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CHAPTER 5
The First Period:
Awakening to Predilections

It is no more wonderful that a boy of eight to fourteen should become as deeply interested in the inner world of his own mind than another boy in the outer world of his surroundings-in the making of judgments than in the working of a steam engine.

—ELMER GATES

The evolution of the Mind Art was a gradual growth of the mind, with one step naturally leading to another. All later work was based on these early insights and experiments and discoveries. Certain well-demarcated periods in his lifework seemed to Gates' later analysis to be steps in this development. The first period, from his eighth to fourteenth year, which he called his Six Years' Work, marked the awakening to his predilections. This part of his youthful scientific career covered the progress already described, and contained a few glimpses of subsequent steps.

Of his account in Volume I of this first period, from the vantage point of maturity he wrote in 1911: "Of course I have used a nomenclature developed during a later period and have undoubtedly read into it some of the meanings and insights and

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experiences of later periods, although I have tried not to—meanings which were indeed implied in my earlier and dimmer insights; but which I then could not have stated as now. On the other hand I am equally satisfied that there were meanings implied which I am not yet able to grasp, and from which my later interpretations have sidetracked me. I know this to be true because my most recent researches have led back to some of the abandoned conceptions of long ago. I was influenced by a very definite predilective exaltation during this first period, one that has been equaled only twice since."

Another view of this formative period may be gained from the following letters written by Gates when he was a few years older, in his sixteenth and seventeenth years, when "I first discovered the Mind-Art and taught it to my teachers," as he later recollected.

From a circular letter written in 1875 (age 16) from the Centennial Exposition, to his microscopy and bacteriology teacher, Professor Miller, and his chemistry teachers, Dr. Armstrong and Professor Marschall:

"It does not follow that because the mind has evolved to a sufficient exactness in its knowledge of its environment to enable it to survive that the knowledge is really true but only sufficiently true to enable it to survive, and that it really may not be true as known. The mind may, for all it knows, not be sane but only sane enough not to become extinct. For ages man believed that the sun rises in the east and revolved daily around the earth, and yet that mistaken notion was sufficiently true for the world to live by at that time, but not to lead to the further knowledge required by modem man and his astronomers. For a time that false knowledge became a hindrance to progress; and there are numerous other examples. How do we know, after considering the hundreds of utterly mistaken ideas that have led the world, and remembering its wars and cruelties and all the horrors of the past, but that the mind is incapable of getting true knowledge and is insane? In some way the mind has to prove itself sane before we can implicitly trust to its conclusions, and it has

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to find *in itself* (and nowhere else) the credentials of its sanity. This is one of the greatest of the problems that confronts the world and it is Mind that must solve that problem about itself.

"I have dim insights which give me hope that the mind may solve it, and see it is not a problem of logic but a much deeper and prelogical one. I see also that I must continue my experiments on animals until I find if the mind-activity can create structural changes in the brain. I must feel sure on this point before I can continue my original thinking . . . that will settle many questions."

The next year, after returning from the Exposition at Philadelphia, he wrote to Major Powell:

"Your questions go to the heart of the matter; scientific method is not yet out of its swaddling clothes, and is being brought up on the bottle and by incompetent nurses. I see that it is capable not only of being greatly systematized and improved but revolutionized and extended into new kinds of scientific method—a work which I have already commenced by applying the present crude methods to the laboratory study of scientific method (in which I am, I believe, the first specialist) and then propose to apply my improved and extended scientific method to the further study of scientific method ... and I suppose I shall keep on doing that all my life. While I do not need such splendid encouragement as you have given me I assure you I greatly appreciate it, adding enthusiasm to my very strenuous labors. Out of this improved scientific method I am developing an art of scientific method and the application to research has inaugurated a new method of research and of education into whose care and guidance I would

like to leave the world. Is that audacious and ambitious and courageous enough to suit you? I have just re-turned from the Centennial Exposition, as you know, where I saw the 'Modern Wonders of the World,' from Bell's telephone—which is not considered a wonder—up to the great steamship 'with a compass like a conscience'; and I said to myself that the next semi-centennial, if my plans get started in time, will comprise as part of the exposition my proposed demonstrative

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exhibit of the New Science Teaching and New Method of Research, by which Mind, the greatest force in the world, will have been harnessed just as we have already harnessed electricity.

