In the preceding chapters, I have related the stories of seven remarkable human beings, each of whom made an indelible mark in one or more domains while also contributing uniquely to the shape of the modern era. Their stories are, I trust, of interest in their own right. Yet, given my focus on the conceptualization of creativity, I need to step back and discuss which lessons hold for the study of creativity in general.

Revisiting the Organizing Framework

In chapter 2, I introduced a framework for treating the complex issues of creativity. Explicitly developmental, that framework features a concern with the creators' childhoods, as related to their adult creativity; an interest in phases of development across the life span; and a focus on the finer-grained steps that characterize moments of breakthrough. I posited a dynamic that appears to characterize all creative activity: an ongoing dialectic among talented individuals, domains of expertise, and fields charged with judging the quality of creations. According to my formulation, this dynamic is often characterized by various kinds of tensions and asynchronies: provided that the asynchronies are not overwhelming, they should prove conducive to the fostering of creative individuals, processes, and products. Finally, I suggested a set of guiding themes, most of which provided background for the study, but two of which emerged, unexpectedly, from the study itself.

That framework has now been put to work, implicitly in the case studies and more explicitly in the three interludes. In this concluding chapter, I examine explicitly a number, but certainly not all, of the issues raised thus far. I touch on the major questions that motivated the study, providing,
when possible, a rough quantitative survey of "data" relevant to the issue in question.

Earlier I indicated that current work on creativity ought to be framed by two stances: the detailed views of individual creators, of the sort undertaken by Howard Gruber and his associates; and the large-scale quantitative studies undertaken by Dean Keith Simonton and his colleagues. In my work I have sought to integrate these stances, which have traditionally been termed idiothetic and nomothetic, respectively; I have approached this integration by looking at seven individuals deliberately chosen from diverse domains and yet searching for generalizations applicable to all or at least most of their cases.

One person's generalization is another person's exception. Depending on how one defines a term or carves out a category, one can either collapse individuals together or cleave them apart. In what follows I offer my current impressions about which findings are likely to qualify ultimately as reliable generalizations, and which are better described as either domain-specific or unique to particular individuals. Those who have detailed knowledge about specific individuals, who have available arrays of data and powerful statistical techniques, or who are wedded to different conceptual frameworks may well carve the pattern somewhat differently. I hope to have at least set up a structure that merits debate.

A Portrait of the Exemplary Creator

I need not focus here on the many important ways these seven creators differ. Even to place Gandhi and Stravinsky, or Graham and Einstein, in the same comparative study involves a suspension of customary categorical schemes. Moreover, my own theoretical bias has predisposed me to look for differences across domains of accomplishment; I believe that this study confirms the distinctive character of the activities typical of each of the creators.

That said, I have been struck by the extent to which common themes nonetheless emerge in the lives of these creators. While no theme emerges with equal force for all the creators, and an exception can be found to each of the emerging generalizations, I feel comfortable in putting forth a portrait of the Exemplary Creator, whom I shall nickname E.C. and speak of as female.

E.C. comes from a locale somewhat removed from the actual centers of power and influence of her society, but not so far away that she and her family are entirely ignorant of what is going on elsewhere. The family is neither wealthy nor in dire financial straits, and life for the young creator is reasonably comfortable, in a material sense. The atmosphere at home is more correct than it is warm, and the young creator often feels a bit estranged from her biological family; even though E.C. has close ties to one of her parents, she feels ambivalence, too. Intimate ties are more likely to exist between E.C. and a nanny, a nursemaid, or a more distant member of her family.

E.C.'s family is not highly educated, but they value learning and achievement, about which they hold high expectations. In a word, they are prototypically bourgeois, holding dear the ambitions, respectability, and valuing of hard work that have come to be associated with that class, particularly in the late nineteenth century. E.C.'s areas of strength emerged at a relatively young age, and her family encouraged these interests, though they are ambivalent about a career that falls outside of the established professions. There is a moral, if not a religious, atmosphere around the home, and E.C. develops a strict conscience, which can be turned against herself but also against others who do not adhere to behavioral patterns she expects. The creator often passes through a period of religiosity that is rejected and that may, but need not, be revisited in later life.

There comes a time when the growing child, now an adolescent, seems to have outgrown her home environment. E.C. has already invested a decade of work in the mastery of a domain and is near the forefront; she has little in addition to learn from her family and from local experts, and she feels a quickened impulse to test herself against the other leading young people in the domain. And so, as an adolescent or young adult, E.C. ventures toward the city that is seen as a center of vital activities for her domain. With surprising speed, E.C. discovers in the metropolis a set of peers who share the same interests; together, they explore the terrain of the domain, often organizing institutions, issuing manifestos, and stimulating one another to new heights. Sometimes E.C. proceeds directly to work in a chosen domain although she might just as well have flirted with a number of different career lines until a crystallizing moment occurred.

