional education is the Critical linkage making the transition from the acroamatic principles of metaphysics proper to the institution of such a science. This "bridge model" of the applied metaphysic is illustrated in figure 6.1. It consists of a threefold structure comprised of: (1) a bridgehead of transcendental principles of Progress, and we are calling this bridgehead rational education; (2) a bridgehead of empirical principles of Progress, and we are calling this bridgehead empirical education; and (3) a span consisting of transitive principles of Progress crossing from either bridgehead to the other without encountering any breach (*hiatus*) or making any jumping to conclusions under the inclinations of merely subjective judgments of personal taste or opinion (*saltus*). We are calling this span social education.

An applied metaphysic *determines* those fundamental first principles upon which are based all subsequent hypotheses and propositions of experience that a special science erects. The task of the metaphysic is to establish the contexts and limitations of objective validity that the theories and practices of the special science must subsequently observe. Without this Critical foundation the development of any science can be carried out no otherwise than by painstakingly slow groping and pawing through empirical lessons of contingent experience, an intellectual journey characterized by periods of apparent progress interrupted by intervals of unpredicted setbacks in which the formerly accepted foundations of the science are overturned during what science historian Thomas Kuhn called scientific revolutions. The phenomenon of scientific revolution is a recurring one appearing in the records of all mature sciences. Kuhn wrote:

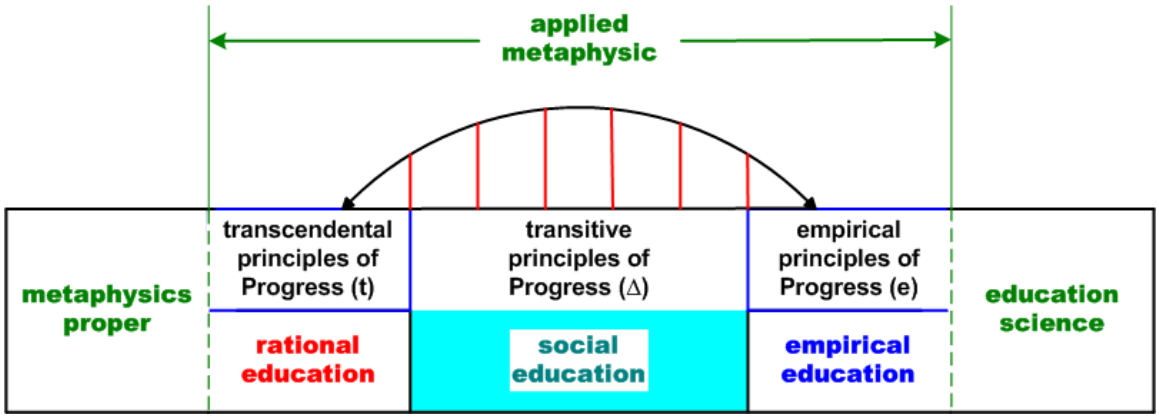

Figure 6.1: Bridge model of the applied metaphysic of public instructional education.

> If science is the constellation of facts, theories, and methods collected in current texts, then scientists are the men who, successfully or not, have striven to contribute one or another element to that particular constellation. Scientific development becomes the piece-meal process by which these items have been added, singly and in combination, to the ever growing stockpile that constitutes scientific technique and knowledge. And history of science becomes the discipline that chronicles both these successive increments and the obstacles that have inhibited their accumulation. . . .
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> In recent years, however, a few historians of science have been finding it more and more difficult to fulfill the functions that the concept of development-by-accumulation assigns to them. As chroniclers of an incremental process, they discover that additional research makes it harder, not easier, to answer questions like: When was oxygen discovered? Who first conceived of energy conservation? Increasingly, a few of them suspect that these are simply the wrong sorts of questions to ask. Perhaps science does not develop by accumulation of individual discoveries and inventions. Simultaneously, these same historians confront growing difficulties in distinguishing the "scientific" component of past observation and belief from what their predecessors had readily labeled "error" and "super-stition." The more they study, say, Aristotelian dynamics, phlogistic chemistry, or caloric thermodynamics, the more certain they feel that those once current views of nature were, as a whole, neither less scientific nor more the product of human idiosyncrasy than those current today. . . . Out of date theories are not in principle unscientific because they have been discarded. That choice, however, makes it difficult to see scientific development as a process of accretion. . . .
>
> Normal science, the activity in which most scientists inevitably spend almost all their time, is predicated on the assumption that the scientific community knows what the world is like. Much of the success of the enterprise derives from the community's willingness to defend that assumption, if necessary at considerable cost. Normal science, for example, often suppresses fundamental novelties because they are necessarily subversive of its basic commitments. Nevertheless, so long as those commitments retain an element of the arbitrary, the very nature of normal research ensures that novelty shall not be suppressed for very long. . . . In these and other ways besides, normal science repeatedly goes astray. And when it does – when, that is, the profession can no longer evade anomalies that subvert the existing tradition of scientific practice – then begin the extraordinary investigations that lead the profession at last to a new set of commitments, a new basis for the practice of science. The extraordinary episodes in which that shift of professional commitment occurs are the ones known in this essay as scientific revolutions. They are the tradition-shattering complements to the tradition-bound activity of normal science. [Kuhn (1970), pp. 1-6]

It is quite commonplace to find individuals who find conclusions like Kuhn's disturbing. Often they respond to this by ignoring the "heretical" view and dismissing the heretic who enounces it. Kuhn is not a physicist; how dare he criticize physics? This sort of dismissal by ignórance is a quick and easy method of satisficing Reason that anyone can use to restore equilibrium after a disturbance. This historically frequent behavior is part and parcel of what Bacon once called an idol of the theater [Bacon (1620), pp. 33-43]. It is more difficult to ignore and dismiss Kuhn's conclusion when an eminent scientist agrees with it:

> That reminds me of another point, that the philosophy or ideas around a theory may change enormously when there are very tiny changes in the theory. For instance, Newton's ideas about space and time agreed with experiment very well, but in order to get the correct motion of the orbit of Mercury, which was a tiny, tiny difference, the difference in the character of the theory needed was enormous. The reason is that Newton's laws were so simple and so perfect, and they produced definite results. In order to get something that would produce a slightly different result it had to be completely different. In stating a new law you cannot make imperfections on a perfect thing; you have to have another perfect

> thing. So the differences in philosophical ideas between Newton's and Einstein's theories of gravitation are enormous. [Feynman (1965), pp. 168-169]

The role of an applied metaphysic is not to presumptively tell an empirical special science what its findings are going to be. That would be a ridiculously absurd bit of hubris on the part of the metaphysician. The role, rather, is to provide the science with tools essential to its work. These tools are principles and acroams of objectively valid reasoning about nature that take their own grounds from the Nature of the phenomenon of human reasoning itself. Our understanding of nature is not provided to us as a gift through divine revelation or a mysterious flash of insight. It is always and only the product of strenuous and disciplined human reasoning.

To do its job and fulfill its role, the applied metaphysic must begin with the correct Critical context of the special science and ground this context in human Nature. A science might topically be *about* dead-matter objects (as in physics, chemistry, and biology), but the *making* of a science is a human activity and can only be based upon the live-matter of the *homo noumenal* Nature of being-a-human-being. Viewed in this context, the philosopher acts as a metaphysics engineer in the sense that he works from the basis of a more fundamental science, namely Critical meta-physics proper, and applies its acroams and principles to design those that are to be used in the special science for which the applied metaphysic is designed. He is no more free to indulge in fancy and speculation than a physicist is free to ignore the predictions of an accepted physics theory. As Feynman noted, proper science makes definite predictions, and if facts of experience gainsay the prediction it is the theory that is suspect once reasonable precaution has been taken to ascertain that error has not occurred in the process of discovering the experiential fact.

In chapter 5 I sketched out the skeletal structure of the applied metaphysic of public instructional education along with its Standpoint and general categories (figure 6.2). The task now is to, as the saying goes, put flesh on these bones. Specifying concepts and even general categories are concepts, and as such their epistemologically correct context must be deduced. Doing so must begin by establishing the correct Critical Standpoint from which these concepts are to be viewed and understood. The first task at hand, then, was to establish the Standpoint and the major acroam of metaphysics proper for the 2LAR depicted in figure 6.2. The Standpoint was easy to determine. An applied metaphysic, like an empirical science, is a *made* object, and for this reason its correct Critical Standpoint is the practical Standpoint of Critical epistemology. Its major and minor acroams must all be viewed from this Standpoint.

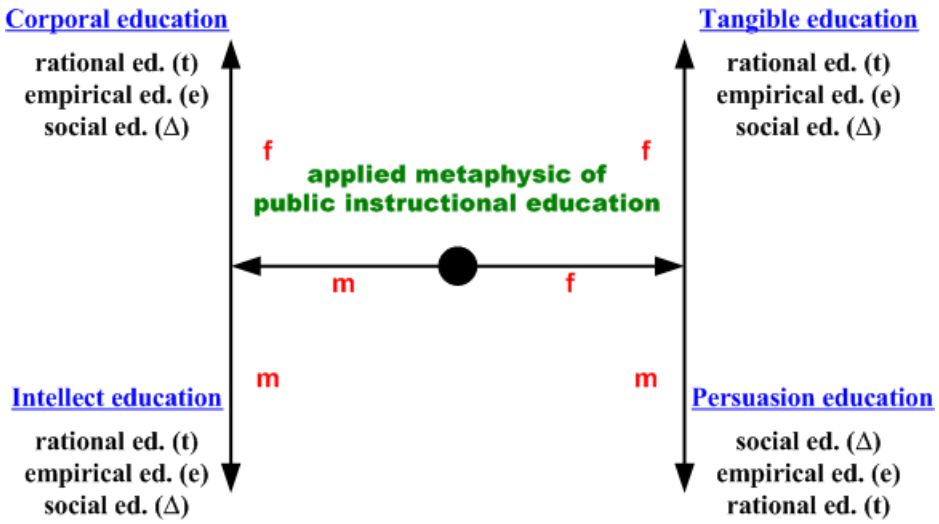

Figure 6.2: Basic 2LAR structure of the applied metaphysic of public instructional education.

Deduction of which transcendental Idea provides the correct major acroam of the metaphysic was not quite so easy as the deduction of the Standpoint. The deduction began by asking what sort of Object this metaphysic has. The answer to this question is straightforward enough. The applied metaphysic is to be an *organon* of reasoning for a special science of public instructional education. Thus its context lies with the dynamical Ideas of metaphysics proper. This context eliminated the physical Idea and the psychological Idea from candidacy for major acroam. A very brief reflection shows this elimination to be of a satisfactory character.

Eliminating the physical Idea hinders slipping casually into an ontology-centered way of thinking by eliminating from the context of the metaphysic notions of objects of outer sense. It is always an error in philosophizing to allow one's views to become ontology-centered – despite a lifetime of developed habits of thinking that promote this – because ontology-centered thinking in metaphysics always and only ends in the invocation of some sort of deity to ground a specious and proven-false notion that human beings possess some "copy of reality" mechanism. If one premises ontology-centered presuppositions then human knowledge must come from the possibility of objects of outer sense somehow being able to "imprint" themselves on the mind – either through a specious and Neo-Platonic mysticism concerning the intervention of a deity or through the equally specious dogma of rigid materialism, which endows objects with an equally magic ability to transfer knowledge to us. The premise that *H. sapiens* possesses a "copy of reality" mechanism of any sort has testable empirical consequences, these consequences *have* been tested by psychology and empirical neuroscience, and the findings gainsay the hypothesis. *H. sapiens* has *no* copy of reality mechanism.

The Object of a science of public instructional education is an institution, not a person. If its Object *was* a person or a group of persons, then the psychological Idea would be central and the major acroam. However, an institution is an *Unsache*-thing, not a person at all, and there is no psychology of an *Unsache*-thing *qua Unsache*-thing. Elimination of the psychological Idea hinders inclinations to inject subjective matters of taste and contingent belief into the rational underpinnings of scientific interpretation. It has long been a principal tenet of science that scientific judgment must be objective and that subjective coloration of scientific theory must not be allowed into theories themselves regardless of how aesthetically pleasing, i.e. "how beautiful," a theory might seem. We cannot eliminate all subjectivity from science, because reflective judgment *always* plays a central role in the human judgmentation process, but we can hinder the degree of injurious impact subjective effects of reflective judgment have *on scientists* by eliminating objects of inner sense from being made a part of *causata* in the drawing of objective scientific conclusions.

This left only the two Ideas regulating human understanding of objects of reasoning: the cosmological Idea and the theological Idea. The former concerns human understanding of Nature, the latter human understanding of Reality. *Both* of these are constructs of reasoning because both pertain to the *Existenz* of a manifold of Object concepts – Nature as the embodiment of unity in objects-in-Nature, and Reality as the coherence of Meaning in our judgments *of* objective judgments. The transcendental question that is properly asked now is: Does the Object of a special science of education (specifically, public instructional education) pertain to the orderly construction of a manifold of already-given objects-of-education or does it pertain to making actual (*realizing*) an *institution* of public instructional education?

Once this question is asked, we come directly to the correct answer. The Idea of a science of education nucleates around a notion of the Meaning of education, i.e., *the reason for instituting educating activities*. It does *not* subsist in, metaphorically speaking, wandering across a landscape of the human environment gathering up bits of educational matter here and there and connecting them in an objective *nexus*. A science of education is never *given* the objects of its inquiries. It is instead tasked with *determining what these objects must be* if the objective of an educational

Enterprise is to be achieved. This, however, is the Modal function of Critical metaphysics proper, and the Modal function is called the transcendental Idea of Rational Theology, i.e. the theological Idea. The notion of education *science* is the notion of a science-*craft*. To better see this, we must examine more closely the theological Idea of Critical metaphysics proper.

§ 2. The Theological Idea

The general acroam stated in the theological Idea is the regulative principle of reasoning that regulates for absolute unity of the condition all objects of thinking in general [Kant (1787), B: 391]. This regulation sets up a standard gauge for judging all objective judgments rendered in the process of thinking and holds the motivational dynamic of the process of judgmentation to compliance with this standard gauge. Modality in judgmentation always pertains to the judging of judgments and hence the theological Idea is the Modality function of pure Reason's executive role as the master regulator of all non-autonomic human actions. As Kant put it,

> The categories of modality have this peculiarity: as a determination of the Object, they do not augment the concept to which they are applied as a predicate in the least, but rather only express the relationship to the faculty of knowledge. If the concept of a thing is already entirely complete, I can still ask about this object whether it is merely possible, or also actual, or, if it is the latter, whether it is also necessary? No further determinations in the Object itself are hereby thought; rather it is only asked: how is it (together with all its determinations) related to understanding and its empirical use, to the empirical power of judgment, and to reason (in its application to experience)? [*ibid*., B: 266]

In the context of the regulation of judgmentation, it is not the category of understanding that is pertinent to speculative Reason's regulation of the process but, rather, Reason's orientation and direction of the process of determining judgment in ratio-expression according to the regulations of the transcendental Ideas (figure 6.3). To comprehend the function of the theological Idea in the regulation of judgmentation we logically divide it into the four standard headings:

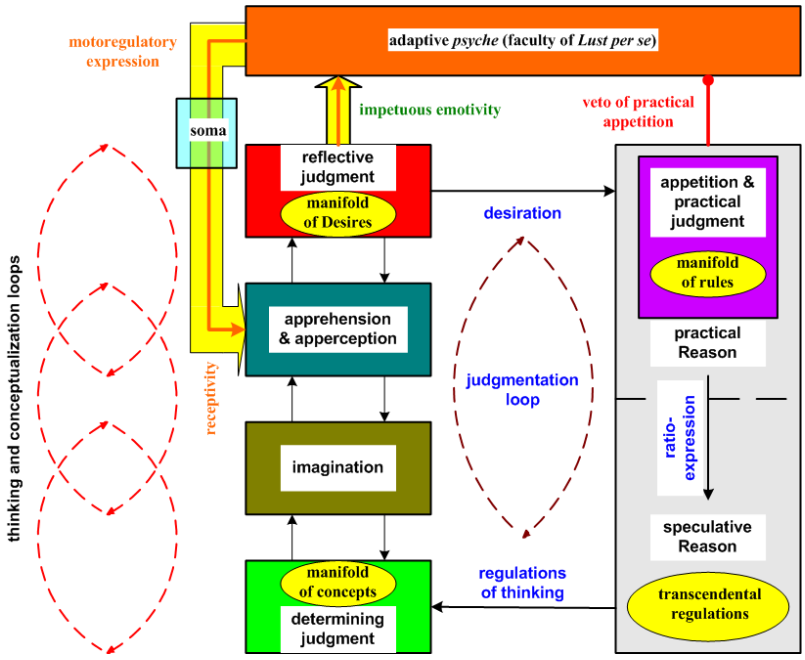

Figure 6.3: Structure of thinking and judgmentation processes in the phenomenon of mind.

- **Quantity –** regulation of the synthesis of all practical perfections in one Object, namely *universal law* subsisting in a manifold of rules;
- **Quality –** regulation of the synthesis of good choice under an original Ideal of absolute goodness (the Ideal of *summum bonum*);
- **Relation –** regulation of the structuring of the context of actions in a manifold of rules in Relation to a transcendental Ideal of *summum bonum*;
- **Modality –** regulation for the coherence of all actions with the Ideal of *summum bonum*.