"This study of that kind of mental method which constitutes scientific method must be based on a study of *successful* mental activity. The really instructive way to study birds and animals and butterflies is not to kill them and fill museum shelves with dead creatures but to study them when alive and doing the main things that constitute, for them, according to their degree and special evolution, successful living. The same is true of man; we need to study his highest and most important kind of mental activities *while* engaged in doing them. Those persons must be studied who have ability to do those things better than average, and as the most important thing man can do is to *discover more knowledge* (it must be validated before we know it is knowledge) for his guidance, and to attain a higher and more stable character and personality, and hence I shall make a laboratory study of scientific method in persons (geniuses) while they are making and demonstrating and teaching and applying knowledge; and hence I have my lifework (and plenty of it) marked out for me.

"I see it will have to consist quite largely of a study of my own mind while discovering and inventing, not only because I happen to have some facility in these matters but because my mind is the only one to which I have direct access and from which I can get 'inside information.' I shall be able to do this better than my predecessors in psychology because of the new and experimental introspection which I discovered several years ago while making my tabulated study of 'judgments' about which I wrote you."

Major John Wesley Powell, philosopher, scientist, explorer, director of the U.S. Geological Survey from 1881 to 1894, and founder and director of the Bureau of Ethnology, is well remembered today because of his outstanding contributions, his colorful exploration of the Colorado River, and his vigorous

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personality. His biographer, Darrah, said that Powell was undoubtedly one of the great men of American history and that during the nineties he was without question one of the best known and most influential scientists in North America. Powell wrote: "I have been out many times to see my friend Elmer Gates at his researches, which I think of the highest importance. I saw him turn sunlight directly into electricity, charging a storage battery. I saw him successfully demonstrate his double microscope to Langley and Tom Reed, whom I took out to his place. I have read his psychologic manuscript, four thousand pages of it, and have seen some of his demonstrations. I think he is doing more for education and research than any man in the world has ever done and his discoveries will revolutionize philosophy."

From a letter at age seventeen to his Uncle Jesse, Gates wrote: "You need not concern yourself about my overdoing the reading and thinking and experimenting business; if any wrong comes of it you will be *particeps crimini*s, for without your purse I would have had much less experimental research to guide me. The worst thing that has happened to me is the acquisition of certain deep convictions (inlook and outlook) which make my relatives and friends unhappy all except you and Virginia and Gunder—because they fear I am straying too far away from the sacred dungeons. Even you, my dear uncle, are a little apprehensive, but I predict if you live long enough you will see that my lines of thought and research will be recognized as a Light set on a Hill, bright enough to drive most of the Darkness out of all the mental dungeons of the world (if given time enough); and I am perfectly sure that the real truths about 'God, Freedom, and Immortality' will not lose by deeper and higher knowledge ...and whatever is not truth, what do you want with it anyhow? For my own peace of mind I just had to sift the wheat from the chaff with my own kind of sifter, even if great piles of chaff did nearly smother me now and then (and you too!). In escaping from the traditions and beliefs into which I was born, I found myself afloat upon a tumultuous stream of opinions and speculations, but thanks to favorable influences and freedom of

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thinking I had the guidance of experimental research and my early in-sights into validation, but it was a difficult struggle and I had good health and unquenchable enthusiasm and good friends. In my skepticism I went further than your Kant or Descartes to doubt the sanity of the human mind itself. . . . It was my opinion, as you remember, that the mind must find its credentials for proving itself sane. Well, I see that the mind can, by methods clearly outlined

before me, perform that service for itself and for humanity, if it is fully unhampered in its thinking, and if it will make the researches which I see must be made and I shall see that they are made."