Experiences within domains differ from one another, and there is no point in trying to gloss over these here. Still, with greater or lesser speed, E.C. discovers a problem area or realm of special interest, one that promises to take the domain into uncharted waters. This is a highly charged moment. At this point E.C. becomes isolated from her peers and must work mostly on her own. She senses that she is on the verge of a breakthrough that is as yet little understood, even by her. Surprisingly, at this crucial moment, E.C. craves both cognitive and affective support, so that she can retain her bearings. Without such support, she might well experience some kind of breakdown.
Of course, in the happy circumstances that we have examined, E.C. succeeds in effecting at least one major breakthrough. And, the field rather rapidly acknowledges the power of the breakthrough. So special does E.C. feel that she appears willing to enter into special arrangements—a Faustian bargain—to maintain the flow that comes from effective, innovative work. For E.C., this bargain involves masochism and unbecoming behavior toward others, and, on occasion, the feeling of a direct pact with God. E.C. works nearly all the time, making tremendous demands on herself and on others, constantly raising the ante. In William Butler Yeats's formation, she chooses perfection of the work over perfection of the life. She is self-confident, able to deal with false starts, proud and stubborn, and reluctant to admit mistakes.

Given E.C.'s enormous energy and commitment, she has an opportunity for a second breakthrough, which occurs about a decade after the first one. The succeeding breakthrough is less radical, but it is more comprehensive and more intimately integrated with E.C.'s previous work in the domain. The nature of E.C.'s domain determines whether an opportunity for further breakthroughs arises. (Remaining highly creative is easier in the arts than in the sciences.) E.C. attempts to retain her creativity; she will seek marginal status or heighten the ante of asynchrony to maintain freshness and to secure the flow that accompanies great challenges and exciting discoveries. When E.C. produces an outpouring of works, a few of them stand out as defining, both for E.C. herself and for members of the surrounding field.

Inevitably with aging, limits on E.C.'s creative powers emerge. She sometimes exploits young persons as a means of rejuvenation. Finding it increasingly difficult to achieve original new works, E.C. becomes a valued critic or commentator. Some creators die young, of course, but in the case of our E.C., she lives on until old age, gains many followers, and continues to make significant contribution until her death.

I am well aware of the limitations of this hypothetical portrait. Behind each sentence are arrayed not only the seven individuals in the study but also many others, at least some of whom appear directly to contradict this composite portrait. If most creators come from an intact and reasonably supportive family, certainly the Brontë sisters did not; if many live to an old age, Keats and Mozart certainly did not; if a majority come from somewhat marginal backgrounds, most members of the Bloomsbury set certainly did not. Thus, when it comes to offering generalizations about creativity, one must assess how essential each generalization is. In all probability, no single one of the factors just highlighted is critical for a creative life; but it may be that one needs at least a certain proportion of them, if the chances for a creative breakthrough are to be heightened. To evaluate the importance of different factors, I move now to a more explicit consideration of the central issues that guided my research. It should be stressed that the patterns proposed here are illustrative rather than definitive; one would need larger samples, and more precise measures, to establish the validity of any proposed pattern.

Major Issues: A Reprise

INDIVIDUAL. LEVEL.

Cognitive. My slant in this study has been determinately cognitive. A major assumption has been that creators differ from one another in the kind of intelligences that they exhibit; and indeed, each of the creators was selected because he or she was thought to exemplify one of the seven intelligences that I detailed in Frames of Mind.

I conclude that creators differ from one another not only in terms of their dominant intelligence but also in terms of breadth and the combination of intelligences. Freud and Eliot had strong scholastic abilities, (which reflect linguistic and logical intelligences), and they presumably could have made contributions in many academic areas. Picasso, on the other hand, was weak in the scholastic area, while exhibiting quite strongly targeted strengths in spatial, bodily, and personal spheres. Stravinsky and Gandhi were indifferent students, but one senses that their lackluster performances arose more out of lack of interest in school than out of any fundamental intellectual flaw. Graham had broad intellectual strengths but was never fully engaged until she encountered the world of dance. A rough summary of their intellectual profiles follows:

<table>
<thead>
<tr>
<th>Strength</th>
<th>Weakness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freud</td>
<td>linguistic, personal</td>
</tr>
<tr>
<td>Einstein</td>
<td>logical-spatial</td>
</tr>
<tr>
<td>Picasso</td>
<td>spatial, personal, bodily</td>
</tr>
<tr>
<td>Stravinsky</td>
<td>musical, other artistic</td>
</tr>
<tr>
<td>Eliot</td>
<td>linguistic, scholastic</td>
</tr>
<tr>
<td>Graham</td>
<td>bodily, linguistic</td>
</tr>
<tr>
<td>Gandhi</td>
<td>personal, linguistic</td>
</tr>
</tbody>
</table>

Just as the creators exhibited distinctive intellectual strengths, so, too, their relation to prodigiousness was also quite different. Freud was pre-co-
cious in scholastic matters but did not discover his true vocation until in his late thirties; Graham did not begin to dance until she was over twenty; Gandhi ambled from one role to another until he discovered his political-religious calling; Stravinsky did not compose seriously until he was well into his twenties. Einstein and Eliot can be seen as having done important work when still quite young, but neither was seen as a prodigy in his chosen area. Indeed, of the seven creators, only Picasso comes close to the classic view of the prodigy—an individual performing at a master level while still a child. The other creators were distinguished chiefly by rapid growth, once they had committed themselves to a domain.