These real-definitions of the theological Idea are as they are stated in the practical Standpoint [Wells (2009)].

In Critical epistemology an Ideal is an Object that exhibits in its representation *in concreto* the most perfect instantiation of an idea. It is not an Object of actual sensuous experience but, rather, a *parástase* of a goal-to-be-driven-towards and it is *used* as a standard for comparison. An Ideal of *summum bonum* is an Ideal of a perfect realization of the conditions demanded under the master regulation of the categorical imperative of pure practical Reason. This "highest good" pursued by the regulation of practical Reason – indeed, the *only* "good" it pursues – is unconditioned, absolute equilibrium under a system of universal and necessary practical laws (which, in the practical manifold of rules, are the practical hypothetical imperatives the human being has constructed *by experience* as his presently-highest practical laws conditioning all other practical rules).

This understanding of the *Realdefinition* of the acroam serves the deduction of the metaphysic as a *portable concept* that can be *applied* to the Object of the science with real objective validity by synthesizing this portable concept with other *specifying concepts* that set the context for the metaphysical principles being sought. In figure 6.2 these specifying concepts are those of corporal education, intellect education, tangible education, and persuasion education. What the corporal concepts are will be explained a little later in this chapter. The "raw" practical theological Idea, unrestricted as of yet by specifying concepts, provides the bridgehead for combination of the applied metaphysic with the foundational laws of Critical metaphysics proper. Its contextual specification by the specifying concepts fixes the bridgehead on the other side for combining the metaphysic with the empirical special science. Thus the metaphysic is both true to *homo noumenal* human Nature and applicable to empirical natural science.

I think it is not-unlikely that you might have already noticed an unmaskable similarity between the Critical terminology and terminology traditionally used by divers theories of ethics or religious theology. If so, I think it is possible (especially if you are a scientist) that you might be experiencing some discomfort at this and perhaps even find yourself harboring a suspicion that lurking somewhere in the shadows we will encounter a deity ready to smite us. It is an historical fact that George Santayana expressed this sort of reaction to Kant's philosophy. He ignited in one of the most fiery and, as I would judge it, virulent outbursts of criticism I ever saw him level [Santayana (1905), pp. 94-108]. Had Santayana not been mistaken in his understanding of the Critical Philosophy, his outburst would be wholly justified.

For this reason, I feel a compulsion, to which I now yield, to make a comment *en passant* about the terminology of the theological Idea. I confess without shame that I have never liked Kant's choice of terminology for Rational Theology or his purloining of terms like *summum bonum* that other scholastics (particularly theologians) have long used to such an extent that in some ways it might be said that they own the term. I perpetuate its use for the sole purpose of maintaining as direct a linkage as I can with the *corpus* of Kant's work. The man and his writings are sufficiently difficult to follow already without the additional confusion of revisionism in his technical lexicon. For myself, I find it a sufficiently satisficing compensation to tell myself,

"Well, the man was just following the standard lexical conventions of his day," even as he was radically altering the *meanings* of these terms. If that was Kant's sole purpose, then the terminology itself becomes a lighter matter; he would not be the first revolutionary to keep the old terminology after jettisoning the old ideas. However, when I employ this compensation I find myself having to *pretend* I think so because I really am convinced that Kant, who I regard as a deeply religious man (just not a man who respected the church establishments of his day), really held and maintained a theocentric bias in his attitude towards philosophy. I think Palmquist's work has brilliantly and conclusively demonstrated this [Palmquist (2000)]. I think Kant's *Opus Postumum* is a smoking gun in this regard [Kant (*c*. 1800-3)]. I think it is more than a small irony that for decades after Kant himself had proven science can never speak for or against god-theory he never gave up trying to find some way to bring God into the picture in a way that would be objectively valid. Such was the persistence or, if you prefer, stubbornness of the man. I think it is surely merited to say Kant was a genius, but this lifelong effort he exerted also demonstrates, in a way I think one can feel sympathetic about, that he was, after all, just a man and not some sort of *Übermensch* plopped into our midst by an unknown accident of nature. If you are one who feels uncomfortable with the terminology of Rational Theology, perhaps knowing this will help. To paraphrase the old nursery rhyme, sticks and stones may break our bones but it's foolish to let words hurt us.

Kant certainly doesn't stand alone when it comes to thinking influenced by theocentric bias. History clearly shows that this is the norm for civilizations everywhere. Kant is exceptional only because this bias is contradictory to his own scientific metaphysics yet he never gave up trying to turn this contradictory relationship into one that was merely a contrary relationship. As far as the historical record has been able to show us, theocentric premises were shaping the design of social institutions of all kinds, including institutions of education, when recorded history began. One of these institutions is the institution of religion. Historian Will Durant wrote,

> Magic begins in superstition and ends in science. A wilderness of weird beliefs came out of animism and resulted in many strange formulas and rites. . . . At every step the history of civilization teaches us how slight and superficial a structure civilization is, and how precariously it is poised at the apex of a never-extinct volcano of poor and oppressed barbarism, superstition and ignorance. . . .
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> The philosopher accepts gracefully this human need of supernatural aid and comfort, and consoles himself by observing that just as animism generates poetry, so magic begets drama and science. Frazier has shown, with the exaggeration natural to a brilliant innovator, that the glories of science have their root in the absurdities of magic. For since magic often failed, it became of advantage to the magician to discover natural operations by which he might help the supernatural forces to produce the desired event. Slowly the natural means came to predominate, even though the magician, to preserve his standing with the people, concealed these natural means as well as he could, and gave the credit to supernatural magic – much as our own people often credit natural cures to magical prescriptions and pills. In this way magic gave birth to the physician, the chemist, the metallurgist, and the astronomer.
>
> More immediately, however, magic made the priest. Gradually, as religious rites became more numerous and complex, they outgrew the knowledge and competence of the ordinary man and generated a special class which gave most of its time to the functions and ceremonies of religion. The priest as magician had access, through trance, inspiration or esoteric prayer, to the will of the spirits or gods, and could change that will for human purposes. Since such knowledge and skill seemed to primitive men the most valuable of all, and supernatural forces were conceived to affect man's fate at every turn, the power of the clergy became as great as that of the state; and from the latest societies to modern times the priest has vied and alternated with the warrior in dominating and disciplining men. Let Egypt, Judea and medieval Europe suffice as instances.

> The priest did not create religion, he merely used it, as a statesman uses the impulses and customs of mankind; religion arises not out of sacerdotal invention or chicanery, but out of the persistent wonder, fear, insecurity, hopefulness and loneliness of men. The priest did harm by tolerating superstition and monopolizing certain forms of knowledge; but he limited and often discouraged superstition, he gave the people the rudiments of education, and he acted as a repository and vehicle for the growing cultural heritage of the race, he consoled the weak in their inevitable exploitation by the strong, and he became the agent through which religion nourished art and propped up with supernatural aid the precarious structure of human morality. If he had not existed the people would have invented him. [Durant (1935), pp. 67-68]

Whether one defines religion as belief in a deity or deities, or as the worship of supernatural forces, or as some combination of these, religion is not innate in human Nature. The BaMbuti Pygmies provide one example of a Society without religion in any of these senses of the word. Durant cites numerous others. Moral custom (*Sittlichkeit*) existed in Societies long before the first institution of religion occurred. Even moral custom is not an innate property of human Nature. If it were we would not encounter the phenomenon of divers moral customs in different social cultures. There would be one set of moral customs and all human beings everywhere and every-when would exhibit it in their behaviors. Moral custom is a product of judgmentation that emerges when people live together in community with one another. What *is* innate in human Nature is a characteristic of the regulation of judgmentation that conditions and leads to the evolution of moral customs. Individual judgment of morality develops through experience, it can be studied by methods of developmental psychology, it has been studied, and the findings show that in every case it follows a predictable course of development [Piaget (1932)]. The course of this development is summarized in *The Idea of the Social Contract*. The theological Idea is the Critical acroam underlying the phenomenon of individual moral development, and so the terminology Kant used for it is not altogether inappropriate.

Religion, as I said a moment ago, is not innate in human Nature, nor is it correctly said in any objectively valid way that man has a religious instinct. He has none such. However, institution of religion has clearly played a significant role in the development of most Societies and this would not happen if there was nothing in the manner of its institution that served a satisficing role expedient for the process of human practical judgmentation. The Critical Ideal of *summum bonum* captures the essence of this expedience. It is when the actions of a religious institution perpetrate enormities conflicting with individual judgments of *summum bonum* that the religious institution becomes a destructive social force within a Society. Institutions of religion have been, at different times and in different places, both one of the most socially beneficial of institutions and one of the most socially destructive of institutions. Religious mini-Communities constitute one of the most important classes of mini-Community found in every large Society and present one of the greatest challenges to governance of a Society.

The institution of public education is one of the most prominent historical examples of social benefit wrought by religious institutions in Western civilization. The first plan for institution of public education in Great Britain is credited to the Church of Scotland in the mid-sixteenth century [Milne (1957)]. The role of the Catholic Church in laying the groundwork for public education in Europe has already been discussed. In nineteenth century America, Protestantism was one of the major driving forces in the establishment of public schools. Reese tells us,

> A broad range of citizens responded to [social changes that accompanied the Industrial Revolution] by forming innumerable voluntary associations dedicated to social reform. These reformers recoiled at the ugliness and distortions of modern social life but were sanguine about the salutary effects of newly established public institutions. . . . Evangelical Protestantism decisively shaped the world views of the antebellum reformers. Horace

> Mann abandoned the religion of his youth, Puritan Calvinism, and became a Unitarian, a largely upper-class faith that emphasized God's love, human reason, and the possibilities of universal salvation. The classroom became his pulpit. Catherine Beecher, the daughter of America's most famous preacher, failed to have a conversion experience and ultimately joined the high-church Episcopalians. But she too became a social reformer, championing the professional training of female teachers and middle-class domesticity. Whether working to create prisons or schools, reform leaders were mostly evangelical Christians, whose intensity and influence naturally varied in different locales. Reformers who might differ philosophically, politically, or temperamentally generally applauded the wondrous expansion of the capitalist economy but worried about the accompanying social ills. They hoped the fallen woman, the habitual drunkard, or the ignorant child could be set straight, sobered up, or educated by appeals to self-improvement or through the disciplinary power of institutions, which often bore the markings of religious enthusiasm.
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> The cautious optimism of reformers came from many sources, including seemingly contradictory influences such as the Enlightenment and Romanticism. Various Protestant denominations had long shaped community life in the northern states, promoting literacy to ensure children's access to scriptural authority. With declining support for the Calvinist ideal of predestination and growing emphasis upon free will and salvation by good works, evangelical Christianity held out the promise of individual reformation and social improvement, often anticipating God's ultimate return to earth. It is not surprising, then, that Protestant ministers usually strongly supported the public schools, frequently wrote school textbooks, and commonly served on school boards and steering committees. Between 1838 and 1879, ten of the first eleven superintendents of public instruction in Kentucky were Protestant ministers, a pattern common elsewhere before professional educators arrived on the scene. [Reese (2011), pp. 16-18]

The point I wish to make here in recounting these little history lessons is simply this. When public institutions are formed by coalitions of members of divers mini-Communities (even if these people are like-minded only insofar as agreeing to make an institution for some narrowly defined purpose) the *possibility* of the *Dasein* of such a coalition must be grounded in human Nature. In many cases, and particularly in the case of public instructional education, we find this grounding in the acroam of the theological Idea of pure Reason and in judgments made according to individual ideations of standards for the transcendental Ideal of *summum bonum*.

§ 3. The Specifying Concept of Corporal Education

§ 3.1 Context of the Specifying Concept

The objective of instituting public instructional education is Progress in *Personfähigkeit*, both the *Personfähigkeit* of the learner-as-a-free-person and the learner-as-member-of-a-Community (figure 6.4). The specifying concept of corporal education is the specifying concept of Quantity in the 2LAR of the applied metaphysic and so is contextualized by the two Quantity headings shown in figure 6.4. Because the objective of public instructional education is twofold, so too must the specifying concept be understood in a twofold fashion, one pole pertaining to Progress in *Personfähigkeit* of the learner-as-a-free-person and the other pole pertaining to Progress in *Personfähigkeit* of the learner-as-member-of-a-Community. Unity in the specifying concept requires an idea of an Object that understands both pole facets contained in the concept. For Quantity we find the unifying idea in the abstract notion of a body. In the concept's matter pole (the learner-as-a-free-person), this pertains to the learner's own body and is a concept of *soma*. The concept's form pole (the learner-as-member-of-a-Community) pertains to Community regarded as a body politic united by a social contract of some sort. Hence at least the name of this specifying concept, corporal education, is metaphorically reasonable. But what must this label mean? What object is the object by inference of analogy with what is pictured in the metaphor?

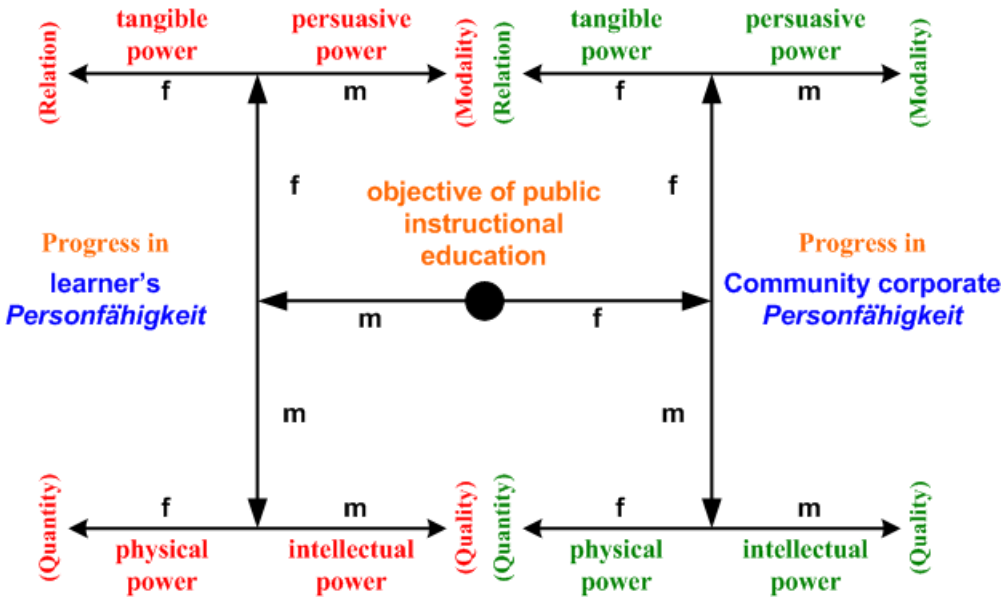

Figure 6.4: 3LAR structure of the objective for instituting public instructional education.

The first thing we know about this object is that it can only be an object of reasoning. This follows from the major acroam of the applied metaphysic because the theological Idea is a regulative acroam for objects of reasoning in Critical metaphysics proper. The second thing we know about this object is that it must be a practical object, i.e. an object of action, because the Standpoint of the applied metaphysic is the practical Standpoint of Critical metaphysics proper. These two marks of the object-concept apply to all four headings in the 2LAR because the major acroam and the Standpoint are common to the entire applied metaphysic.

What distinguishes the specifying concept of corporal education from the other three specifying concepts is its position as a concept of Quantity in the 2LAR. Quantity is form-of-the-matter of combination as depicted in a 2LAR. Thus, the corporal education concept must be a concept of acts of aggregation. This is because Quantity in representation pertains to extensive magnitude, i.e., a determination of an object in which the representation of the parts precedes and makes possible the magnitude of the whole. The context for what-is-being-aggregated is, of course, the context of Progress because it is Progress, not *Personfähigkeit per se*, that is specified in the objective of public instructional education.

It is a theorem of mental physics that more abstract (general) concepts are made by synthesis of less abstract concepts (particulars). This is because a higher concept makes abstraction of differences contained in the lower concepts and retains only what is contained in common by all the lower concepts it coordinates. Put succinctly, human beings learn *from* the particular *to* the general, and only *after* the general concept has been conceptualized can we then proceed to find additional lower concepts that can by understood by the general concept. Failure to be cognizant of this simple characteristic of the learning phenomenon is the primary reason why present day formalism in the teaching of mathematics has been leaving generations of pupils and students (and now teachers) ignorant of a fecund understanding of mathematics. This is probably the root cause of mathematics education in the United States today being one of the worst in the world.

We apply this theorem of mental physics to the problem of finding the correct specifying concept of Quantity. This is done by first seeking out particular examples to take into the synthesis of the specifying concept. It does not take very many examples to accomplish this. We begin with *soma*, the *sensuous* Object of the *homo phaenomenal* aspect of being-a-human-being.