From another letter to Uncle Jesse: "I have therefore concluded that the ways by which the world has been managed are destined to be replaced by better ways: that instead of attempting to settle its great problems by an appeal to precedent and belief and speculation and opinion they will ere long be actually settled by the method of science—by demonstrated and tested and validated science; and that the time will come when science will be our only guide. It should be a world duty to put our main public energies, not to political and national squabbles but to getting together the world's accumulated knowledge and freeing it (by the new validation which I must develop) from all that is not true and carrying on research for the discovery of more knowledge and providing facilities for its more widespread teaching, in order that teachings that are really true should begin to exert their wise influence in the minds of the leaders and multitudes of the earth's inhabitants, instead of being misled by so much that is false. As I look at the problem of world-government it is primarily a matter of right knowledge and feeling and aims. Science should be taught thoroughly to the few ablest persons in the world so they may make better leaders, and just enough of the sciences and arts taught to the multitudes to enable them more easily to make a livelihood and live more satisfactorily. The leaders of the various kinds of affairs require not merely the equivalent of a university course but a more complete course of instruction and one especially directed toward a

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training in the best known methods of scientific research and validation, so they may depend for guidance not on precedent or authority but on scientific method, and this course should omit those who have not the highest ability and character. The few millions of the second kind need a direct and quick method, and facilities for learning just as much (and only as much) of these sciences and which will help them most in their daily occupation and habits of living; and thereby science will begin to illumine the minds of the masses and slowly begin to lead the world.

"The world confronts us with many serious and urgent problems other than political, and the only safe guidance is true knowledge and to get it we have to *depend on the mind* and the right using of it, for there is naught else upon which to depend. Hence the foremost task of man is to study the mind and learn its nature and the laws of its successful activities so we may use it more effectively in doing the work which the world must have

done to enable its inhabitants more fully to attain a long and happy and useful life. That is, the responsibility for the right management of the world rests *solely on mind*. It is the experimental study of mind and of the most successful ways of using it in satisfying our normal feelings, desires, emotions, aspirations, sympathies for others, and to the attainment of skill in doing what we have chosen as our occupation; it is to this subject that I shall devote my life as my specialty. If we fail in attaining success for individuals or for the world it will be because the mind fails to discover the knowledge and mental methods needed for success; we have no guide but mind and the true knowledge it may discover. As the world does not yet know enough science nor the best ways of discovering it and is not making a world work of the business of discovering, it is our greatest opportunity and highest duty to make a scientific study of scientific method, which is of course, correct and successful mental method."

It was during this period that Gates began his study of the mental habits of inventors, discoverers, and thinkers of the past

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from their biographies, and of those of the present by personal interrogation and observation. He experimented "in many machine shops, workshops, studios, offices, instrument stores and manufacturing establishments; studied professional men and women, skilled laborers, talented people and geniuses; artisans of all kinds and races engaged in their skilled trades or vocations." In the light of his experience and psychologic principles he collected and systematized whatever was normal and best in their mental habits and methods. He investigated carefully over one thousand people of extraordinary minds who, in no single instance after a discovery or invention, did not at once proceed to violate some fundamental psychologic or physiologic law of further success. He never met investigators who were in surroundings that favored efficient work. When questioned about their mental methods, these investigators were at a loss to describe them, never having thought about their work in that manner. Most dwelt on theories and hypotheses and statements that might or might not have been true. It was therefore necessary to rely mostly on the only mind to which he had direct access—his own. This study continued in a lifelong interest in the habits of workers of every kind; Gates could talk to anyone and find common ground and learn something about that person's work.

The intense zeal with which Gates sought knowledge continued from this period, from those early years when he "read everything," to maturity, when he read only "the best recent culmination of science." He noted how he "waded through"

English literature, reading several hundred books with all the breathless interest that many find in a novel (he read only one novel, Eugene Sue's *Wandering Je*w); how he studied a "little Latin and less Greek"— just enough to translate slowly and use them in coining new words, his chief practical interest. After two years he turned omnivorously to translations of their chief authors and reveled in these ancient civilizations. He improved his French and German to read scientific works, and dabbled in several other languages.