**Personality and Motivation.** In many respects, the picture of creators that emerged from the study closely parallels that reported in the classic empirical studies emanating from the Institute of Personality Assessment at the University of California at Berkeley and from other research centers. Individuals of the E. C. type are indeed self-confident, alert, unconventional, hardworking, and committed obsessively to their work. Social life or hobbies are almost immaterial, representing at most a fringe on the creators’ worktime.

I have reluctantly concluded that these characterizations may traditionally have been taken in too positive a way. That is, the self-confidence merges with egotism, egocentrism, and narcissism: each of the creators seems highly self-absorbed, not only wholly involved in his or her own projects, but likely to pursue them at the cost of other individuals. The British psychologist Hans Eysenck has suggested that there may even be a genetic basis to this amalgam of creativity and hard-headedness.

Nuances of differences exist. While as self-absorbed as any other creator, Einstein seems to have directed little overtly negative behavior toward others; he wanted chiefly to be left alone. Picasso represents the opposite extreme: he seems to have obtained sadistic pleasure, if not creative inspiration, from inducing discomfort in others. The remaining five creators can be placed somewhere in between these two extremes, perhaps somewhat like this:

<table>
<thead>
<tr>
<th>Disregarding others</th>
<th>Difficult toward others</th>
<th>Frankly sadistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Einstein</td>
<td>Gandhi</td>
<td>Picasso</td>
</tr>
<tr>
<td>Eliot</td>
<td>Stravinsky</td>
<td>Graham</td>
</tr>
<tr>
<td></td>
<td>Freud</td>
<td></td>
</tr>
</tbody>
</table>

A related dimension concerns the degree of effort attached to self-promotion. One can be quite distanced from, or even sadistic toward, others and still devote considerable energy to self-promotion. All seven creators recognized the importance of bringing their work to the attention of others; and in the absence of a parent, spouse, or aide who could accomplish this task on their behalf, they were expected to do so themselves. Much of the self-promotion was dedicated to the work; as far as I can determine, Gandhi was much more interested in bringing attention to his program than to his own person, but his efforts at self-promotion were still striking. I would array our creators in this approximate order:

<table>
<thead>
<tr>
<th>Ordinary self-promotion</th>
<th>Extraordinary self-promotion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Einstein</td>
<td>Picasso</td>
</tr>
<tr>
<td>Picasso</td>
<td>Eliot</td>
</tr>
<tr>
<td>Stravinsky</td>
<td>Gandhi</td>
</tr>
<tr>
<td>Freud</td>
<td>Freud</td>
</tr>
</tbody>
</table>

A notable characteristic of creativity, I have argued, is its special amalgam of the childlike and the adultlike. This amalgam can occur both in the sphere of personality and in the sphere of ideas. It can be more positively tinged (when the childlike feature is innocence or freshness) or more negatively tinged (when the childlike feature is selfishness or retaliation). A brief comment is in order on the relation between the child and adult "faces" in these seven creators:

- In the realm of personality, the adult Freud showed few childlike features; if anything, he sought to present himself as mature and judicious. However, his interests in the unconscious, in the stream of consciousness, and in childhood wishes, fantasies, dreams, and sexual preoccupations underscore the extent to which the consciousness of the child remained crucial to his thinking.

- Einstein prided himself on the preservation of certain childlike features, such as curiosity and a defiance of convention. Like other creators, he placed the mind and spirit of the young child on a pedestal. While his concepts were technical contributions, they represented attempts to answer the same kinds of questions that preoccupy young children—Piaget-style questions about the basic nature of the universe and of experience.

- Like Einstein, Picasso cultivated certain childlike personality features. Besides his clowning for the media, his enormous quest for possessions (human as well as material) and his desire to control all aspects of his life (and others' lives) can be fairly described as infantile. In his artwork, he cultivated the fragmentation of forms, searched for the simplest underlying
Creating Minds

shapes, and strove to capture all aspects of a visual experience simultaneously on paper—all characteristics of the art of young children.

- Stravinsky was interested in the world of children, but certainly did not dote on his own childhood and took no special pleasure in appearing to act like a child. He probably was most reminiscent of a child in his extraordinarily litigious nature—his desire to pick, and then to win, every fight and, if possible, humiliate the enemy in the process. Like other modern artists, he anchored his work in the most basic elements of the medium—primitive rhythms and harmonies of the sort that had so impressed him when he was a young child.

- In Freudian terms, Eliot was the most rigid and repressed of the seven personalities, in his life, if not in his work. He had seemed old when young, and he enjoyed the role of the elder statesman. Yet even he retained a certain childlike nature, loving puzzles, producing bawdy doggerel, as well as verses designed for children; and he did not let his conservative political views undermine his appreciation of the novel and the offbeat. In the fragmented nature of his verse and its concern with unconscious and symbolic themes, he inhabits the same childlike universe of the artist Stravinsky and the scientist Freud.

- Martha Graham sought to remain forever young in her person and her work; any sign of aging terrified her. Her self-centeredness, furious temper, and single-minded passion speak to the preservation of certain behavioral patterns of the young. Both the art form that she selected (use of the body for expression) and the kind of elemental expressions that she favored draw on the reservoir of the child’s imagination.