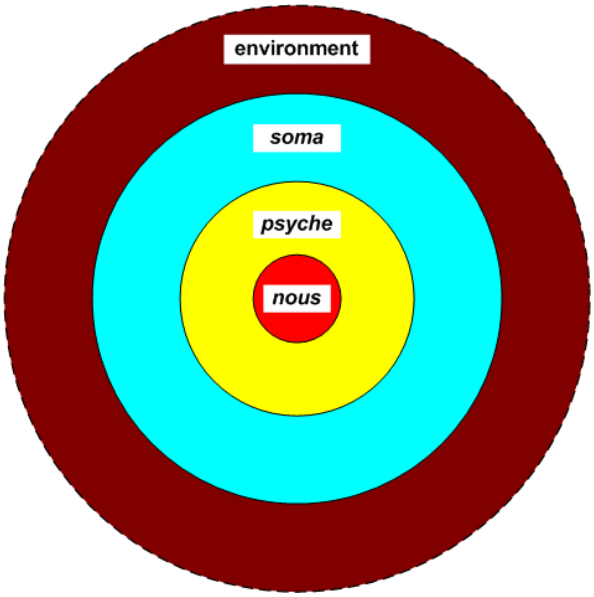

Figure 6.5: Diagrammatic representation of the Organized Being model in mental physics.

In a manner of speaking, *soma* is the outermost ring of the Self in Critical epistemology's Organized Being model of *H. sapiens* (figure 6.5). It is that part of my Self understood as the-part-of-me-in-immediate-sensuous-connection-with-the-sensible-World (my environment). The idea of the Self is the idea a person forms of the Nature of his own personal real *Existenz*. It is transcendentally grounded in the individual's certain knowledge of his own *Dasein*. Kant called this latter ***the transcendental apperception*** [Kant (1781), A:106-110]. There is nothing in a person's knowledge of experience that he holds to be more certain than the knowledge of his own existence. But the ground of this knowledge, the knowledge of his personal *Dasein*, is best described as the individual's *a priori* awareness "I am" with utterly **no** *a priori* knowledge of "what I am." Put another way, transcendental apperception is one's singular awareness "I am" as *noumenon* with *no* concept of one's Self as *phenomenon*. The idea of the Self is one's *empirical* idea he *makes* of himself as an object-in-Nature, i.e., "the-totality-of-all-that-is-me."

Descartes was not wrong to conclude *cogito ergo sum*[1]. His errors came from failing to grasp the epistemological distinction between *Dasein* and *Existenz* as the two logical poles (matter and form) of existence-in-general (*existentia*). For Descartes "being" was a real predicate[2]. This was his first and most fundamental error in metaphysics. His next error was to make a *real* division between a vague notion of mind ("that which exists thinking") and everything else; this was Descartes' famous error known today as the mind-body division. His third was to make a merely *logical* division between the "body" portion of this initial false division and the environment. His metaphysics was ontology-centered and he was forced – as always happens in ontology-centered metaphysics – to call upon a god to ride to the rescue his theory. His science fails at that point.

[1] "I think, therefore I am."

[2] Ever since I first read it, I have always liked physicist Henry Margenau's remark, "let us take the word *being* in its literal sense and withhold from it the mystifying and ominous qualities of its Greek counterpart. We then perceive it to be an auxiliary verb, rather bare of meaning, a verb inflated into a most independent noun. To be *something* is usually comprehensible and definite – but, to be? Perhaps it was in answer to this query that Lewis Carroll invented the grin of Alice's vanished cat" [Margenau (1977), pg. 4]. The Critical epistemology agrees with him, and in Critical metaphysics "being" is not a real predicate. "To-be" is only a copula in a predication and never anything more. This follows directly from the original premise of Kant's Copernican hypothesis – all our *knowledge* of objects conforms to our mental capacities *for* knowledge.

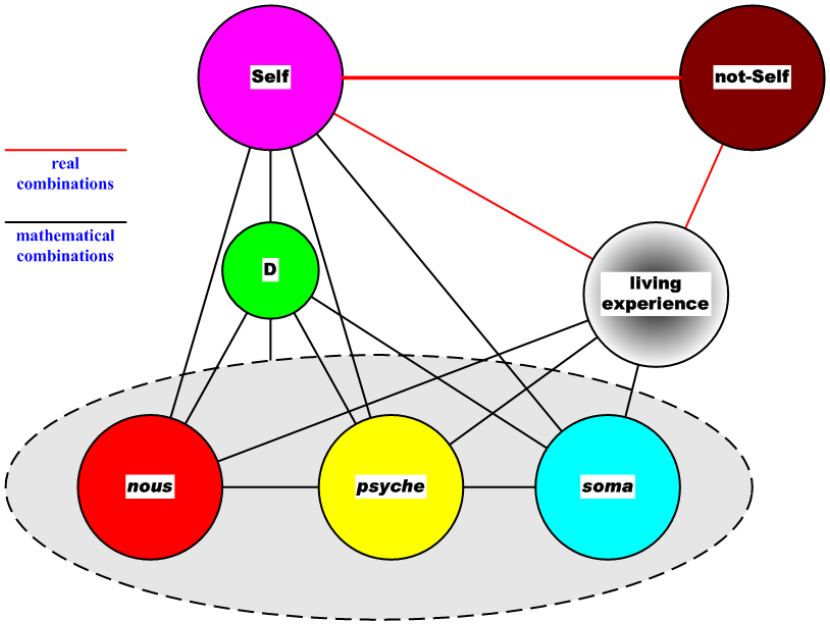

Figure 6.6: Simplified illustration of the concept structure of the Self-as-object-in-Nature that is required by Critical metaphysics proper. *Nous* is the mathematical concept of Self-in-the-context-of-mental-phenomena, *soma* is the mathematical concept of Self-in-the-context-of-physical-phenomena, and *psyche* is the *necessary* concept of thorough-going *nous*-*soma* reciprocity *required* by unity-of-Self-in-Nature. Concept D is the concept of a mathematical disjunction in the manifold of concepts for the Classification of phenomena of Self understood in the contexts of the mental and physical aspects of Self-experience.

In Critical epistemology the division between Self and not-Self (environment) is held-to-be a *real* division. This means that it is grounded in actual sensuous experience. Ultimately its ground of objective validity is found to subsist in psychological causality – i.e. arises from the experience that some phenomena in Nature (those of "body") respond to one's personal volition whereas others (phenomena of not-Self) do not. On the other hand, the distinction between mind and body is held-to-be a merely *logical* Division – a construct of merely mathematical Objects of understanding – because we never have any actual real experience of disembodied "mind" or unminded "body." It is not objectively valid to endow the mind-body division with any *ontological* real significance whatsoever. Its objective validity is only a mathematical (hence epistemological) objective validity grounded in the practical Standpoint of Critical metaphysics.

Ultimately, proper Critical analysis produces a concept structure, illustrated in simplified form in figure 6.6, of: *nous* as the Object which understands all phenomena of experience-of-Self that we *classify* as mental phenomena; *soma* as the Object which understands all phenomena of experience-of-Self that we *classify* as body phenomena; and *psyche* as a faculty of animating principles of thorough-going mind-body reciprocity – an Object *made necessary* because of the epistemological requirement for objective *real unity* of the Self in accordance with Kant's Copernican hypothesis. The concepts of *nous*, *soma* and *psyche* are products of a disjunctive inference of Reason [Wells (2012b)] and, as such, they are empirical mathematical concepts.

The most significant step a human infant takes in its early mental development comes at that moment when he first makes a real division between his Self as object-in-Nature and a not-Self as the Object that understands everything not understood by his idea of Self. This "golden moment" in the infant's mental development does not come early in life, nor is the initial disjunction he makes in his sphere of concepts robust or well-equilibrated. Psychological evidence suggests that this is not what one might call a *eureka!* moment. Rather, infantile and childish behaviors are

consistent with saying that the real division between Self and not-Self is at first made so very casually that for a long time afterwards the infant-and-child is not clearly cognizant that his world model has radically changed. It is, however, not the least mysterious that this initial *practical* inference is a relatively long time in coming. *H. sapiens* is born with *no* ready-made *a priori* concepts in his manifold of concepts, and before he can ever come to divide the sphere of his conceptual knowledge of experience into a Self and a not-Self, he must *develop* his sphere of Object-concepts that will eventually be classified as concepts-of-Self and concepts-of-not-Self. Epistemologically, *it is not possible to come to the real division between Self and not-Self in any other way*.

This is a prediction of Critical epistemology that has been empirically tested in developmental psychology. Those findings are congruent with the prediction. The new-born infant is, for all practical purposes, a little solipsist inasmuch as he initially makes no distinction between himself and his environment. It is a stage of human development Piaget called *radical egocentrism*. Piaget wrote,

> The symmetry between the representation of things and the functional development of intelligence enables us from now on to glimpse the directional line of the evolution of concepts of object, space, causality, and time. In general it may be said that during the first months of life, as long as assimilation remains centered on the organic activity of the subject [the infant], the universe presents neither permanent objects, nor objective space, nor time interconnecting events as such, nor causality external to the personal actions. If the child really knew himself, we should have to maintain that solipsism exists. At the very least we may designate as radical egocentrism this phenomenalism without self-perception, for the moving pictures perceived by the subject are known to him only in relation to his elementary activity. At the other extreme, at the moment when sensorimotor intelligence has sufficiently elaborated understanding to make language and reflective thought possible, the universe is, on the contrary, formed into a structure at once substantial and spatial, causal and temporal. This organization of reality occurs, as we shall see, to the extent that the self is freed from itself by finding itself and so assigns itself a place as a thing among things, an event among events. [Piaget (1954), pp. xii-xiii]

It is in deed a golden moment when, in a manner of speaking, the infant ceases to see himself as the entire universe and demotes himself to merely being its king.

But this cognizance is not accompanied by a full-fledged cognizance of any logical mind-body division nor, for that matter, by clear notions of either mind or body distinct from each other. That only comes much later and after more elaborated experience. Indeed, because the infant discovers objects first before he develops concepts of objective relationships, it is hardly surprising that every human being starts out early in life as a naive realist or that ontology-centered habits of thinking come to thoroughly dominate "the way he sees the world." Any metaphysic is, at it practical roots, nothing other than "the way one sees the world," and every person self-develops his own personal metaphysic. Rarely is this a scientific metaphysic and in most cases deserves to be called a pseudo-metaphysic because it harbors numerous mystical ideas. The structure of figure 6.6 does not come automatically to anyone and is, rather, the produce of strenuous work by epistemology-centered *scientific* metaphysicians. *All* theories are practical mathematical systems because all *meanings* are, at their roots, practical. Facts belong to knowledge of experience, theories to knowledge of understanding.

I have conducted you through this lengthy prolegomenon so that the idea of corporal Quantity for the learner-as-a-free-person is placed in its correct objective context. Understanding this context is crucial in obtaining the correct specifying concept of Quantity. Let us now turn to the consideration of that Object in regard to the specifying concept of Quantity for Progress in the *Personfähigkeit* of the learner-as-a-free-person.

§ 3.2 The Specifying Concept in Regard to Learner-as-a-free-person

Physical power in *Personfähigkeit* subsists in the capacities of the body. However, because the mind-body division is a merely logical division for classifying two major classes of phenomena in the real unity of being-a-human-being, consideration of what is meant by "capacities of the body" must take into account not only those sensible physical phenomena under *soma* but ***also*** those factors of thorough-going mind-body reciprocity understood under *psyche*. It seems to me likely enough that you can easily apprehend that "capacities of the body" pertains to what a person is able to physically accomplish with his body. However, education aiming at Order and Progress in the *Personfähigkeit* of physical power must equally clearly involve an effect on mind, i.e. on capacities we regard as mental in human Nature. Therefore we must require that the specifying concept of corporal education take this into account, and this accounting is carried out by considerations of factors pertaining to *psyche* in the Organized Being model.

It is probably not apprehended widely enough by enough people that one cannot "train the body" without, *at the same time*, "training the mind" and *vice versa*. Yet this is what the doctrine of mental physics teaches us. I find this lack of apprehension present even among university professors who specialize in various disciplines. There does seem to be some appreciation of this indissoluble connection in at least some colleges of education. For example, in my own university the College of Education houses a Division of Health, Physical Education, Recreation, and Dance offering majors in athletic training, dance, physical education, and recreation. However, these majors are primarily directed at vocational training (e.g., how to be coach, how to be a dance teacher, etc.). The Division is separate within the College from the Division of Teaching, Learning, and Leadership, which contains vocational courses for primary and secondary school teachers and a few courses in curriculum development. In general, then, I would say that even in most teacher colleges the crucial connection between "training the body" and "training the mind" is not adequately comprehended. Corporal public instructional education, however, must be topically concerned with this connection at a fundamental level because this connection has real significance for curriculum *system* development as well as for content of course offerings.

Traditional divisions in administration, curriculum, and content aimed at the education-of-educators – such as those find in my own university, but which are commonly found in most U.S. institutes of higher education – reflect what I can only call a pronounced level of misdirection and chaos in understanding human Nature. This hinders scientific practice of social-natural education. What I mean by this is that, however logical and well-suited these divisions might be judged in the context of traditional and specific organizational objectives for an institute for educating educators, *these objectives themselves are misdirected* in regard to Quantity in public instructional education. At best they treat the learner as a pupil and do not aim at the fundamental task of assisting the learner in making the transition from pupil to student to (in the case of a college of education) educator. When the objectives are misdirected, the institute can succeed in meeting them and at the same time fail to fulfill the social mission of the institute itself. It usually does precisely this. The root cause is philosophical and, specifically, *metaphysical*.

I am not saying educators are ignorant of the meaning of the verb "to educate." That is an overly-harsh and unfair assessment. I also am not saying that any specific individuals are at fault. I am saying that inadequate comprehension of the objective exists and this lack of comprehension leads to *systematic* errors in the institution of public instructional education. If you are dissatisfied with the state of public education in your Community, do not blame the educators. Blame its *institution* because how it is instituted is incorrectly designed and is, consequently, *unnatural*.

I am unwilling to say the ancients comprehended the natural objectives of education any better or more wisely than their modern heirs. The way I read the historical evidence, I do not see very much difference between classical attitudes and contemporary ones. There does appear, here and

there, at least some rudimentary cognizance that education is not primarily vocational in nature and that education must primarily pertain to the learner-as-learner. For example, Plato tells us,

> To the pair, body and soul, there correspond two arts – that concerned with the soul I call the political art; to the single art that relates to the body I cannot give a name offhand. But this single art that cares for the body comprises two parts: gymnastics and medicine, and in the political art what corresponds to gymnastic is legislation, while the counterpart of medicine is justice. Now in each case the two arts encroach upon each other since their fields are the same, medicine upon gymnastics and justice upon legislation; nevertheless there is a difference between them. There are then these four arts which always administer to what is best, one pair for the body, the other for the soul. But flattery perceiving this – I do not say by knowledge but by conjecture – has divided herself also into four branches, and insinuating herself into the guise of each of these parts, pretends to be that which she impersonates. And having no thought for what is best, she regularly uses pleasure as a bait to catch folly and deceives it into believing that she is of supreme worth. Thus it is that cookery has impersonated medicine and pretends to know the best foods for the body . . . This then I call a form of flattery, and I claim that this kind of thing is bad . . . because it aims at what is pleasant, ignoring the good, and I insist that it is not an art but a routine because it can produce no principle in virtue of which it offers what it does, nor explain the nature thereof, and consequently is unable to point to the cause of each thing it offers. . . . Cookery then, as I say, is a form of flattery that corresponds to medicine, and in the same way gymnastics is impersonated by embellishment, a mischievous, deceitful, mean, and ignoble activity, which cheats us by shapes and colors, by smoothing and draping, thereby causing people to take on an alien charm to the neglect of the natural beauty produced by exercise. [Plato (*c*. 387 B.C.), pp. 246-7 (264b-265b)]

Despite his founding of the Academy in Athens, and despite fairly conclusive demonstration by history that Plato is probably the most influential philosopher who has ever lived, I deem it unwise to regard him as a model teacher for a number of reasons. Nonetheless, the principal themes he brings out in this quote – consideration of both "body and soul," that an art[3] must always aim at practical achievement of some "good," and that an art must always be grounded in the nature of its subject-matter and concerned with causes and causality – are themes consistent with both Order and Progress in *Personfähigkeit*. The Critical issue is not with these themes but, rather, pertains to *technical art*[4] of achieving educational objectives that are learner-centered.

Mental physics analysis of the human nature of judgmentation leads quickly to unearthing the correct specifying concept for corporal education. It is the concept of ***scheme-building***. To understand this concept, we must briefly look at how *H. sapiens* acquires experiential knowledge. To "know" any object means that the knower has constructed one or more meaning implications for that object. At the most primitive level, all meanings are practical. This is to say that they pertain to what can be done with the object. An infant understands a rattle as something to shake, something to suck, something to throw, etc. A meaning implication precedes cognition of the object in judgmentation, and this means no more and no less than that the presentation of the object in intuition has become mediately joined to one or more rule structures within the manifold of practical rules in pure practical Reason. Once an object has acquired this primitive meaning implication at the sensorimotor/motoregulatory expression level of knowledge, the Object can then *later* be made more extensive in its set of meaning implications through mental schemes, i.e. schemes of thinking and reasoning. These, however, also develop out of the manifold of rules.

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[3] Plato's word was *τέχνην*, from *τέχνη*, a system or method of making or doing. Among other things, we get our word "technique" from this Greek root.

[4] It is worth remembering that at one time all the special sciences were known as "the technical arts." To pretend any of them are ever anything other than this is hubris – as Plato would probably put it, a "flattery."