He read eagerly everything on phrenology, mesmerism,

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ventriloquism, hypnotism, astrology, palmistry, necromancy, spiritualism, theosophy, mysticism ("from Jacob Bochme back and forwards"), kabala, and orientalism, with an open mind; but he abandoned hope of truth by these methods.

He recalled how he "plunged into" mathematics, buying thirty volumes on arithmetic, thirty-six on algebra, fourteen on geometry, half-a-dozen on trigonometry, a dozen on higher branches; and how absorbed he was in them for a time, catching a dim sight of one or two new branches. He loved physics all his life, from the time of Well's *Natural Philosophy* to the latest reports, and read over and over the early leading treatises: Ganot, which he "thought through" over twenty times; Deschanel and Everett, and Gage and Barker, ten or twelve times—seeking to discover new bearings on each separate statement as related to the rest of his knowledge (mental content). For twenty years, he studied everything of importance that appeared on such subjects as mechanics, acoustics, thermodynamics, optics, and electrics. He himself made almost every important experiment in physics.

In chemistry he experimentally worked through Attfield's *Pharmaceutical Chemistr*y, Fresenius' *Analysi*s, and Miller's *Inorganic Chemistry and Urinary Analysi*s; and reread several times Roscoe and Schorlemmer, Richter's *Organic Chemistr*y, Watts' *Dictionar*y, and several other books. Chemistry and physics constituted half of his effort for eleven years. (It was later learned informally, during the war when spies were masquerading under Gates' name, that a government investigation rated him ace-high in physics and chemistry.)

The history "craze," he recalled, took three hours daily for six years, and was devoted to universal, medieval, and modern history. Each national history impressed him as a distinct psychologic event in the world's evolution. He followed the history of races from primitives through the great racial movements. He rapidly read several hundred volumes.

In religion, he brooded upon the teachings of the various Bibles, and dwelt upon the strange successes and methods of the

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historic religious movements. He studied them without prejudice because he never preferred or adopted any one, influenced solely by his interior guidance and spirit of scientific research. Early religious instructions only indirectly influenced him. "Their forms and ceremonies seemed crude and cold," he wrote, "compared to my red-hot zeal for truth as knowledge, and my unwavering trust in Mind; their moralities seemed weak to those implied by scientific progress in psychology; their worship lukewarm to my own adoration of THE ALL."

Then came his infatuation with philosophy. He read everything from Socrates, Plato, and Aristotle to Schopenhauer, Fichte, Spinoza, Leibnitz, and Hegel; and from these to Spencer, Darwin, Huxley, Comte, and Haeckel; then to modern Monism, Ward, Powell, and Ladd.

Zoology, botany, mineralogy, crystallography, geology, and astronomy each came in for its share of study, observation, and reading. During the next few years Gates found time to travel to California and camp in its redwood forests during the rainy season to further his study of biology. He loved the sciences.

He dipped into nearly every subject and was able to gather facts from each that bore on his life's mission. He read with unusual speed, knew the art of skipping and of detecting paragraphs likely to yield demonstrable facts. All other statements were rejected, no matter how good the authority. In spite of this vast amount of reading, he rejected nearly all as theory or opinion.

Nearly always while reading in a subject he corresponded or talked with specialists in that field. Undoubtedly that was how he became acquainted with Major Powell and many others. Elmer Gates realized that his eager thirst for facts and his vivid distrust for all opinion and theory and human testimony were a true guidance that led to his later impregnable standpoint. His intimate study of living great thinkers, feelers, and doers revealed that they also abandoned all authorities and trusted to their own minds.

His life became one ever-increasing purpose. Out of

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inheritance and environment came the naive human mind, and by its own efforts to study itself the experimental introspection was discovered, and constant progress continued. He had already consecrated his life to the Mind Art before the close of this first period of his lifework. He attained the significant insight that there were good and efficient ways of using the mental processes, with

or without bodily and environmental regulation, that led to better mental capacities, and not merely to a greater number of original ideas but to ideas that were more frequently and completely true. His further study was approached with zeal, and with an enthusiasm that "knew no bounds and acknowledged no difficulties."

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