- We think of Gandhi as elderly and wise, yet in many ways he was very childish and even cultivated the look of the young child—naked to the world, proud of his body, excessively interested in its functions. Moreover, his major conceptual breakthrough—sanyagrama—can be seen as childlike in the best sense of that term: individuals confronting one another in terms of actual equality and ensuring that they each feel renewed by a mutually satisfactory arrangement. Of course, it takes a more mature individual to bring this vision to fruition.

Having touched on the childlike component of each creator, I shall conclude this discussion of personality features by considering two remaining elements. The extent to which each of the creators engaged in public display of emotions, particularly the powerful ones of passion and rage, raises a complex issue. While each creator no doubt experienced very

Creativity across the Domains

powerful feelings, some expressed them directly, while others preferred to “speak” through their works. There are few works of the period more powerful than The Waste Land, yet Eliot struck many observers as lifeless, without affect, frighteningly shy and reserved. Picasso and Graham, on the other hand, were as dramatic in their bedrooms and their working spaces as they were expressive in their works of art. The same contrast can be observed among our more scholarly creators. Einstein kept his feelings under wraps but wrote compellingly of the aesthetic elements of doing science; Freud took a clinical approach to emotion in his writings, but he was not afraid to confront his emotions, to express his feelings directly, and to mastermind and lead an intellectual revolution.

Particularly at the time of greatest creative tension, these creators felt under siege. So far as I can tell, all of them experienced periods of despondency when work was not going well, and virtually all had some kind of documented breakdown. The only possible exception here is Gandhi, who appears to have experienced two significant periods of depression. As described in chapter 9, these preceded his decisions to return to a far simpler life: in his South African period (1906 to 1910) and in his return to India in the 1930s following the disastrous London conference.

Social-Psychological Aspects. Though each of these creators seems to have come from a reasonably supportive household, unconditional intimacy and warmth may have been in short supply, except perhaps in the care of a nanny. When there was a close tie to the mother (Freud, Einstein, Eliot) or the father (Gandhi, Graham, Picasso), it seems to have been conditioned on achievement. Perhaps these contexts of early life stimulated the creators to regard work as the area where they would feel most whole. The French writer Gustave Flaubert once declared, “I love my work with a love that is frantic and perverted, as an ascetic loves the hairshirt that scratches his belly.”

Strictness also marked most of the households. A disciplined “Protestant ethic”-style regimen led to children who were able to stick to tasks and to advance quickly in their studies or in their area of expertise. Ultimately, each of the creators rebelled against control: Freud, by calling explicit attention to the various motivational forces that had been covert in Vienna; Einstein by reveling in the permissiveness of the Aarau school and by confronting his teachers; Picasso, by rejecting his family, and particularly his father; Stravinsky, by spurning a legal career and finding a new father figure (Rimsky-Korsakov); Eliot, in similar fashion, by choosing a non-professorial career and leaving his native land for good; Gandhi, by rejecting aspects of his Hindu heritage and leaving home for over twenty years;
Creating Minds

and Graham, by choosing a dance profession, pursuing a unique life-style, and offering explicitly erotic performances.

I do not think that such a rebellion would have been possible without two factors: (1) sufficient skill and talent to allow one the option of a life different from one’s forbears, and (2) positive models in childhood of a creative life. The homes of these seven creators may have been strict and conservative, but hints were given, either inside or around the home, that it was permissible to strike out on one’s own, so long as one gave a good account of oneself. Freud’s parents ultimately approved of his pursuing whichever career he liked; Einstein’s uncle Jakob and his older friend Max Talmey promoted curiosity and scholarly pursuit; Picasso’s uncle funded his study trips abroad; Stravinsky’s family home served as a congregating place for artists of the time; Eliot’s mother was herself a poet; Graham’s father had an artistic side, nicely revealed in his decision to escort young Martha to a performance by Ruth St. Denis; and Gandhi’s family was judicious in personal matters and permissive in religious matters.

Despite the support that the young creators received from their families, the theme of marginality pervades this work. Some of the creators were distinctly marginal by accident of their birth: Einstein and Freud as Jews in German-speaking countries, Graham as a woman in a male-oriented world. Others were marginal by virtue of where they came to live, by choice or by necessity: the Indian Gandhi abroad in the British empire; the Russian Stravinsky in Western Europe and the United States; the American Eliot in London; the Spaniard Picasso in Paris.

In addition to their demographic marginality, each of our creators used his or her marginality as a leverage in work. Not only did they exploit their marginality in what they worked on and how they worked on it; more important, whenever they risked becoming members of “the establishment,” they would again shift course to attain at least intellectual marginality. Freud became suspicious whenever his work was too readily accepted; Einstein labored for thirty years on the unpopular side of the quantum-mechanical enterprise; Picasso and Stravinsky renounced first the mainstream artistic heritage and, in later decades, their own unrelenting departures from it; Eliot embraced unfashionable political and social ideas and then attempted in midlife to become a playwright; Graham took on new and challenging genres throughout her life, finally making the shift to choreography successfully (if reluctantly) in her eighties; and Gandhi constantly embraced unpopular causes and controversial groups.

While each creator was determinedly marginal and was willing to give up much to retain this marginality, it is too simple to say that each was simply aloof from the world of other people. At least two further patterns were at work. First, these creators often moved from a period of life in which they were comfortable with many persons to a period of maximum isolation, at the moment of their major discovery, only to return to a larger, and perhaps more accepting, world in the later years of life. Second, at the time of their greatest isolation, these creators needed, and benefited from, a special relation to one or more supportive individuals.