In mental physics a ***scheme*** is *that which can be repeated or generalized in an act or an action*. The ability to construct schemes is an *a priori* capacity of *homo noumenal* human Nature. Indeed, construction and elaboration of schemes is at root what is meant by mental development. It is equally clear that as an object a scheme is a mental object because scheme-structure is placed in the mathematical sphere of *nous* in an Organized Being. However, and this is the key point, the *possibility* of constructing any scheme is functionally dependent upon the person's ability to express actions, i.e., upon motoregulatory expression coupled with sensory impression. Both sensory impression and motoregulatory expression – jointly called sensorimotor capacity – belong to the mathematical sphere of *psyche* in the Organized Being model. This means nothing less than that somatic actions must jointly occur in conjunction with mental acts if learning of any kind is to occur. The question for corporal education is: *what kind* of somatic action?

Now, scheme construction is one thing. Construction of *schemes-for-scheme-construction* is a higher level of knowledge representation in the manifold of practical rules. It is one thing for a person to stumble and grope for a way of doing something. This is particularly characteristic of a learner at the stage in his development when he is only capable of acting as a pupil. I have found no clearer way to say this yet than by saying: the development of mobile schemes of scheme construction is nothing else than *learning how to learn by more fecund techniques*.

But, like *all* schemes, the construction and development of scheme-building-schemes follows the same general course in judgmentation as any construction and development of particular and specific practical schemes. It necessarily requires *exercises* in which somatic actions serve an essential nucleating role. *Learning by doing is necessary for the possibility of learning in general* and we can call this ***the principle of corporal*** **Personfähigkeit** ***development***. This is a principle that Dewey appears to have grasped quite firmly.

The principle of corporal *Personfähigkeit* development is a metaphysical and, more to the point, epistemological principle from which testable predictions follow. If the principle is true then psychological research should find that practical learning (manifold of practical rules) always precedes cognizance of the "how to" established by practical rules. This has in fact been studied and the findings have come out just as the principle predicts. Piaget reports,

> In general when a psychologist speaks of a subject being conscious of a situation, he means that the subject is fully aware of it. The fact that he has become aware of it neither modifies nor adds anything to the situation – all that has changed is that light has now been thrown on a hitherto, for him, obscure situation. . . . [No] one has contributed more than Freud to make us consider the "unconscious" a continually active dynamic system. The findings in this book lead us to claim analogous powers for consciousness itself. In fact, and precisely insofar as it is desired to mark and conserve the difference between the unconscious and the conscious, the passage from one to the other must require reconstructions and cannot be reduced to simply a process of illumination. Each chapter has shown that cognizance (or the act of becoming conscious) of an action scheme transforms it into a concept and therefore consists basically in a conceptualization. . . .
>
> As has been shown in this book, cognizance is always triggered by the fact that automatic regulations . . . are no longer sufficient[5]. New means must therefore be sought through a more active adjustment; this constitutes the source of thought-out choices, which presupposes consciousness. There is indeed the important factor of nonadaptation, but the actual (active or automatic) process of readaptation is of equal importance.

[5] In mental physics terminology, "automatic regulations are no longer sufficient" means that the current manifold of rules is inadequate for successfully achieving what the person seeks to achieve. Hence there is a disturbance to equilibrium, followed by ratio-expression of appetition, and accommodations are undertaken in the process of judgmentation. The result is a change *in* the manifold of rules.

> Moreover, the very fact that the regulations have this role shows that it would be quite wrong to think that cognizance resulted only from such lack of adaptation. Effective cognizance can occur very late as, for example, in walking on all fours or the use of a sling, without there being any lack of adaptation in these actions. Even more importantly, each time a subject wants to reach a new goal, he becomes conscious of it, regardless of whether success is immediate or achieved only after trial and error – but it is impossible to maintain that the choice . . . of a new goal is necessarily the sign of a lack of adaptation. . . .
>
> Considered first from the material view of the material action, before going on to that of thought (or interiorization of these actions), the general law that seems to emerge from our findings is that cognizance proceeds from the periphery to the center – these terms being defined as a function of the path of a given behavior. This behavior begins with pursuit of a goal, hence the first two observable features, which can be termed peripheral because they are linked to the triggering of the action and to the point of its application: consciousness of what this goal is – in other words, awareness of the general direction of the action needed to attain it (intention) – and cognizance of its result, either failure or success. More precisely, the periphery is not defined . . . by the subject but by the subject's most immediate and external action when faced with the object . . . These two aspects of the immediate action are conscious in every deliberate activity, while the fact that *the scheme that assigns a goal to the action*[6] immediately triggers off the means of effecting it . . . [and] may remain unconscious, as is shown by the multiple situations studied in this book where the child achieves his goal without knowing how he did so. Thus cognizance, starting from the periphery (goals and results) moves in the direction of the central regions of the action in order to reach its internal mechanism: recognition of the means employed, reasons for their selection or modification en route, and the like.
>
> While the action's result is certainly peripheral in relation to the subject, the fact of assigning a goal to this action involves more internal factors . . . Why, then, do we use this vocabulary of 'peripheral' and 'center'? There are two reasons. The first is that the internal factors at first escape the subject's consciousness. The second, completely general, reason is that, taking account only of the subject's reactions, knowledge does not proceed from the subject or from the object, but from the interaction between the two . . . From there, cognizance proceeds toward the central mechanisms of the subject's action, whereas awareness of the object moves in the direction of its intrinsic properties . . . and no longer in that of superficial properties connected only with the subject's actions. As will be shown again later, these cognitive steps [toward the center] are always correlative, and this correlation constitutes the basic law, both of the understanding of objects and of the conceptualization of actions. [Piaget (1974), pp. 332-335]

A lot of words perhaps, but here we have it: all learning begins with practical action schemes before it ever becomes represented conceptually. All meanings are at root practical.

This elementary bit of mental physics sets out the specifying concept of corporal education in the context of learner-as-a-free-person rather distinctly. When we take into account the entirety of the learner's program of instruction from childhood to adulthood, it is firstly clear that some very specific skill development must occur early in the program. However, this belongs to the heading of tangible education. For corporal education the institution of public instructional education must provide for physical exercise as an integral part of the instruction. Here I do not mean a trivial inclusion of "physical education classes" as part of a curriculum but *active physical action taken by the learner as an integral part of every instructional activity*. The pupil must learn how to use his body as an *organon* for his educational self-development, and then learn how to use the schemes he develops in this first stage as tools for generalizing his schemes to ever more abstract (less concrete) learning events. This is practical learning of how to develop *mobile action schemes* that can be applied to an ever widening scope of learning situations.

[6] I have added the italics here for emphasis. – rbw

In the context of learner-as-a-free-person corporal education involves acquisition of somato-sensory skills as an essential part of the *art* of learning. At the risk of over-repetition, I repeat: corporal education means the deliberate employment of the body (*soma-psyche*) as an instrument of educational self-development. This is none other than the point we saw Dewey making back at the beginning of chapter 5. It is interesting in this regard to take a brief look at how one famous twentieth century theoretical physicist, Nobel Laureate Richard Feynman, employed his body as an organon of his learning and thinking:

> Those who watched Feynman in moments of intense concentration came away with a strong, even disturbing sense of the physicality of the process, as though his brain did not stop with the gray matter but extended through every muscle in his body. A Cornell dormitory neighbor opened Feynman's door to find him rolling about on the floor beside his bed as he worked on a problem. When he was not rolling about, he was at least murmuring rhythmically or drumming with his fingertips. In part the process of science visualization is a process of putting oneself *in* nature . . . For Feynman it was a nature whose elements interacted with palpable, variegated, fluttering rhythms. [Gleick (1992), pg. 244]

In some cases this corporal aspect of learning might mean the person habituates himself to drawing little pictures or diagrams at first, only later generalizing his conceptualization of the scheme he represents by his pictures to the point where he can visualize them in his head without having to physically draw them. In other cases, he might talk to himself, i.e. talk his way through the conceptualizing process using a monologue. Feynman was known to do both of these things, and it has long been known that many children first learn how to read by reading aloud before developing the conceptual ability to discourse silently, without expressed sounds, while reading. In other cases, the use of physical gestures might be employed. Many college students first learn a vector algebra operation known as the vector cross product (symbolically denoted $\mathsf{A} \times \mathsf{B} = \mathsf{C}$) by using a hand gesture called "the right hand rule" that mimics driving a right-handed screw with a screwdriver. The general point is: all first learning that establishes a new meaning implication is essentially autistic because it involves rule structures contained within the person's manifold of rules, and these rules are never concepts nor are representable *per se* as concepts in the manifold of concepts. They are, however, stimulated by connection with affective perceptions of reflective judgment and this connection mediately joins them to the aesthetic Idea, which is the function of continuity in perception and the seat of creative acts of imagination.

§ 3.3 The Specifying Concept in Regard to Learner-as-member-of-a-Community

The specifying concept of corporal education in regard to learner-as-member-of-a-Community involves only a change of context in the learning situation. It does not involve any new factors in the *homo noumenal* aspect of being-a-human-being. The general concept is still scheme-building. The contextual difference pertains to the types of sensorimotor schemes engaged. Both contexts involve regulation of sensorimotor schemes according to what are called type-II and type-IIC interactions involving the direct interplay of scheme observables, scheme coordinations, object observables, and object coordinations (figure 6.7) [Wells (2006), chap. 9, §2.2-2.3; Piaget (1975), chap. 2]. The discussion of type-II and type-IIC interaction regulation is rather long and is better suited to a discussion of the empirical psychology of learning. For that reason, I refer you to the sources just cited. Here let it suffice to say that these regulative interactions are part of the detailed mechanics of the motivational dynamic of judgmentation [Wells (2012a), chap. 7 §4.6]. What figures 6.7 depict are dynamics of practical *rule-scheme* interactions, not concepts.

For the learner-as-a-free-person sensorimotor schemes are applied to his interactions with dead-matter objects of learning. In the context of the learner-as-member-of-a-Community, he has

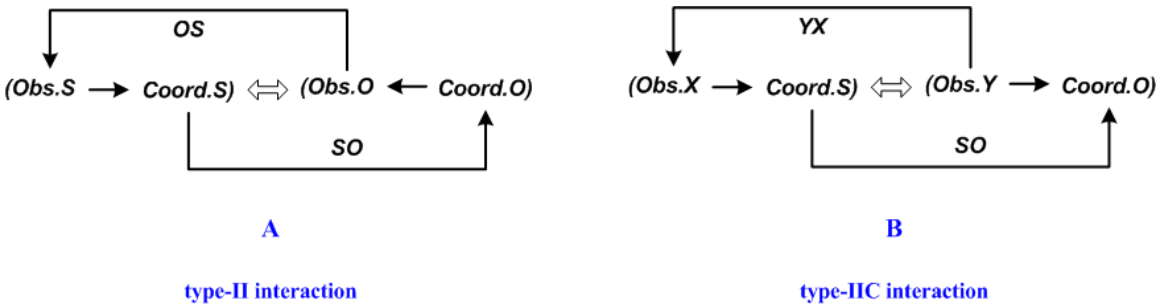

Figure 6.7: Diagram of regulation of equilibration by type-II and type-IIC interactions.

interaction with live-matter objects, i.e., with other people; his educational Self-development activities are those we generally refer to as socializing activities. The mobile sensorimotor schemes he develops here (OS, SO and YX in figure 6.7) are those pertaining to his development of socialized maxims of thinking and expression by which he comes: (1) to regard himself as a member of a group; (2) to think of himself as *actually* being one part of a greater whole (type-IIC); (3) to develop practical maxims of primarily non-verbal communication skills that facilitate the exchange of impact messages between individuals; and (4) to develop those habits of expression in which subsist factors of interpersonal style and social personality (type-II) [Wells (2012a), chap. 8].

I feel it necessary to stress that corporal education is principally concerned with individuals' developments of *habitual behavior*, specifically learning habits and what I will call the habit-of-learning. All habits are learned satisficing inclinations and every human being is going to develop habits. Indeed, habitual behaviors constitute a very important factor in making it possible for the individual to deal with the complexity of situations he encounters in life. William James wrote,

> Habit is thus the enormous fly-wheel of society, its most precious conservative agent. It alone is what keeps us all within the bounds of ordinance, and saves the children of fortune from the envious uprisings of the poor. It alone prevents the hardest and most repulsive walks of life from being deserted by those brought up to tread therein. It keeps the fisherman and the deckhand at sea through the winter; it holds the miner in his darkness, and nails the countryman to his log cabin and his lonely farm through all the months of snow . . . It dooms us all to fight out the battle of life upon the lines of our nurture or our early choice, and to make the best of a pursuit that disagrees, because there is no other for which we are fitted and it is too late to begin again.[7] It keeps different social strata from mixing. Already at the age of twenty-five you see the professional mannerism settling down on the young commercial traveler, on the young doctor, on the young minister, on the young counselor-at-law. You see the little lines of cleavage running through the character, the tricks of thought, the prejudices, the ways of the 'shop,' in a word, from which the man can by-and-by no more escape than his coat-sleeve can suddenly fall into a new set of folds. On the whole, it is best he should not escape. It is well for the world that in most of us, by the age of thirty, the character has set like plaster and will never soften again.
>
> If the period between twenty and thirty is the critical one in the formation of intellectual and professional habits, the period below twenty is more important still for the fixing of *personal* habits, properly so called, such as vocalization and pronunciation, gesture, motion, and address. Hardly ever is a language learned after twenty spoken without a foreign accent; hardly ever can a youth transferred to a society of his betters unlearn the nasality and other vices of speech bred in him by the associations of his growing years. Hardly ever, indeed, no matter how much money there be in his pocket, can he even learn

[7] James almost gets it right here, but what he should have said is "we have fitted ourselves for no other."

> to *dress* like a gentleman-born. . . . An invisible law, as strong as gravitation, keeps him within his orbit, arrayed this year as he was the last . . .
>
> The great thing, then, in all education, is to *make our nervous system our ally instead of our enemy*. It is to fund and capitalize our acquisitions, and live at ease upon the interest of the fund. *For this we must make automatic and habitual, as early as possible, as many useful actions as we can*, and guard against the growing into ways that are likely to be disadvantageous to us, as we should guard against the plague. The more details of our daily life we hand over to the effortless custody of automatism, the more our higher powers of mind will be set free for their own proper work. [James (1890), vol. I, pp. 121-122]

Some of James' own habitual social prejudices come through in this quotation, and I do not doubt you can spot some of them despite the fact that they are much less the social norm today than they were in 1890. We should not allow this to detract from what James says of the power of habit. Indeed, that he himself exhibits these habitual prejudices is nothing but further evidence of his thesis. Most of us who grew up in Iowa would probably say that a Harvard professor is in no position to make fun of the way other people talk. Nor should some of James' statements, such as "It is well for the world that in most of us, by the age of thirty, the character has set like plaster and will never soften again," be allowed to pass without challenge[8]. But there lies calmly within this quotation something that indirectly speaks to the very core of corporal education.

It is this. Notice that James said "in *most* of us" and "*hardly ever*." This qualification means that "in *some* of us" and "*sometimes*" rigidity of habit does not carry the day as the normal behavioral determinant of personality. All by itself, this means that what James seems to be saying is a law of human-Nature is in fact no such thing. It seems to be true enough that James was an adherent to the "you can't teach an old dog new tricks" school of thought. He is correct enough in saying that habit-bound behavior is far more commonly encountered. But the fact it is not *universally* encountered is an important clue to the nature of habit. What, then, does mental physics say makes the difference between people who do and people who do not exhibit this sort of rigidity?

It is simply this: Those who are less habit-bound in their satisficing reactions to divers situations *are those who have developed habits of learning-to-learn*. This is what I was alluding to earlier with the phrase "habit-of-learning" and what is distinct about this habit from mere learning habits (habits of how-a-person-learns rather than a habit of learning something from each experiential encounter).

People rarely think about their habits; they simply follow them. After all, we call them habits because they condition our expressions. It requires a disturbance to equilibrium almost amounting to a psychological trauma in most cases for a person even to become cognizant of the fact that something he habitually does *is* habitual and that he has, in a manner of speaking, "programmed" himself to do "automatically." I don't mean to traumatize *you*, but how many habits do you suppose *you* have personally cultivated and what are some of them? Do you habitually smile when you meet a stranger, or do you habitually assume a guarded or neutral posture and facial expression? If you habitually do the former, you have probably built for yourself either an Amiable or an Expressive social style of interpersonal interactions. If you habitually do the latter, you have probably made yourself an habitual Driver or Analytic in regard to your personal social style. If you sometimes do the one and sometimes the other depending on the context of where you are and why you are there, then you have developed multiple practical maxims of social style and which set of habitual maxims you follow *you have made to depend* on your circumstance. Every one of us *makes himself the person he chooses to become* whether you are cognizant of the fact you are making a choice or merely choosing out of satisficing habit.

[8] In point of fact, this statement is without Critical objective validity.

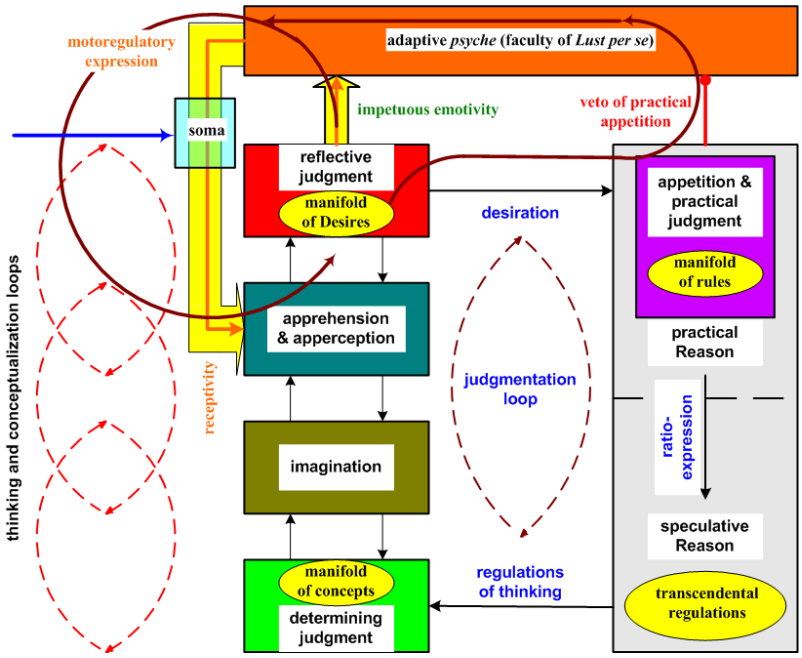

Figure 6.8: Structural pathways for effecting scheme-building. The stimulation begins with an external provocation (blue pathway entering *soma*) and initiates with an habitual motoregulatory expression response determined by reflective judgment and appetition in practical Reason. The Subject's initial satisficing response to the external stimulation *must be frustrated* so that tension is produced and the motivational dynamic in judgmentation is called upon through ratio-expression to effect accommodations in the manifolds. The stimulation pathways are depicted by the thick brown directed arrows in the figure.

With all the respect due William James for his many achievements, you *can* teach an old dog new tricks *if the old dog has prepared himself to habitually learn new tricks*. Corporal education subsists in teaching and learning personal habit development. People are always going to develop habits; the part they play in equilibration is simply too great to gainsay. But all habits are rooted in practical maxims in the manifold of rules and their construction is all at once practical, autistic, and subjective. That is why the teaching of habits (corporal education) must focus on stimulation and accommodation of sensorimotor schemes (figure 6.8) to effect scheme-building. You cannot often stimulate development of new habits by direct appeal to concepts and cognizance. If you are a teacher, it is of little or no practical fecundity to tell your pupil, "You need to develop good study habits." What *is* a "good study habit"? If the learner already knew this, he wouldn't be a pupil and you wouldn't have thought it necessary to tell him this.

In the context of the learner-as-member-of-a-Community, the corporal educating activities are those involving teams, ceremonies and rituals. Team activities might seem obvious in this context but nonetheless there are a couple of key points that need to be explicitly brought out. The first is that all the learners must be induced to be *active* participants in the team endeavor, whatever that endeavor might be. I say "induced" here because a large fraction of any sizable population will be made up of people who have already cultivated non-assertive habitual behaviors (Amiables and Analytics) and, because of these habits, are habitually disinclined to be assertive and inclined to be *passive* and merely follow instructions from someone else on what to do. This is a learned satisficing response, and an individual whose action is merely a satisficing behavior does not develop new practical maxims, much less learn practical maxims for making learning habitual. Each learner, rather, must occasionally be *provoked* into asserting himself by taking some leader's action because leadership is a social dynamic. Being a good citizen in a Community occasionally requires the individual to self-*initiate* some action of civic Duty in upholding civil rights. This is

what the condition clause of the Social Contract, "to defend and protect with the whole common force the person and goods of each associate" *means and requires of every citizen*.

Naturally, this neither means nor implies that any one individual should assert himself in every situation or act as the leader in every instance. Indeed, the habitual inclination to do this is a step along the path to developing inclinations of rulership rather than inclinations of citizenship. Another large fraction of any sizable population will have developed habitual maxims of self-assertiveness (Drivers and Expressives), and these learners must occasionally be provoked into acting in the role of a follower rather than a leader. As the old aphorism puts it, "There is no 'me' in *team*." Learners who exhibit habitual inclinations to act as the leader in every situation have developed habitual practical maxims that are injurious to the maintenance of Community, and the corporal learning objective in these cases is to provoke the learner into accommodating his habits of over-assertiveness. A person with well-developed practical maxims of leadership knows that the role of a good leader is occasional intervention by means of minimal provocations delivered at just the right time and to just the right individual to stimulate an overall fluid and productive *group* dynamic-of-leadership. Lao Tzu was correct when he said,

> Why is the sea the king of a hundred streams?
> Because it lies below them.
> Therefore it is the king of a hundred streams.
> If the sage ruler would guide the people, he must serve with humility.
> To lead the people he walks behind them. [Lao Tzu (6th century B.C.), 66]

Perhaps it is unnecessary for me to add that this point especially applies *to the teacher*. Observe, occasionally intervene when necessary to guide the learning experience of the team, and the rest of the time stay on the sidelines and be as invisible to the learners as possible. Don't let *your own* satisficing impatience hinder the learners from learning. As Lao Tzu also said,

> The very best leader is barely known by men.
> Then comes he who they know and love.
> Then comes he who is feared.
> Then comes he who is despised.
>
> He who does not trust enough will not be trusted.
>
> How reticent did those leaders appear, showing
> The importance of their words without unnecessary speech!
> When the best leader's work is done, his actions successful,
> The people say, 'We did it ourselves!' [*ibid*., 17]

Team and group learning activities are probably not something you find too surprising, but it is perhaps different with regard to ceremonies and rituals. I know quite a few people who dislike and disparage ceremony and ritual, calling them "useless" and "pointless." They are neither insofar as learning corporal maxims of citizenship is concerned. Here what is key to remember is that corporal maxims are *essentially* autistic, practical, and subjective (figure 6.8 again). This means that the learning dynamics involved in forming, shaping and accommodating them are essentially *affective* in human Nature. The importance of a ceremony or a ritual is not whatever the specific object or totem of that rite might be. The importance subsists fully in *how it makes the learner feel about his being a member of the civil Community*. Robustness and stability of a civil Community has for an absolute prerequisite the formation of strong social-chemical bonding relationships among the individuals who make up that Community. Indeed, this is the centermost character of socialization. Achieving it requires Self-commitment and sincerity, both of which are affective aspects of *homo noumenal* human Nature and both of which are promoted by feelings provoked in ceremony and ritual. Here something Chaplain Kullowatz wrote is highly pertinent:

> "Sincerity is impossible, unless it pervade the whole being, and the pretense of it saps the very foundation of character." As intimated by James Russell Lowell in this quotation, sincerity is one of the cornerstones of character.
>
> This one quality can do as much to sustain the force of your life as any other. It is certainly not self-sufficient. Sincerity of purpose, without the presence of skills and knowledge and ability, is an empty shell. The sincere fool, possessed with inadequate tools, can wreak havoc. Prepare yourself adequately in all areas of importance therefore; then perform with a deep sense of sincerity, and you will achieve as you never dreamed possible.
>
> This matter of sincerity is deeply personal. It has to come from within. No one can bequeath it to you. You must seek it for yourself.
>
> This is a thrust-lending virtue that cannot be reduced to formulae or definition. It is a driving spirit working through the life which possesses it, and it inspires confidence in all who sense its presence. The homeless waif is wealthy in its possession, and emperors are paupers without it. As Mencius said, "There is no greater delight than to be conscious of sincerity on self-examination." [Kullowatz (1961), pp. 64-65]

Although Kullowatz wrote these words for adolescent Civil Air Patrol cadets as part of the CAP's moral leadership training, his words should not be less comprehensible to old adults. At the risk of offending some readers, I will say flatly that if you find yourself reacting to the words above with cynicism then, my friend, I'm sorry to tell you that you have built for yourself some fundamentally uncivic practical maxims and have developed to some degree the antisocial attitude of an outlaw. Life in any Western Society – and a great many non-Western ones as well – has a tendency to promote such cynicism and the development of such maxims. This is, from the perspective of mental physics, one of the quickest-to-achieve of satisficing responses to the frustrations you have had and will continue to experience in interactions with other people.

If you have built such maxims for yourself, understanding that you *came to build them* by experience should be of some help to you and to others in understanding that this acquisition does not make you an innately "bad person." It does tend to make you more likely to be a bad or at least an unreliable citizen, but that is something you also have the power to change. If you are able to accept and make allowances for the unsurprising fact that a chaplain will think and write like a chaplain and a bishop will think and write like a bishop, perhaps you can spot the human-natural truth nestled in this quote Chaplain Kullowatz attributes to St. Augustine:

> "I went around the squares and streets of the cities of this world, and I found Thee not, because in vain I sought without for Thee who was within myself." [*ibid*., pg. 23]

Sincere Self-commitment to social Obligations requires the individual to hold to a conviction that he *will make himself be* a citizen because the fulfillment of Duties of citizenship when the Community needs it the most is often not easy to do. Of conviction Kullowatz wrote,

> It is academically possible to be an honest moron. In fact, it is almost impossible for a person of very low intelligence to be other than an individual of transparent integrity. Not that this makes this quality any less important for you, but the above analysis has been made to show that to have convictions or a devotion to principle is quite another matter. Honesty can almost exist in a void; devotion to principle will come only at the expense of great effort and no small personal sacrifice. The maintenance of firm convictions will at times cause you to be, at best, misunderstood by your contemporaries. This is not a world that is characterized as possessing firm convictions with an equally positive adherence to them in spite of forceful opposition. . . .
>
> This is the soul of life. Fidelity to principle serves at once as both a drive and a control in

> life. Of what genuine value is it to learn and be convinced of the validity of a certain body of truth only to forfeit this concept when the pressure is on? [*ibid*., pg. 84]

I think it likely that all of us can probably recall instances in our lives where we felt the "drive of conviction" in some action that we undertook. Drive is Quality in the motivational dynamic of judgmentation and means the determination of moving power of actions. Conviction belongs to unity in reflective judgment and appetition, and it is an effect both wholly subjective and autistic. A patriot cannot explain to you *why* he is a patriot. Commitment to citizenship can only be maintained by strong conviction, but such conviction arises only out of affective experience. Its development is a development of what some psychologists have recently termed "emotional intelligence." Ceremony and ritual can be made powerful developers of sincerity and conviction.

§ 4. The Transcendental Schematic of Corporal Education

In addition to a major acroam, M, and a specifying concept, SC, deduction of the synthetic *momenta* for each heading in an applied metaphysic requires two additional *portable concepts* from metaphysics proper. These are: a *transcendental schematic*, denoted Σ, and a minor acroam, μ, to be subsumed under the major acroam to form a *metaphysical axiom*, MA [Wells (2012c)]. The transcendental schematic is determined by the Standpoint of the metaphysic. In our case, the Standpoint is the practical Standpoint and therefore the transcendental schematic is given by the 2LAR of appetitive power (figure 6.9). Corporal education is Quantity in the 2LAR of the applied metaphysic of public instructional education and so its transcendental schematic, Σ1, is comprised of the *momenta* of Quantity in appetitive power.

The specifying concept, scheme-building, has been classified by a disjunctive inference of Reason into two sub-concepts, which are denoted SC(1) and SC(2). SC(1) is scheme-building in the context of the learner-as-a-free-person and SC(2) is scheme-building in the context of the learner-as-member-of-a-Community. Thus each heading has a total of *six* synthetic functions in a 3LAR of public instructional education, which will be denoted $f_{i,j}$ with $i \in \{t, e, \Delta\}$ and $j \in \{1, 2\}$.

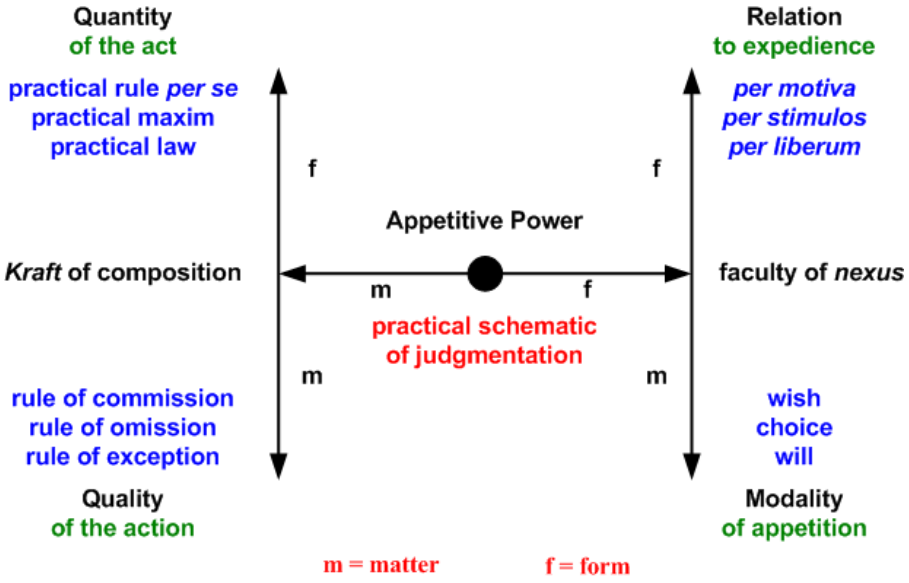

Figure 6.9: 2LAR of appetitive power. The *momenta* of appetitive power provide the schematic ideas in the practical Standpoint for an applied metaphysic. For corporal education the transcendental schematic, denoted Σ1, is comprised by the *momenta* of Quantity: practical rule *per se*; practical maxim; practical law.

Each heading has three minor acroams, μ_i, provided by the remaining three transcendental Ideas (the fourth transcendental Idea being the one used as major acroam). The transcendental schematic has its corresponding three *momenta*, $\Sigma 1_i$, that pair with the μ_i and the SC(*j*) to produce each of the $f_{i,j}$. for corporal education. Let the symbol $\subset$ be read as "subsumed under." Then the three metaphysical axioms, MA_i, under each heading is a synthesis $MA_i = \mu_i \subset M$. Let the symbol $\rightarrow$ be read as "when combined under the condition of"; SC(*j*) is the condition of the combination. The formula set for the functions of corporal education is then formally written as

$$\Sigma 1_i + (\mu_i \subset \mathrm{M}) \overset{\mathrm{SC}(j)}{\rightarrow} f_{i,j}, \quad i \in \{\mathrm{t}, \mathrm{e}, \Delta\}, \quad j \in \{1, 2\} \qquad (1)$$

with the symbol + being read "synthetically combined with." In §5 the three metaphysical axioms are deduced. In this section I explain the three practical transcendental schematic functions.

The fundamental *Realerklärung* (real-explanation) of a practical rule *per se* is that it is knowledge for determining some specific action (specifically, knowledge as "know-how" knowledge) [Wells (2009), chap. 9 §1.4]. At its primitive level in Critical epistemology it references a unitary practical rule in the manifold of rules of an Organized Being. This is to say that regarded as a logical function of judgment in understanding it is a singular *momentum* and, for this reason, it pertains to the t function in Quantity (vocational education and moral education in the context of this chapter). Therefore it belongs to the bridgehead of transcendental principles of Progress in public instructional education. In practical terms, a practical rule *per se* is a subjective function, which is to say it pertains to determinations of: (1) how the learner will act in accordance with his private determinations of Obligations-to-Self in regard to his personality as these are grounded in his manifold of rules, which falls under the context of SC(1); or (2) how the learner will act according to his private determinations of Obligations-to-Self in regard to his external situation, which falls under the context of SC(2). It is a t schematic because the social atoms in all social-natural sciences are individual human beings, hence are immediate objects of metaphysics proper, and every individual human being is a logically singular being.

The fundamental *Realerklärung* of a practical maxim is that it is an act of determination of appetitive power according to a conditioned rule in the manifold of rules [*ibid*.]. This means that the particular practical rule is conditioned by higher rules in the manifold of rules. It is for this reason called a ***practical precept***. Because this function is conditional and because whether or not one of its conditions is stimulated depends upon factors of reflective judgment, a practical maxim regarded as a logical function of judgment is a *particular* function of Quantity. This means it is particular to specific circumstances and, therefore, is empirically conditioned. Thus the practical maxim pertains to the e function of Quantity in the applied metaphysic, i.e., it belongs to the bridgehead of empirical principles of Progress in the applied metaphysic of public instructional education under the practical Standpoint of Critical metaphysics. Such a maxim is objective in the sense that it always has some concrete goal towards which the action is directed, either: (1) with regard to his activity as a free person, which is the context SC(1); or (2) with regard to his activity as a member of his Community, which is the context of SC(2). Therefore this function of Quantity pertains either to his liberty as a private person (justice education)[9] or to his enterprises as a public person (member of the body-politic) in his Society (enterprise education).