I return to this special relation at the conclusion of this chapter, but let me comment now on the general shift in the texture of interpersonal relations across the life span. Freud is the prototypical figure here—popular and engaged as a youth, increasingly isolated as he seeks his own domain, and then a firm leader of an ever-expanding crusade in the last decades of his life. Einstein’s life pattern is somewhat similar, but in his case, the ultimate relationship to the wider world took a more distant form, as he concerned himself with weighty issues of war, peace, philosophy, and religion. Gandhi’s trajectory reflects aspects of both of these models: the need to organize a small group of loyal lieutenants, in the spirit of Freud’s psychoanalytic circle, coupled with the capacity to relate to larger segments of humanity in a more distanced way, through writings, through the media of mass communication, and through his inspiring personal example.

With respect to the four artists, I discern a somewhat different pattern. Whatever their configuration of childhood relations, all experienced a period of isolation when they were working on their pioneering compositions. Once their work began to be accepted, they found themselves necessarily enmeshed in a political network, of the sort I have detailed in chapter 6. Stravinsky seems to have been most energized by this political world; Eliot accepted it as part of the territory and negotiated it surprisingly well; Picasso and Graham, in their different ways, left as much as possible to other individuals, and yet rose effectively to the occasion when their own presence was wanted.

If I can risk another generalization, none of these individuals had a particular need for friends who could be treated as equals. Rather, they used others to advance their professional work, being charming, seductive, and at least superficially loyal, while dropping these peers quietly or dramatically when the usefulness was judged to be at an end. The carnage around a great creator is not a pretty sight, and this destructiveness occurs whether the individual is engaged in a solitary pursuit or ostensibly working for the betterment of humankind.

Life Patterns: The Shape of Productivity. Without wishing to invest more magic in a numeral than is warranted, I have been struck throughout this study by the operation of the ten-year rule. These seven creators can be well
described in terms of careers in which important events and breakthroughs occurred at approximately ten-year intervals, with the number of such ten-year periods allotted to the creators differing across domains. As has already been well documented in studies of cognitive psychology, it takes about ten years for an individual to gain initial mastery of a domain. Should one begin at age four, like Picasso, one can be a master by the teenage years; composers like Stravinsky and dancers like Graham, who did not begin their creative endeavors until later adolescence, did not hit their stride until their late twenties.

The decade of an apprenticeship heightens the likelihood of a major breakthrough. Such a breakthrough generally follows a series of tentative steps, but when it occurs, it represents a decisive break from the past. In this vein I have described Freud's "Project," Einstein's special theory of relativity, Picasso's *Les demoiselles d'Avignon*, Stravinsky's *Le sacre du printemps*, Eliot's *The Waste Land*, Graham's *Frontier*, and Gandhi's strike at Ahmedabad as breakthrough events.

In the years that follow, the creator comes to terms with his or her breakthrough. The appeal of innovation rarely atrophies, but generally speaking, the subsequent breakthrough is of a broader and more integrative sort, with the creator proceeding in a more nuanced way, tying innovations more directly to what has gone on in the past of the domain and to what others have been executing in the domain. Freud's *Interpretation of Dreams* (or perhaps *Totem and Taboo*), Einstein's general theory of relativity, Picasso's *Guernica*, Stravinsky's *Les noces*, Eliot's *Four Quartets*, Graham's *Appalachian Spring*, and Gandhi's salt march are candidates for a second, culminating breakthrough.

What happens after the second breakthrough is more a reflection of the nature of the domain than of the skills and aspirations of the creator. If the domain is wide open, freshly charted, and graced with relatively little competition, the creator retains the opportunity to continue to be innovative for as long as he or she remains active. This is what happened to Graham, Freud, Stravinsky, Gandhi, and Picasso. (Freud, in fact, thought that he had a breakthrough every seven years.) If, however, the domain is already well delineated, there are many other younger individuals working in the domain, or the creator's energies are sapped, then the possibility of further innovation is reduced. Neither Eliot nor Einstein was able to continue his innovations beyond the second decade of efforts, though Eliot wrote plays and Einstein worked on theoretical and philosophical issues until his death. The varying permeability of the domains cuts across the arts and the sciences: lyric poetry ends up as closer to physics than to painting.

After the second decade, a different kind of opportunity arises. The individual may begin to look back on the relevant domain in a historical or reflective way. Picasso, Stravinsky, and Graham each pursued an impressive neoclassical period; Eliot tried to do so, but with less pronounced success. One can also become a metacommentator on one's field, as did Einstein and Eliot. When there exists a respected role within the domain, as there has been in literary criticism, one can continue in this reflective vein indefinitely. In the sciences, however, people who become philosophers of science are considered to have left their domain; thus, in the final decades of his life, Einstein was not considered central to the discussions pursued by the most innovative scientists.