The fundamental *Realerklärung* of a practical law is that it is an act of determination of appetitive power as a conditioned rule in the manifold of rules that currently stands under no conditions of any higher practical rules. Such a rule is called a *practically hypothetical imperative* because the sole condition of its provocation during the motivational dynamic (to act or not act on

[9] Recall that the institution of public education in a civil Community belongs to a Society's justice system.

the basis of the rule) is congruence of its provocation (or non-provocation) with the formula of the categorical imperative of pure practical Reason, under which it stands subordinated. It is called an *imperative* because for this type of rule practical Reason *commands categorically* action be taken when it is provoked. A person cannot gainsay one of his own practical imperatives provoked during judgmentation. The categorical imperative of pure practical Reason is the supreme regulative law of Reason and its formula dictates the achievement of a state of universal, unconditional, and absolute equilibrium in the state of *Existenz* of the Organized Being[10]. Because the individual can never disobey one of his practical hypothetical imperatives, such a rule is called a *law* and it is simultaneously both objective (there is an object, equilibrium, for the action) *and* subjective (the manifold of rules is constructed through personal experience).

This Janus character of the schematic – objective on the empirical side of determined action and subjective on the transcendental side of experience – makes practical law a Δ schematic function, i.e. a spanning function for the bridge model of an applied metaphysic. It belongs to the transitive principles of Progress in the applied metaphysic of public instructional education. Thus its contextual disjunction includes civics education (personal conduct congruent with the social contract of the Society) and civil education (citizen's conduct under the terms and conditions of the social contract of the Society).

§ 5. The Minor Acroams and the Metaphysical Axioms

§ 5.1 Orienting Acroams and The Acroam Scheme

Once the Standpoint and the major acroam have been deduced, there remains only one more decision the applied metaphysician must make in deducing the form of an applied metaphysic. This is the deduction of the orienting acroam that determines the rest of the formal structure of minor acroams for the applied metaphysic.

The three minor acroams (μ_t for rational science, μ_e for empirical science, and μ_Δ for the transitive span of the metaphysical bridge) are provided by the three transcendental Ideas that remain after the major acroam has been selected. There are eight logical possibilities for minor acroam schemes after the major acroam is selected. These possibilities can be arranged under four general forms, each form serving as the genus for two species of metaphysical form under it. Figure 6.10 illustrates this formal structure of minor acroam schemes.

This scheme structure arises because of the structure of natural science proper illustrated in figure 6.1 earlier. In terms of the metaphysical bridge between metaphysics proper and empirical science, rational science deals with the transcendental placement of the special Object that constitutes the topic of the special science. Such an Object is always an Object of Reason and therefore there are only two possible choices concerning the minor acroam μ_t. These are the cosmological Idea and the theological Idea. If M is either of these then the selection of M at the same time determines μ_t. Otherwise, a binary decision must be made for the deduction of μ_t.

[10] Such a state of *Existenz* is, quite obviously, a transcendental Ideal of pure practical Reason because empirically we can never expect absolute completion of the achievement once and for all. It is rather like the Critical concept of infinity, i.e., something one can move in the direction of but can never expect to actually reach in real experience. In metaphysics the notion of infinity has objective validity only as the notion of a "becoming," never a "became." It is probably pertinent in this context for me to point out that the Cantorian notions of infinity ($\aleph_0$, the "countable infinity" of the natural numbers, and $\aleph_1$, the "uncountable infinity" of the real numbers) are notions of transcendent Hegelian fantasies. They are both practically useful mathematical constructs in hypothetical (non-real) mathematics, but the axiom of infinity used in conventional non-Critical mathematics lacks all objective validity for real Nature and is wholly without any *ontological* significance whatsoever [Wells (2006), chapter 23].

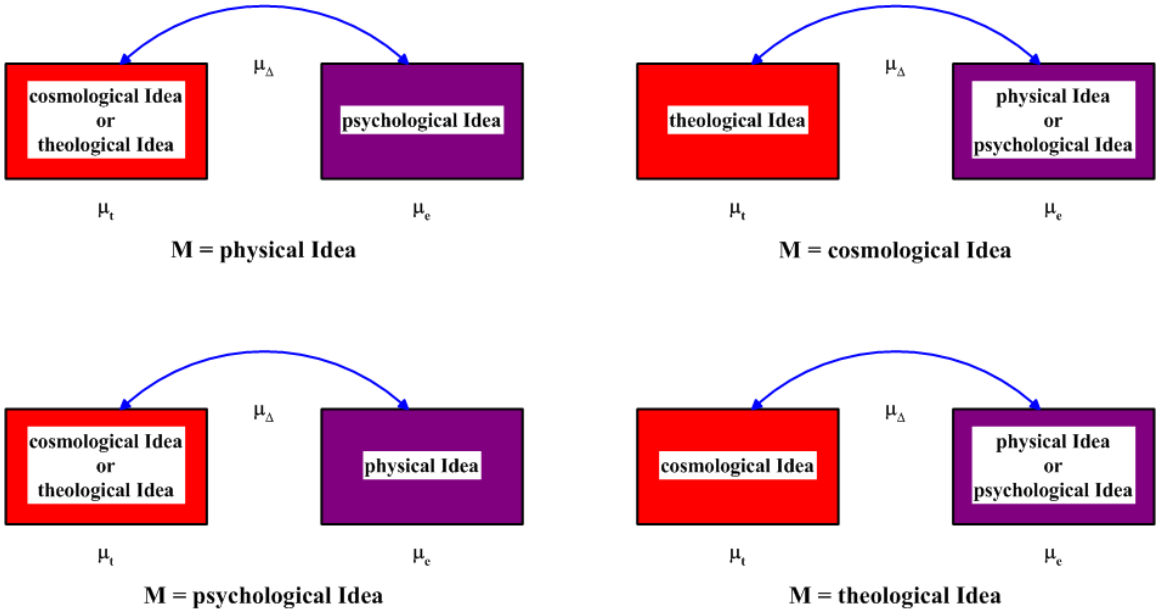

Figure 6.10: Table of possible minor acroam schemes for an applied metaphysic. M = major acroam. μ_t = minor acroam of rational science. μ_e = minor acroam of empirical science. μ_Δ = minor transitive acroam.

Similarly, the bridgehead on the side of the empirical science is concerned with transcendental placement of empirical appearances studied by the special science. Appearances are specific determinations of objects of sense, either a physical object of outer sense or a psychological object of inner sense. Therefore μ_e must always be either the physical Idea or the psychological Idea. If M is either of these then the one which remains becomes μ_e. Otherwise, again, the metaphysician must make a binary choice.

The minor acroam that is selected in making the binary choice is called the ***orienting acroam*** because as soon as it is chosen the remaining minor acroam, μ_Δ, is determined for the applied metaphysic. The choice of the orienting acroam is independent of the Standpoint of the applied metaphysic. The choice of the major acroam conditions but does not determine the orienting acroam. Rather, the determining factor in deduction of the orienting acroam is the Object that is to be placed in the metaphysical system by this choice. Thus, deduction of the correct orienting acroam falls to metaphysical Critique and belongs to transcendental Logic.

Because deduction of the orienting acroam involves a binary decision, there are eight general formal structures possible in applied metaphysics. Each of these can be regarded as a metaphysical genus. Because any applied metaphysic is deduced under one of the three general Standpoints of Critical metaphysics, this produces 24 formal species of applied metaphysics. However, notice that there is no *a priori* limitation placed on the number of possible specifying concepts that could go into the makeup of an applied metaphysic. Therefore the total number of *special* applied metaphysics that are possible is unlimited *a priori*.

That there are two choices the metaphysician must make (the major acroam and the orienting acroam) means that it is always possible for the metaphysician to make a mistake during his transcendental Critique. Here is one occasion where Palmquist's 12CR methodology (figure 5.2 of chapter 5) is an especially valuable tool for the metaphysician. If an error is made in Critique then inconsistencies and contradictions will arise in the application of the metaphysic to the subject-matter of experience (step 4 of the 12CR process). The doctrine of method for deducing an applied metaphysic thus contains within itself a test of the metaphysic theory deduced.

One can see from this that the deduction of an applied metaphysic is neither wholly rationalist nor wholly empiricist but, rather, is a combination of both. This is, of course, the *Kantian* system of Critical Philosophy. Inasmuch as natural science proper is never wholly rationalist nor is it ever wholly empiricist but is a combination of both, one can appreciate that Kantian metaphysics is well suited to natural science.

§ 5.2 The Orienting Acroam of Public Instructional Education

For the applied metaphysic of public instructional education M is the theological Idea. This at once fixes the cosmological Idea as the minor acroam μ_t. The orienting acroam will therefore be μ_e and will be either the physical Idea or the psychological Idea. In making this binary choice the first question that must be asked is: What is the nature of educational *appearances*? μ_e is entirely concerned with placement of empirical appearances of nature, and it seems more or less obvious that in the context of education these appearances cannot be physical objects of outer sense. These objects always belong to the phenomenon of mind and so μ_e can be none other than the psychological Idea of Critical metaphysics proper.

This decision immediately fixes the minor acroam for the transitive spanning element of the metaphysical bridge, i.e., μ_Δ is the physical Idea. With this we have the complete structure in hand for logical analysis of the structure of the applied metaphysic. This is step 3 in Palmquist's 12CR. The acroamatic structure is:

M = the theological Idea in the practical Standpoint;
μ_t = the cosmological Idea in the practical Standpoint;
μ_e = the psychological Idea in the practical Standpoint;
μ_Δ = the physical Idea in the practical Standpoint.

§ 5.3 The Metaphysical Axioms of Corporal Public Instructional Education

Our word "axiom" derives from the classical Greek philosophers, for whom an *αξιωμα* was a proposition regarded as a self-evident truth of nature. This was, of course, the seed of rationalism in philosophy. For over two millennia mathematics stood as the ultimate citadel of rationalism (the faith that man could know nature through the sheer power of reasoning alone). Events in the latter half of the nineteenth century and early decades of the twentieth finally razed the citadel of rationalism, which seems to be a defeat mathematicians in particular have never entirely gotten over. But today remnants of rationalism have invaded the science of physics, especially in so-called "cosmography," and this is nothing else than an infection of Platonism in a contagious Hegelian strain. It bespeaks a fatal ignorance in science of both philosophy and history.

Greek axioms were (as axioms of present-day axiomatic set theory in mathematics are) merely the products of subjective judgments of taste rashly thought to be, as Webster's puts it, "so self-evident that no process of reasoning or demonstration can make it plainer." They were (and are), in other words, proposition cognitions for which there are subjectively sufficient grounds to think them but that are lacking the objectively sufficient grounds by which their objective validity is ascertained. In Critical science proper, *all axioms are deduced from Critical acroams*. Critical acroams bring to axioms objectively sufficient grounds because these acroams are the regulative principles of pure Reason that set how a human being comes to know and understand Nature[11].

[11] Those readers who are already familiar with Kant either through *Critique of Pure Reason* or through *Prolegomena to any Future Metaphysics* may recall that the Idea of Quantity in Rational Physics is named "Axioms of Intuition." Every intuition synthesized in apprehension and apperception is *made* an intuition by an act of reflective judgment. An intuition presents as a belief and so is an "axiom" in the Greek sense.

Metaphysical axioms MA_t are synthesized as $MA_t = \mu_t \subset M$, as previously described. Corporal education is Quantity in the applied metaphysic. Therefore M is Quantity in the theological Idea and calls for the regulation of the synthesis of all practical perfections in one Object, namely *universal law* subsisting in a manifold of rules. Here we must understand the phrase "practical perfections" to mean "acts of making something more complete" in the context that a "perfect thing" is a thing lacking nothing that could improve it. Practical perfection is a process of making more perfect, not an absolute and final outcome. There is no Hegelian "absolute perfection."

The minor axiom μ_t is the Idea of Quantity in the cosmological Idea, again regarded from the practical Standpoint. This acroam is also a regulation and regulates in the direction of an Ideal of absolute completeness in the composition of all wants. Now, the idea of "want" is the idea of the heading of Quantity in the motivational dynamic of judgmentation. Want is representation *in concreto* of a condition for adjusting the accommodation of perception through behavior grounded in the causality of freedom (psychological causality) according to particular standards *a priori* [Wells (2009)].

To deduce the axiom we subsume μ_t under M and ask, "What does it mean to take action on the basis of a representation *in concreto* of a condition for the orientation of perception in order to make the metaphysical Object more perfect *in the context of universal practical laws*?" The Object in this case is Progress in physical power (Quantity in *Personfähigkeit*). From this I deduce for axiom MA_t ***there are actual physical expressions of behavior that are educational activities for promoting Progress in the physical power of an organized being***. Let us call this the ***existence axiom in corporal rational education***. Motoregulatory expression is assimilation of perception in mental physics[12], and public behavior is its mathematical homologue for a corporate person. This is how the notion of "perception" is folded into the axiom.

The minor acroam μ_e is practical Quantity in the psychological Idea. This Idea stipulates unconditioned unity in the rules of action in the multiplicity of subjective time. Human beings perceive appearances as flowing continuously in a pure and *a priori* intuition of time. Regarded mathematically, subjective time is an ordering structure: it is what makes "yesterday come before right now and right now come before tomorrow." Intuitions are sensuous objective *parástase* marked out at moments in subjective time by the synthesis of apprehension and apperception. Human beings perceive successive intuitions as the next seeming to "grow out of" the immediately prior intuition. A human being is capable of intuiting multiple parallel "tracks" of intuition sequences. Hence you can walk, chew gum, talk with a companion and avoid stepping in a mud puddle all in a single unified effort without having to consciously break all these actions apart and juxtapose them in thinking in order to perform them. Computer scientists and engineers call this sort of thing "parallel processing." Psychologists call the phenomenon "syncretism." Thinking and perception in very young children is highly syncretic [Piaget (1928, 1930)]. This is the aspect of mental experience that is meant by the phrase "unity in the rules of action in the multiplicity of subjective time." The "unconditioned" clause in the statement of the Idea means that the regulation of perception in judgmentation producing this mental experience is absolute.

Juxtaposition, which is manifested by the appearance that a human Subject lacks the ability to "fuse" two or more "parallel tracks" of intuition sequences, might seem to constitute evidence that this Critical acroam is wrong (contradicted in real experience). However, this is in fact not the case. Juxtaposition and syncretism are contrary *in appearance* to each other, but in the mental physics of judgmentation the situation is otherwise. Appearances of juxtaposition are caused by disjunctive processing in apprehension that occurs because reflective judgment (which adjudicates apprehension and apperception) renders a subjective judgment that fusing the two or

[12] This is one of the animating principles of *psyche* in mental physics. Deduction of metaphysical axioms cannot be carried out divorced from the mental physics of the phenomenon of mind.

more "parallel tracks" is not yet expedient for the purpose of pure practical Reason, i.e., is unnecessary for or contrary to equilibrium "at this present moment." Bear in mind that a transcendental Idea is a regulative principle of pure Reason and reflective judgment could adjudicate neither syncretism nor juxtaposition if this *unity of regulation* did not exist. If it becomes expedient to "fuse the parallel tracks" then they *are* fused in perception. This aspect of mental regulation is one of the factors that underlies the ability to "concentrate on one thing to the exclusion of other things," i.e., the phenomenon of *empirical* attention. The correctness of the acroam is, in point of fact, found to be supported by psychological studies. Piaget reported,

> This narrowness of the field of attention in children and the peculiar character of their scheme of attention carry yet further consequences. They explain a whole set of phenomena such as the synthetic incapacity which appears in children's drawings, the inability to establish interference between logical classes, the inability to understand partitive relations, etc., all of which, in the verbal sphere, can be brought together under the heading of *juxtaposition*.
>
> For if things are perceived in the light of the moment, without order or organization, if the work of rational attention is to deal with them one by one and not in groups, then the child will naturally juxtapose things and events in his mind without achieving their synthesis. . . . The child artist will juxtapose pieces of one and the same whole, but will be unable to connect them together. He will draw, for example, an eye alongside of a head, and so on. . . .
>
> All these facts agree in proving a certain synthetic incapacity in the thought of the child, and show that this incapacity bears primarily upon the schematism of judgment or upon the relations existing between judgments. But does this mean that the mind of the child is peopled with a multitude of juxtaposed ideas and judgments unconnected by any bond, as appears to be the case to an outsider? In other words, has the child himself a feeling of chaos and discontinuity? It is obvious that nothing could be farther from the truth, and that for any deficiency in objective relations there is a corresponding excess of subjective relations. This is shown to be the case by the phenomenon of syncretism, which seems to be the opposite but is really the complement of juxtaposition.
>
> There is one particular feature in the structure of childish ideas which serves as a transition between juxtaposition and syncretism . . . When there is no occasion, such as drawing or language, for the child to break up objects by analysis these are, as will be shown in a moment, perceived syncretically. But once they have been broken up and that synthetic incapacity renders their synthesis impossible, what is the relation which gathers the juxtaposed elements into a group? M. Luquet has noted with great truth that it is a relation of membership and not of inclusion, by which he means . . . that an arm drawn alongside of a manikin is conceived by the child as "going with" the manikin not as "forming part of" his body. . . . This is how in the expression "a part of my posy" the term "of" indicates neither a partitive nor an attributive relation, but, as if were, a mixture of the two . . .
>
> Juxtaposition and synthetic incapacity do not therefore stand for disharmony. These phenomena are accompanied by relational feelings . . . For they constitute a substitute for syncretism when the unity the latter supplied has been broken up and no fresh unity has been built up again. [Piaget (1928), pp. 221-227]

Putting all this rather more briefly, apparent *objective* juxtaposition is countered by *subjective* syncretism (syncretism in affective perception). Feelings, however, belong to that part of mental experience which is fundamentally autistic, and this is why observers who fail to take affectivity into account in their explanations think syncretism and juxtaposition are contradictories. This subjective unity is, in point of fact, precisely what mental physics predicts and the acroam requires. The psychological acroam is *not* contradicted by real experience.

The empirical axiom is synthesized by subsuming this Idea of unity of the rules of action under the Idea of perfecting universal law. What does this subsumption mean? In the first place we must note that the synthesis produces a system of categorical rules because the idea of a disciplined whole made up of divers parts is a concept contained under the idea of a system. That these rules are categorical laws follows from the Idea that they have unity in the multiplicity of time, which merely is to say that an Ideal perfect law is fixed and unchanging. However, because these laws are synthesized from matters of appearance this *source* of matter for the synthesis can only be regarded as *theoretically* categorical – which means held-to-be *conceptually* categorical in the mind of the lawmaker. A law so understood and placed in the context of actions is a law of behavior in regard to either: (1) "right conduct," in the context of self-determination of actions; or (2) prudent behavior in the context of acting to realize an objective of happiness.

We call a law of the first nature a *moral law*. A system of moral laws is called a *moral code*. Now, every person is going to make for himself a private moral code, whether he is instructed by a teacher or not, because such a system of laws-of-right-conduct make up an individual's affective sense of "right and wrong" as adjudicated by reflective judgment. It is obvious that all such systems can only be subjective, even though the individual *makes his laws necessary* (a judgment of Modality), and the laws themselves cannot be held-to-be necessary by the nature of anything external to the individual, i.e., placed in the real division of the not-Self. The idiosyncrasies that appear in children's developments of such laws of right conduct, as well as the fact that they *are* empirically developed, is well documented in studies of child development, e.g., Piaget (1932).

However, the objective of instructional education aims at guiding this development in such a way that every citizen comes to hold compatible moral convictions. This is because "universal" in this context means conviction-that-the-law-is-held-to-apply-to-everyone. It is true that such convictions are at root nothing else than developed judgments of taste. However, orientation of the development process aims at having these judgments, as they are rendered by different people, be congruent with one another regardless of whatever types of instantiations *in concreto* any individual conceptualizes as his moral ideal. Because these concepts of moral ideals will differ from one person to the next, the public system of moral laws can never be anything other than *deontological*. If it is not, individual differences in object concepts do eventually produce conflicts of divers ideologies rather than unity in practical social cooperation.

We have long had a name for the phenomenon of behavioral appearances of this kind in a Society. It is called the *moral customs* of a Society (in German, *Sittlichkeit*). To the degree that the customs are held-to-be social laws of right-and-wrong they called mores[13]. A system of such laws is constituted by laws of reasoning. The use of individual freedom of action according to such laws is the Critical definition of *morals*. In the language of the Social Contract, the Ideal is captured in the dictum *liberty with justice for all*. This is why empirical instructional education in the context of the learner-as-a-free-person is called *justice education* in this treatise.

A law of the second nature subsists in the sphere of actions for which the law stands as their highest condition. This, however, is a system of hypothetical imperatives for the use of skills to realize divers context-dependent objectives that, taken together, are held-to-imply the possibility of happiness. Most such actions are not held by most people to have any vested moral significance in them. They are held-to-be merely "the right way to do something." Individual undertakings actualized for reasons grounded in Duties to himself or Duties reciprocal to himself and others, to whom the actor has bound himself by Obligation, are called personal enterprises. Cooperative personal enterprise activities undertaken by a group of people is called an Enterprise. Personal enterprise is grounded in the individual's objectives for personal happiness, group

[13] the English word descends directly from the plural form of the Latin word *mos*, habits of a community in respect of right and wrong.

Enterprise by a collective objective of mutual benefit to the individuals. This is the reason that empirical instructional education in the context of Enterprise is called *enterprise education* in this treatise. It aims at maxims for joining one's enterprise cooperatively with those of others.

In the common traditions of most languages these two contexts almost always classified into separate compartments of thinking, usually referred to as morals and ethics in the first context and unnamed in the second except when pleasure or esteem is accorded to skilled craftsmanship or an accomplishment is admired. Then it is called aesthetics. Some people habituated to ontology-centered moral habits (utilitarianism or virtue ethics) are surprised by and dubious of the thesis that *both* of these contexts connect in judgments of taste. An aesthetical context will usually be conceded to taste, but the moral context is usually not if the moral ideas have been vested in something outside of the individual for the sake of a pseudo universality. Indeed, the two contexts cannot be unitarily reconciled under ontology-centered moral theory whether this theory be predominantly utilitarian (which at its roots is Epicurean) or based on concepts of virtue. Only deontological theory unites the two as contraries rather than opposing them as contradictories.

That there is a connection in human Nature between these contexts was something Santayana elegantly pointed out:

> The relation between æsthetic and moral judgments, between the spheres of the beautiful and the good, is close but the distinction between them is important. One factor of this distinction is that while æsthetic judgments are mainly positive, that is, perceptions of good, moral judgments are mainly and fundamentally negative, or perceptions of evil. Another factor of the distinction is that whereas, in the perception of beauty, our judgment is necessarily intrinsic and based on the character of the immediate experience, and never consciously on the idea of an eventual utility in the object, judgments about moral worth, on the contrary, are always based, when they are positive, upon the consciousness of benefits probably involved. . . .
>
> Hedonistic ethics have always had to struggle against the moral sense of mankind. Earnest minds, that feel the weight and dignity of life, rebel against the assertion that the aim of right conduct is enjoyment. Pleasure usually appears to them as a temptation, and they sometimes go so far as to make avoidance of it a virtue. The truth is that morality is not mainly concerned with the attainment of pleasure; it is rather concerned, in all its deeper and more authoritative maxims, with the prevention of suffering. There is something artificial in the deliberate pursuit of pleasure; there is something absurd in the obligation to enjoy oneself. We feel no duty in that direction; we take to enjoyment naturally enough after the work of life is done, and the freedom and spontaneity of our pleasures is what is most essential to them.
>
> The sad business of life is rather to escape certain dreadful evils to which our nature exposes us, – death, hunger, disease, weariness, isolation, and contempt. By the awful authority of these things, which stand as specters behind every moral injunction, conscience in reality speaks, and a mind which they have duly impressed cannot but feel, by contrast, the hopeless triviality of the search for pleasure. It cannot but feel that a life abandoned to amusement and to changing impulses must run unawares into fatal dangers. The moment, however, that society emerges from the early pressure of the environment and is tolerably secure against primary evils, morality grows lax. The forms that life will farther assume are not to be imposed by moral authority, but are determined by the genius of the race, the opportunities of the moment, and the tastes and resources of individual minds. The reign of duty gives place to the reign of freedom, and the law and the covenant in the dispensation of grace. [Santayana (1896), pp. 16-17]

Vocational enterprise – "working to make a living" – is one sphere where the prudential, the æsthetical and the moral come together. The æsthetical concept does not solely pertain to the appreciation of beauty alone but rather æsthetic is marked in consciousness by precisely that

balance of equilibrium that Critically defines states of happiness. The point I wish to make here is that the unity of laws of conduct in actions, be it moral or prudential, is covered by one metaphysical axiom, namely the one currently being deduced. Pulling all of this together, the metaphysical axiom MA_e can be succinctly stated as: ***the objective of corporal empirical education is to orient and guide the learner's educational Self-development of his manifold of rules to produce a common system of meaning implications for laws of social intercourse that lead to congruent moral customs of behaviors and maxims of Enterprise for which actual agreement to the laws of this system by every citizen in the Community is made possible***. We will call this the ***design-objective-of-social-outcomes axiom*** of public instructional education. It pertains to practical acquisition of behavioral schemes promoting social-chemical bonding relationships and hindering development of behavioral schemes promoting social-chemical anti-bonding relationships. Empirical Quantity in public instructional education is thus directed toward the development of practically hypothetical imperatives of social intercourse[14].

This brings us to the corporal social education axiom, MA_Δ. The minor acroam is the practical physical Idea of Quantity: the extensive magnitude in an intuition is the aggregation of effects in sense of those practical acts of appetitive expression that are validated under the manifold of rules. Here the first important point to remember is that practical Reason does not *approve* actions that are expressed; rather it *declines* to invalidate them *or* it invalidates them. This is the veto power of pure practical Reason. Practical Reason exercises its veto when expression of the form of desiration in reflective judgment previously resulted in an outcome that contradicted universality in the laws of the manifold of practical rules (as adjudicated by the process of practical judgment). Understanding this makes understanding the nature of subsuming this minor acroam under the major acroam of Quantity a more or less straightforward deduction.

In mental physics the manifold of rules is said to be the constitution of a *value structure*. A value structure is a system of self-organizing transformations, through adaptation, in relationship to which *values* constitute conditions for the assertion of practical rules. *Validation* is a determination of appetitive power permitting motoregulatory expression of all or parts of the manifold of Desires. *Valuation* is the practical validation of actions as being in formal compliance with the condition of the categorical imperative of pure practical Reason. From the practical Standpoint, Quantity in the physical Idea is the regulative principle for representing objective and subjective *parástase* in sensibility and relating them to appetition, via meaning implications, according to their perceived value in the determination of the appetitive power of pure practical Reason. Values are Desires and because of this are essentially autistic.

Subsumed under the practical Idea of Quantity in the theological Idea, this minor acroam synthesizes an axiom pertaining to the practical development of the individual's manifold of rules *as a value structure*. This only occurs through manipulation and exploitation of the motivational dynamic of judgmentation expanding the physical *Personfähigkeit* of the individual. Expansion in this sense means the development of more and better-equilibrated rules and maxims in the learner's manifold of rules. All learning of this sort is practical and precedes any cognition of the practical rules or the affective perceptions that serve as values in determining appetitive power.

[14] Some of my American Liberal friends express irritation with this axiom because they think it supports ideologies of American Conservatives that they vehemently oppose. Some of my American Conservative friends are equally vehemently opposed to liberal ideologies and tend to express over-enthusiasm for the axiom. However, the conflict between these two mini-Communities is not grounded in the axiom but, rather, in ontology-centered presuppositions regarding appearances, ends, and means. In actuality the real notion of 'liberal' – which derives from the notion of liberty – and the real notion of 'conservative' are joined inseparably. 'Liberal' pertains to Progress, 'conservative' to Order in Society. *Deontologically*, the axiom is simultaneously liberal *and* conservative. If this strikes you as paradoxical – well, I'll just say your own ontology-centered habits of judgments of taste are being manifested by that discomfort.

The universal function of the act of affective perception in integrating the manifold of sense data into the cycle of thought for the Self-regulation of the overall process of judgmentation is called *value in reasoning*. The particular function of the act of affective perception that differentiates a part of the manifold of sense data by associating it with objectivity and the power of determining judgment in thinking is called *value in understanding*. *Practical value* is the unity of a complete system of transcendental affirmations, negations, and limitations determining the value of an action. *Value satisfaction* is: (1) in the context of an Organized Being, the experience of a satisfaction resulting from an act of valuation in appetitive power; (2) in the context of a corporate person, what is measured by the degree of global non-equilibrium in the cyclic dynamics of social interactions within the corporate person. In both cases, MA_{Δ} pertains to educational Self-development physical activities that guide the formation of meaning implications that orient and produce the learner's value system. The statement of the axiom is: *Corporal social education is effected through physical activities designed to provoke and orient the learner's development of a social value system congruent with the social contract of his Society*. We will call this the ***value axiom*** of corporal social education.

It has long been argued by some that such things as team sports, membership in student clubs, and other similar so-called "extracurricular" activities develop the pupil's character as a citizen and as a member of his Society. MA_{Δ} says: (1) this is true (objectively valid); and (2) these activities must in no way be regarded as extracurricular but, rather, some such activity or activities must be made part of every learner's curriculum. Whether you agree with or are repelled by the value system of ancient Sparta, there is no doubt their *agoge* was explicitly designed to place great emphasis on corporal social education and that it succeeded in achieving its objective over a period of several centuries. I am certainly not saying that every learner ought to be beaten with whips until he passes out from blood loss. I am saying the Spartans seem to have recognized that social learning is entered into through the gateway of physical activities designed and oriented to produce in the learner the same value system that his Society as a whole has adopted. In a manner of speaking, if a person is to be a good citizen in a civil Community *his value system does not belong to him*. It belongs to the sovereign Society to which he pledges himself to be a citizen. His *natural* liberty to exclusively *possess* his value system *insofar as the values pertain to living in a Society* is a natural liberty *he alienates to the association* under the terms of the Social Contract. If he refuses to make this alienation, he will not be an actual citizen and any pledge of citizenship he makes will be made with infidelity and will be outlaw at its foundation.

Children are not yet far enough advanced in their mental development to be capable of real understanding of a citizenship pledge. However, children are also not yet citizens of the civil Community at large and so this Community is not barred from *justly* undertaking to cause a child to develop the value system its Society requires for its citizens. As the Jesuits used to say, "Give us the boy and the man is ours for life." What *is* unjust, and stupid, is to require a child to develop that value system all by himself without active learning assistance from the Community.

Furthermore, it is not up to the child's citizen-parents to make this determination either unless the social contract leaves it within their unalienated natural liberty to refuse consent to having the Society's value system developed in their children. Refusing, however, will almost certainly ensure that their children will not later be mentally capable of joining that Society as citizens because the child's Self-developed empirical value system is almost certain to conflict with and compete against that of the Society. All children begin life as little social outlaws in regard to mutual relationships with the membership of the civil Community as a whole.

§ 6. The Functions of Corporal Public Instructional Education

With the schematic, specifying ideas, and metaphysical axioms now in hand, the functions of

corporal public instructional education can be deduced. The specifying concept is scheme-building according to the principle of corporal *Personfähigkeit* development: *Learning by doing is necessary for the possibility of learning in general*. The concept's disjunction yields:

SC(1): personal skill scheme-building in the context of learner-as-a-free-person;
SC(2): social skill scheme-building in the context of learner-as-member-of-a-Community.

The metaphysical axioms are:

MA_t, the existence axiom in corporal rational education: There are actual physical expressions of behavior that are educational activities for promoting Progress in the physical power of an organized being;
MA_e, the design-objective-of-social-outcomes axiom: the objective of corporal empirical education is to orient and guide the learner's educational Self-development of his manifold of rules to produce a common system of meaning implications for laws of social intercourse that lead to congruent moral customs of behaviors and maxims of Enterprise for which actual agreement to the laws of this system by every citizen in the Community is made possible;
MA_Δ, the value axiom: Corporal social education is effected through physical activities designed to provoke and orient the learner's development of a social value system congruent with the social contract of his Society.

The practical schematics are:

$\Sigma 1_t$, a rule: singular knowledge for determining some specific action;
$\Sigma 1_e$, a precept: a particular act of determination of appetitive power according to a conditioned rule in the manifold of rules;
$\Sigma 1_\Delta$, a law: a universal act of determination of appetitive power as a rule in the manifold of rules that currently stands under no conditions of any higher practical rules.

There are six functions of corporal public instructional education when the two contexts of the learner are taken into account by disjunction of the 2LAR headings to produce a 3LAR. These functions are determined according to the previous formula (1), i.e.,

$$\begin{array}{ll} \Sigma 1_t + MA_t \overset{SC(1)}{\rightarrow} f_{t,1} & \Sigma 1_t + MA_t \overset{SC(2)}{\rightarrow} f_{t,2} \\ \Sigma 1_e + MA_e \overset{SC(1)}{\rightarrow} f_{e,1} & \Sigma 1_e + MA_e \overset{SC(2)}{\rightarrow} f_{e,2} \\ \Sigma 1_\Delta + MA_\Delta \overset{SC(1)}{\rightarrow} f_{\Delta,1} & \Sigma 1_\Delta + MA_\Delta \overset{SC(2)}{\rightarrow} f_{\Delta,2} \end{array} \qquad (2).$$

§ 6.1 The Functions of Corporal Rational Education

Functions $f_{t,1}$ and $f_{t,2}$ are the rational functions of corporal vocational education and corporal moral education, respectively. The existence axiom tells us that there are physical exercises for sensorimotor scheme-building that provoke and develop practical rules, in the manifold of rules, by which the learner develops specific performance skills. For $f_{t,1}$ these skills are of a task or problem oriented nature and pertain to the learner's ability to successfully carry them out when

working with dead-matter objects. A Critical skill is an ability to practice a craft and a craft is the practice of some special art. The function $f_{t,1}$ is therefore *a curriculum of physical exercises that are designed to teach the learner how to employ the physical capacities of his body in building sensorimotor schemes by which he can master any craft involving the divers kinds of dead-matter objects he can be reasonably anticipated to encounter in life*. In more precise technical language, $f_{t,1}$ is called a *functional* rather than a function because there will generally be more than one exercise needed to cover the divers sorts of skills a learner can be expected to need in his vocational activities in life. A functional is a function having for its domain a set of specific functions. To put a convenient label on $f_{t,1}$ we can call it **craftsmanship laboratory**.