In table 10.1 I summarize the trajectories of creativity across the decades. The radical breakthrough is indicated by a single asterisk, and the

<table>
<thead>
<tr>
<th>Origin</th>
<th>10 Years</th>
<th>20 Years</th>
<th>30 Years and Beyond</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freud</td>
<td>&quot;Project&quot;** <em>The Interpretation of Dreams</em>**</td>
<td>Three <em>Contributions to the Theory of Sex</em></td>
<td>Social works</td>
</tr>
<tr>
<td>Einstein</td>
<td>Light-beam thought experiment</td>
<td>Special theory of relativity*</td>
<td>General theory of relativity**</td>
</tr>
<tr>
<td>Picasso</td>
<td>Barcelona circle</td>
<td><em>Les demoiselles d'Avignon</em></td>
<td>Neoclassical style</td>
</tr>
<tr>
<td>Stravinsky</td>
<td>Rimsky-Korsakov influenced works</td>
<td><em>Le sacre du printemps</em></td>
<td><em>Les noces</em>*</td>
</tr>
<tr>
<td>Eliot</td>
<td>&quot;Prufrock&quot;* <em>Juvenilia</em></td>
<td><em>The Waste Land</em></td>
<td><em>Four Quartets</em>*</td>
</tr>
<tr>
<td>Graham</td>
<td>St. Denia troupe</td>
<td>First recital</td>
<td><em>Appalachian Spring</em></td>
</tr>
<tr>
<td>Gandhi</td>
<td>Natal</td>
<td>So. Africa Satyagraha</td>
<td>Ahmedabad*</td>
</tr>
</tbody>
</table>

*Radical breakthrough  
**Comprehensive work
comprehensive work by two asterisks. Note that no two creators exhibit exactly the same trajectory, but that the “ten-year rule” still proves suggestive. The issue of productivity may appear to be a confounding factor. In some domains one can produce works at an enormous rate. Picasso produced on the average of one work a day throughout his adult life; Freud produced dozens of books and hundreds of papers. On the other hand, Eliot wrote less than fifty poems, some of them very brief, and Einstein’s published scientific works were far fewer than Freud’s. Yet there are first-class poets (like W. H. Auden) and major scientists (like the chemist Carl Djerassi) who prove that creativity in literature and in science is also compatible with fecundity.

While even creative individuals can differ enormously in terms of energy, I think it is important not to dwell on the actual number of products listed in an encyclopedia. What strikes me about our subjects is that they were each productive every day. Eliot may not have written poetry, but he wrote hundreds of reviews, edited major publications, and issued books on a wide range of subjects. Gandhi’s literary output fills ninety volumes. Einstein worked on questions of physics until the last years of his life, even though his publication output lagged. It would be more opportune to monitor the number of new ideas or separate projects than to count the number of “final products” by a painter, poet, or physicist. Picasso may have made a thousand paintings over a five-year period, but in his own mind one or two of them were far more important (in my terms, “defining works”) than the others. Freud may have written a dozen papers a year, but he could be repetitive in these essays, and he stressed his own need to search actively for new ideas. The ten-year period is revealing in this respect because it suggests that, independent of the number of discrete works issued by an individual, there may be a limit to the number of genuinely innovative works or ideas that an individual can produce in a finite period of time.

**Domain Level**

If the level of the individual reveals as many similarities as differences, the domain level constitutes the crucial location for the most telling differences across the creators. Youths interested in some aspect of their world evolve into young adults who choose (or are chosen) to work in a recognized domain or discipline within the culture. Each will be working in a domain for decades, and so the nature of that domain becomes crucial.

When I embarked on this study, I believed one could describe the steps of creativity across domains in a relatively comprehensive way. Building on Graham Wallas’s well-known fourfold scheme—from preparation and in-

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**Creativity across the Domains**

...to illumination and revision—I described in chapter 2 the nature of local disturbances, the initial surgery undertaken to fix them, the unsatisfactory nature of this stop-gap measure, and the gradual emergence of the need to create some kind of a new language or symbol system adequate to the problem at hand. And I posited an “afterlife” to this emerging scheme, where other knowledgeable individuals attempted to understand the new symbolic scheme and to promulgate it, and where the new invention, as understood by others, gradually became accepted by the field and even contributed to the reformulation of the domain.

I still stand by this scheme, in a general sense, but I now believe that it leaves out two very important, related dimensions. First, the kinds of symbol systems with which individuals work in different domains vary strikingly; one cannot simply lump them together under the broad rubric of symbol systems. Freud worked with words as shorthand for scientific concepts about human dreams and behaviors, and with simple diagrammatic schemes. Einstein thought in terms of complex spatial schemes, bodily imagery, and mathematical equations, with words entering as afterthoughts at the end of the process. Picasso dealt with colors, textures, lines, and forms as they relate to objects in the world and, increasingly, in terms of their own intrinsic features. Stravinsky treated analogous elements in the world of sound (timbre, rhythm, pitch, color); though these bear some relation to the world of experience, they gain significance chiefly in terms of intramusical associations. The verbal elements, allusions, and sounds used by Eliot lead in a wholly different direction from the words used by a Freud or an Einstein. Graham worked chiefly with the materials of the human body, attempting to capture plot, emotion, and formal relations in explicit gestures, and integrating them with the accompanying music and decor. And, finally, Gandhi’s texts and talks represented an effort to paint a convincing picture of the experiences of a group of people: he built a model of current beliefs and behaviors within a group, as well as a model of how to change them, through the mounting of certain pivotal performances ranging from ritualistic to high-stake.

Not only do these symbols and symbol systems differ dramatically from one another, but the kinds of mental skills needed to work with them, and to communicate discoveries to others, are distinctly different—so much so, that grouping them all together as symbol systems obscures as much as it clarifies. Indeed, as described in the Interludes, these creative individuals were involved, respectively, in at least five distinct kinds of activities:

1. **Solving a particular problem** (usually a scientific one). Einstein’s early papers, for example, on Brownian motion, reflect such a practice. Particular
assignments tackled in the course of artistic training, such as Stravinsky's reorchestration of classical pieces, constitute examples from a different domain.

2. Putting forth a general conceptual scheme. Whatever their original missions, Einstein and Freud are most remembered for the broad schemes they developed—relativity theory, by Einstein, and the psychoanalytic theory of unconscious processes, by Freud.

3. Creating a product. Artists create small-scale products, such as preliminary sketches or brief poems, or larger-scale ones, such as murals, operas, or novels. These works embody ideas, emotions, and concepts, but they are not well described, overall, as efforts to solve problems or to create conceptual schemes. Rather, they are often highly original instances of works within a genre, or attempts to initiate a new genre. Picasso, Stravinsky, and Eliot fall into this scheme, as does Graham in her guise as a choreographer.

4. A stylized kind of performance. In forms like dance or drama, an individual creator may embody the art form; in this case the "autographic" work does not exist apart from a particular realization by one person at a specific historical moment. The performance may be prescribed in various ways, but opportunities always exist for innovation, improvisation, and interpretation. The condition of the body and the exigencies of the historical moment circumscribe such performances.

5. A performance for high stakes. When one enters the political or spiritual realm, an individual's own public words and actions become the terrain in which the creativity unfolds. Gandhi may have had brilliant or scatterbrained ideas; but in the end it was his capacity to appear credible to his followers, and to the rest of the world, by virtue of his example at specific historical moments, that constituted the central aspects of his creation. Unlike the ritualistic dancer or dramatic artist, the high-stakes performer is risking security, health, and even life in the service of a mission. In Clifford Geertz's famous phrase, it is a form of very "deep play."

In light of the new distinctions introduced—a consideration of the nature of specific symbol systems and a position of five different kinds of activities that merit the term creative—it is necessary to conceptualize a more complicated scheme, which entails three components:

1. The particular symbol system(s) employed
2. The nature of the creative activity
3. Particular moments in the course of a creative breakthrough or performance

Rather than simply speaking generically of incubation, one needs to configure such dimensions in light of whether one is dealing (1) with words, gestures, or mathematical concepts, for example; (2) with the solving of a problem, the creating of a work, or the influencing of behavior among individuals living in one's community; and (3) with the period of conceptualization, the execution of the work, or the actual time when a performance is unfolding.

So far I have focused on the kinds of symbol systems and activities that characterize each domain. But domains differ as well in terms of their structures at a given historical moment. One key structural aspect is the extent to which a domain may be considered paradigmatic. In the way in which this word is usually employed, only physics can lay claim to the status of a scientific paradigm—a domain in which established practices and norms are accepted by all members. Psychology in Freud's time and even psychology today are preparadigmatic: the principal issues differ between rival schools, not between rival interpretations of mutually agreed upon phenomena and findings. But the physics paradigms associated with Newton, with Maxwell and Faraday, or with Mach and Helmholtz were not adequate either; the uneasiness with current concepts expressed by Lorentz and Poincaré around 1900 pointed to the possibility that a new paradigm might soon be needed.

The term paradigm can be stretched, or analogized, outside of science. When one performs such stretching, it becomes clear that there are times in other domains where there is also a dominant paradigm. In the late eighteenth century, Western classical music embraced a paradigm of composition; by the same token, in British law courts today, there are accepted paradigms for handling disputes.

At the beginning of the century, it seems fair to say, there were no equivalently entrenched paradigms in the major art forms. The romantic approach in music and literature and the academic and impressionist movements in the visual arts were in their waning phases; dance was not taken seriously as an art form. Thus, these domains can be considered "paradigmless" and, hence, open for new and competing approaches. If one can use the term paradigm for relationships between geographical entities within
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the British empire, it can perhaps be said that the British still believed that they knew what was best for their colonies and colonists, while the indigenous residents themselves were becoming increasingly resistant.

The hegemony of a single paradigm is probably the best prognosticator of the rapidity with which a new approach can be broadly accepted. Despite some initial skepticism, the merit of Einstein’s breakthrough could be readily and rapidly appreciated within the physics community. On the other hand, the very centrifugal nature of a paradigmatic domain also means that younger individuals can soon make contributions that build on the new paradigm, and they thereupon become competitive with the originator of the new paradigm. What happened to Einstein has happened to other paradigm makers at work in established domains; he was soon overtaken by the younger scientists, who readily mastered his contributions and were able to build on it.

None of the other six creators had to confront this situation; in a sense, all of them had enough work to last a lifetime. And, indeed, the creators did continue to work and make innovations throughout the rest of their lengthy lives. The chief exception is Eliot. Of the various possibilities, the explanation that I have favored here pertains to the nature of the domain of lyric poetry, as I mentioned earlier. While other kinds of writing seem relatively resistant to the processes of aging, lyric poetry is a domain where talent is discovered early, burns brightly, and then peters out at an early age. There are few exceptions to this meteoric pattern. Eliot attempted to lengthen his creative life by becoming a playwright and critic: his accomplishments, particularly in the critical sphere, are notable, but they do represent a lifetime different from that pursued by other creators; the closest analogy would be Graham after she had been forced to stop dancing.