Function $f_{t,2}$ is similar except for the important change of context that occurs in passing from SC(1) to SC(2). Function $f_{t,2}$ is *a curriculum of physical exercises that are designed to teach the learner how to employ the physical capacities of his body in building sensorimotor schemes by which he can master interpersonal relationship skills involving his ability to accommodate his social intercourse expressions to divers mini-Communities and assimilate the normal habitual social intercourse expressions of divers mini-Communities he can be reasonably anticipated to encounter in life*. The objective of the curriculum is to teach the learner how to self-develop the interpersonal social skills he will need to be able to exhibit expressions of what personality theory calls a *high versatility* social style. Wilson *et al*. write,

> Versatility is the skill of using [one's perceptions to interpret clues and insights into other people's preferences about how they want to interact]. It comes into play when you:
>
> - Recognize that the differences between your and other people's Social Styles are causing problems in your communication and relationships.
> - Decide you want to behave differently to make your communications and relationships better. [Wilson, *et al*. (2011), pg. 34]

To put a convenient label on $f_{t,2}$ we can call it **social art laboratory**.

It is very important to clearly understand that the purpose and emphasis of these curricula of physical exercises must be primarily focused on *how to self-develop* these skills. Naturally, the exercises themselves can and must impart particular skills in specific crafts and social situations because all human beings *learn from the particular to the general*. It is equally clear that the curricula must be gauged to the learner's current state of mental development. The sorts of exercises that would be involved for a six-year-old are very different than those appropriate for a twelve-year-old and very different again for a twenty-year-old or a fifty-year-old person. Nor is it reasonable to expect that arts and crafts currently important in social commerce are static and will not change drastically over time. There was a time when most villages had a blacksmith; today it is rare to encounter anyone who needs or possesses the skills of that craft.

The most effective skill for Progress in physical *Personfähigkeit*, whether personal or corporate, is the skill to employ physical power as an *organon* for self-developing particular skills adapted to whatever particular circumstances the individual finds himself situated in. In addition, Progress in civil Society aims for the general improvement of the situations and circumstances of its citizens and one should not expect such improvement to come without the citizens being able to improve themselves in regard to their general degree of *Personfähigkeit*. This is why the aim of rational corporal education must always be primarily focused on scheme-building and not merely on special schemes of arts and crafts. Mill, although he was writing about the institution of government in the context of politics, made a remark that is highly pertinent to this point when one remembers that public education belongs to the justice function of institutions of government. He wrote,

> Of the two modes of operation by which a form of government or a set of political institutions affects the welfare of the community – its operation as an agency of national education and its arrangements for conducting the collective affairs of the community in the state of education in which they already are – the last evidently varies much less, from difference of one country and state of civilization, than the first. It also has much less to do with the fundamental constitution of the government. . . . It is otherwise with that portion of the interests of the community which relates to the better or worse training of the people themselves, according to the stage of development already reached. . . . The state of different communities, in point of culture and development, ranges downward to a condition very little above the highest of beasts. The upward range, too, is considerable, and the possibility of future extension vastly greater. A community can only be developed out of one of these states into a higher by a concourse of influences . . . They may be stopped short at any point in their progress by defective adaptation of their [institutions of] government to that particular stage of advancement. And the one indispensable merit of [an institution of] government, in favor of which it can be forgiven almost any other amount of demerit compatible with progress, is that its operation on the people is favorable, or not unfavorable, to the next step which it is necessary for them to take in order to raise themselves to a higher level. [Mill (1861), pp. 21-22]

What must not be forgotten in all this is that social improvement is only achieved by the efforts of individuals, and therefore is contingent upon individual capacities for educational Self-development. *All* learning is first practical before it becomes cognitive and this is why it is necessary for the curriculum in an institution of public instructional education to attend to task of educating the human being's primitive *means* of educational Self-development. This is nothing else than his non-cognitive practical scheme structure of sensorimotor skills. This element of education has been largely or wholly neglected in most modern Western Societies, although it is clearly the basic foundation of the educational institution found among the BaMbuti Pygmies and was the centerpiece of the Spartan *agoge*. Corporal rational education requires far more than the merely athletic and physical fitness part of a curriculum as that is traditionally instituted today.

§ 6.2 The Functions of Corporal Empirical Education

These are the functionals of corporal empirical justice education and corporal empirical enterprise education. They are deduced from the synthesis of the schematic of practical precepts and the design-objective-of-social-outcomes axiom under the specifying concept of scheme-building in its two contexts. Empirical education is the bridgehead of the applied metaphysic embedded on the bank of a social-natural science of education. As such, these functions do not immediately speak to the empirical laws and principles of that science itself but, rather, to the unity of the Idea of the science insofar as it concerns Progress in physical *Personfähigkeit*.

As I stated earlier, a practical precept is an act of determination of appetitive power according to a conditioned rule structure in the manifold of rules. Discovery and development of particular precepts of corporal education falls, of course, to the activities of the social-natural science itself. The schematic function, on the other hand, pertains to the epistemologically sound determination of *conditions for conditioning* the maxims of principles in the empirical science. The schematic belongs to the applied metaphysic as a determining factor of scientific education principles.

When this schematic is combined with the metaphysical axiom, it does not seem difficult to discern that the functions pertain to established concrete ends for the actualization of which the science is to base its theories. Social-natural sciences differ from physical-natural sciences in this: In the latter the governing principle of causality is physical causality from efficient causes; in the former the governing principle is teleological causality, i.e. final purpose, because all social-natural sciences have their bases in the *homo noumenal* nature of Self-determination in the social atom (the individual human being). Put less grandiloquently, the nature of a social-natural cause

is the nature of a *because*, i.e. an originating objective factor of determination for acts of Self-determination. Such factors cannot be sought outside of the human being but only in the nature of being-a-human-being. Once one understands this I think it is probably not difficult to see that the empirical functions here are psychological in character. In this regard, something attributed to Kant is of immediate pertinence[15]:

> The positive part of physical education is *cultivation*. . . . It subsists above all in the exercise of [one's] mental powers. Therefore parents must give their children opportunity for it. The first and foremost rule here is that one must do without all tools as much as possible. . . . That is to say tools only ruin natural proficiency. Thus one uses a string to measure a width, but this can be managed just as well with the eye; one can by the position of the sun determine the time, alternatively to a clock; one can know his whereabouts in the forest by the position of the sun during the day and the stars at night, alternatively to a compass. One can even say that instead of using a boat to go on the water, one can swim. The famous *Franklin*[16] marveled that everyone did not learn to swim . . . He even conveyed an easy way in which one can learn it on one's own. Drop an egg into a brook in which one is standing on the bottom, with at least the head out of the water. Now try to seize the egg. In bending over, the feet come up and, so that water does not come into the mouth, one will no doubt lay the head in the nape of the neck. And thus one is in the proper position necessary for swimming. Now one only need work with the hands and one is swimming. – It comes to merely cultivating natural aptitude. Often it takes informative instruction, often the child itself is inventive enough, or invents instruments itself.
>
> What should be adhered to in physical education – that is, in view of the body – relates either to the use of voluntary movement or to organs of sense. What comes first is that the child should always help itself. That takes strength, dexterity, agility, confidence. [Kant (1803), 9: 466-467]

Pädagogik goes on from there to list a number of specific examples of physical activities, games, and sports exercises that illustrate the cultivation of complex physical abilities. These, it then contends, come to further develop the mind and one's mental abilities. It adds,

> For the sake of these games the boy will deny himself other wants, and thus learn little by little to do without other things as well. Moreover, he will thereby become accustomed to continuous occupation, but precisely for this reason the games must not be mere games but games with design and final purpose. [*ibid*., 9: 468]

The congruence of these quotes with the axiom of design and with conditioning of mind along with body is more or less clear. Especially pertinent is the statement that the exercises must have "design and final purpose" in them. What is not clear from these remarks is how, under the specifying concept of scheme-building, such things pertain to developing a sense of justice.

For this, however, one must bear in mind that organized games and activities have rules. Young children especially take rules very seriously – a phenomenon Piaget called *moral realism* [Wells (2012a)]. As one of Piaget's ten-year-old subjects put it in the case of the game of marbles,

> "Can one invent new rules? – *Some boys do, so as to win more marbles, but it doesn't*

[15] I say "attributed to" because Kant's *Pädagogik* was edited from his lecture notes by his young colleague and former student Friedrich Theodor Rink, a professor of theology at Kant's university, at a time when Kant's health was already severely impaired physically and mentally by the infirmities of old age. Kant's original lecture notes are lost and it is not always possible to tell with reasonable confidence what parts of *Pädagogik* originally came from Kant's pen and what parts are Rink's. It is medically dubious that Kant could have had much active participation in the preparation of *Pädagogik*.

[16] Benjamin Franklin

> *always come off*. . . . Invent a rule. – *I couldn't invent one straight away like that.* – Yes you could. I can see that you are cleverer than you make yourself out to be. – *Well, let's say that you're not caught when you're in the square*. – Would that come off with the others? – *Oh, yes, they'd like that*. – Then people could play that way? – *Oh, no, because it would be cheating*. – But all your pals would like to, wouldn't they? – *Yes, they all would.* – Then why would it be cheating? – *Because I invented it: it isn't a rule! It's a wrong rule because it's outside of the rules. A fair rule is one that is in the game.* [Piaget (1932), pg. 63][17]

Older children will consent to allow game rules to be changed if everyone agrees to it, but even in their case it is cheating to violate any rule of a game currently in force. Piaget's young subjects understood "rules" in the context of "that's the way it's done" without questioning *why* it's done that way. For them the "why" of it doesn't matter. All that matters is "that's the way it's done." In these instances we find splendid examples involving *practical* schemes of which the child has become sufficiently cognizant he can communicate verbal explanations. On the other hand, *very* young children (ages two to three years) appear to have no concept of "rules" even in the sense of "that's the way it's done." Physical scheme-building of practical precept *structures* thus empirically appears to be the starting point for the notion that some natural liberties are *prohibited*, others *sanctioned*. And *that* is the germ of Critical notions of justice and injustice.

There are two closely positioned but nonetheless distinguishable aspects to this. The first is simply the notion of "that's the way it's done." This notion *sets a practical standard* according to which the learner-as-a-free-person makes affective judgments of "how it should be." The second is the notion that "it *must* be this way" because *others also* expect it "to be done this way" when they are in interactions of social intercourse. It is the notion of "the way it's done" socialized. The learner-as-member-of-a-Community learns from this to regulate his own actions so that they conform cooperatively with those of other persons. And this is the germ of a corporal-education-in-Community notion of a *social rule-system* governing enterprises in a civil Community. In such a way *behavioral conventions* are born.

This can be summarized in two educational functions:

- $f_{e,1}$: designs of corporal activities aimed to develop notions of how-it-is-to-be-done;
- $f_{e,2}$: designs of group corporal activities aimed to develop notions of behavioral conventions.

The first we can label the ***functional of art cultivation***, the second the ***functional of convention cultivation***. The $f_{e,1}$ function means that a social-natural science of education contains designed physical exercises that exploit the phenomenon of moral realism[18] in such a way that with the acquisition of physical skills the learner develops a desired sense of justice. The $f_{e,2}$ function means that a social-natural science of education contains designed physical exercises that exploit the phenomenon of moral realism in such a way that the learner acquires desired notions of behavioral conventions for the exercise of his liberties of action in carrying out his personal enterprises. The function aims at shaping and producing a desired social *character* in the learner.

The empirical functions of corporal education do clarify the resolution of a controversial issue of, by now, rather long standing in education. This is the extent to which, and when, tools such as computers, calculators, etc. should be employed in teaching and learning. The metaphysic speaks unequivocally on this point. These tools must *not* be introduced during the initial acquisition of

[17] In this quote, questions put to the child are printed in regular font and the child's responses are printed in italics.
[18] Either childish moral realism or the re-staged episodes of adult moral realism [Wells (2012a), chap. 5]

meaning implications. If they are they will hinder the learner's ability to establish real meaning implications that are important for future Progress. It is true that how-to-use modern, especially electronic, tools is important in particular vocational aspects of education. However, premature introduction of these tools, before the learner has acquired practical meaning implications pertaining to the object of his actions, cripples his ability to master an art.

I have myself observed this phenomenon in bright college students taking advanced courses in electronics. Students who were previously introduced to electronics using modern software tools that automate electronic circuit analysis demonstrate *without exception* an inability to carry out designs of complex electronic circuits capable of meeting a typical set of technical specifications for cost, performance, and reliability of the design. I can't put it any plainer than to say *these electrical engineering students do not understand electronics*.

The case is different for those relatively few tools that promote the development of sensori-motor skills. What I have in mind here are tools such as an abacus or a slide rule, in the use of which the learner is able to observe *specific examples* of what otherwise-abstract mathematical operations *are doing*. By doing so, he develops practical notions of the patterns that make up all of mathematics. Indeed, an abacus *is* an effective higher exercise after counting with one's fingers and is vastly superior, in terms of developing meaning implications, to memorization of addition and multiplication tables. But a computer or a calculator is not an abacus. It *hides* the operations. In this connection, I think it worth mentioning that I have noticed what appears to be a trend (I don't have enough data to draw a firm conclusion yet) in differences in skill levels between American college students and students from mainland China. The Chinese students typically understand abstract mathematics better than their American counterparts (and, incidentally, better than their Taiwanese counterparts). The only common difference factor I have so far been able to identify is that the mainland Chinese students learned their early mathematics using abaci, while their counterparts from elsewhere did not.

§ 6.3 The Functions of Corporal Social Education

In regard to the functionals of corporal empirical education, a sufficient ground for these functions can be found in the mental physics of the nature of Obligation-to-Self, either in regard to one's personality or one's situation. Conceptualization of practical Obligations produces ideas of Duties-to-Self and these kinds of Duties relate to civil Community *only* as tenets of prudence. Stability and Order in a Society requires more than this, and this is the sphere of the transition functions of social education.

The metaphysical axiom of corporal social education is the value axiom. The schematic is practical law. The schematic of practical law, once again, is an act of determination of appetitive power as a rule, in the manifold of rules, that currently stands under no conditions of any higher practical rules. From the practical Standpoint such a law is called a practically hypothetical imperative because it is conditioned by the categorical imperative of practical Reason. When such an imperative is conceptualized, the cognizance of it is made a theoretically categorical imperative (from the theoretical Standpoint) because a person is not cognizant of the formula of the practical categorical imperative of pure Reason.

The synthesis of the schematic and the metaphysical axiom conditioned by the two contexts of scheme-building produces the two functions of corporal social education, $f_{\Delta,1}$ and $f_{\Delta,2}$. Now, in the transcendental Logic any one of a triplet of synthetic functions under the same common heading can always be regarded as a synthesis of the other two under a common specifying concept. Thus, for example, practical law can be regarded as a singular practical rule composed of a manifold of particular maxims. The value axiom can be regarded as a singular *Existenz*-of-design-rules axiom composed of a particular axiom-manifold of design-of-social-outcomes lemmas. It is a bit more

difficult to see this in the case of the latter than the former. To do so, recall that the value axiom is: *Corporal social education is effected through physical activities designed to provoke and orient the learner's development of a social value system congruent with the social contract of his Society*. The learner's value system subsists in his manifold of practical rules. When a currently highest rule in the manifold (a practically hypothetical imperative) is a *causatum* for the provocation of particular maxims of action, we say that a tenet of the person's personal and private moral code has been provoked into action. The value axiom states that a part of this personal practical code must pertain to reciprocal Obligations involving not only the individual person's personality but in addition a regard for the situation of others in his Society.

In the context of scheme-building, the social function pertains to Self-determination of actions that are grounded in what deontological moral theory calls *obligatio externa* (outward pledging). This is a form of pledging in which the pledge is made to another person or group of persons (the pledgee). *Obligatio externa* is a disjunctive form of *obligatio*, which means that the pledger regards his Obligation as being co-determined with a reciprocal Obligation pledged to him by the pledgee [Wells (2012a)]. There are, therefore, two contexts that subsist in his Obligation: (1) a context of an Obligation he owes to another; and (2) an Obligation the other owes to him. The first pertains to social civics education, the second to social civil education.

Unlike Obligations-to-Self, which form out of the natural dynamic of judgmentation according to the formula of the categorical imperative of pure practical Reason, a human being has no innate or *a priori* social instinct to develop tenets of *obligatio externa*. The individual must *learn* to make meaning implications that refer to a structure of *obligatio externa* in his practical manifold of rules. The value axiom states that the objective of corporal social education is to ensure that he *does* develop this practical structure within his manifold of rules.

The transitional functions deduce immediately from this reflection:

$f_{\Delta,1}$: the suite of designed corporal exercises must be made to include exercises in scheme-building that produce a value structure within the learner according to which he becomes willing to pledge himself to Duties to others according to their situations;

$f_{\Delta,2}$: the suite of designed corporal exercises must be made to include exercises in scheme-building that produce a value structure within the learner according to which his expectations of civil Obligations is congruent with the social contract of his Society.

It is not difficult to see that these functions form the span between empirical principles born of actual experience and rational principles of Obligation born of the nature of the motivational dynamic in human judgmentation. We will label these functions the ***functional of corporal civics values*** and the ***functional of corporal civil values***, respectively.

With this we have the complete 3LAR structure for the applied metaphysic of public instructional education in regard to corporal education. We next turn to deducing that of intellect education.

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