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figures, ranging from Bruecke to Charcot to Breuer, who introduced him to important disciplines, problems, and methods. Einstein was unusual for a scientist in the relative lack of personal mentors. His mentoring seems to have occurred at a greater distance, by virtue of the reading that he did, first in popular accounts, and then in the writings of Mach, Poincaré, Maxwell, and other major professional figures. In this way he is reminiscent of certain artistic titans of the past, like Shakespeare or Beethoven, who are not considered to have had major personal mentoring figures.

Each of the four artists benefited from mentors. Stravinsky had the most traditional experience, with Rimsky-Korsakov serving as a primary musical mentor and Diaghilev introducing him to other aspects of the theatrical world. Eliot was influenced by several of his teachers at Harvard, by the slightly older and more daring Pound, and by the writings of Laforgue and Symons. Picasso benefited most directly from his father; thereafter, he was exposed to a multiplicity of figures from the recent and distant past, no one of whom seems to have dominated his artistic formation. Graham had relatively demarcated mentoring from the team of Ruth St. Denis and Ted Shawn; thereafter, as we have seen, her close confidant Louis Horst doubled as her best teacher.

Again, Gandhi seems anomalous here. One can point to some individuals whom he knew well, like Gokhale and Rajchandra, and to those whose writings he admired, such as Tolstoy and Ruskin. He also had a circle of confidants, such as Polak and Schleslin. Yet to a greater extent than with most other creative figures, Gandhi seems to have invented himself. Perhaps this explains why he wrote so much about his own experiments on himself and why, in certain senses, he felt on an equal footing with the religious innovators of the past and with his own God.

Earlier I touched on the generally dismal relationships between the creators and other human beings. What can be said more specifically about the creators’ relationships with others in their chosen field? The paper trail can be a confounding factor here, for those who liked to write, like Freud, Stravinsky, and Eliot, have provided much more evidence about their relations to others in the field than have those who did not conventionally resort to correspondence, memos, and diaries.

With respect to the seven creators, I would locate Freud and Stravinsky at one end of the continuum, with most other practitioners close by, and Einstein at the other end. Freud and Stravinsky were both intensely competitive individuals who saw—and labeled—many others as rivals. They doggedly protected their territory, divided the world into supporters and enemies, proved quick to reward loyalty and to punish apparent disloyalty.
They perceived the sociopolitical scene in zero-sum terms: if you were not for them, you were against them. Each had an ensemble of followers who did their bidding, and neither welcomed close colleagues, perhaps because they felt that few of their domain peers were their equals. It is no accident that their closest, least charged friendships occurred with individuals outside of their own domain.

Picasso was at least as competitive as Freud and Stravinsky, and probably far more ruthless toward men and women than either of the others. But perhaps because, from a fairly early age, he could afford to have others negotiate for him, and because he did not have as ready a recourse to writing, he does not qualify as quite so politically embroiled as Freud and Stravinsky. Eliot became involved in political relations as well and proved quite skilled at them; but I perceive little relish on his part about this sphere of life, and he seems to have been happy to metamorphose into the role of an elder statesman. Additionally, in comparison with other figures, Eliot seems to have devoted less effort to discovering enemies, labeling them as such, and seeking to destroy them. Graham’s relationships with colleagues were charged, and she gave at least as well as she received; but her focus on her work and on the performance was primary; and she was pleased to leave financial and logistic arrangements to other people.

Gandhi and Einstein constitute the exceptions here. Einstein was simply less interested in the personal and political sphere surrounding his work, rarely taking a chance to defend himself or to attack others, unless controversy hinged on a non-scientific issue. More so than the other creators, Einstein was content to allow the work to speak for itself, though he occasionally encouraged his supporters. As for Gandhi, he often affirmed the essential political nature of what he was doing and was endlessly enterprising in promoting his own work. Yet, as the central portion of his message had to do with maintaining peace with his adversaries, he could not afford to be openly jealous or competitive with them. Still, his sorry record with his own family indicates that Gandhi could be very difficult interpersonally, especially when he could not prevail over those who were closest to him. The master at large-scale politics proved a disaster in more intimate relations.

A final dimension of the field points to the complementary concept of the domain. I refer here to the extent to which a field is organized hierarchically and the extent to which one’s position in the hierarchy influences one’s behavior. Here the differences across fields are again striking. Early on, Einstein was placed at the summit of the hierarchy of physics, and his position remained secure even after his death; but he himself took little interest in this position, except perhaps insofar as it permitted him to focus on his scientific work and to bring attention to his nonscientific interests. Freud was never highly ranked in any internationally acknowledged field, so he created his own. Thenceforth, controlling the hierarchical structure of psychoanalysis became a chief preoccupation.

Picasso’s position as the outstanding painter of the century was also widely acknowledged from the start of his middle age. Picasso was far more interested in his own work and his own success than he was in influencing the behavior of other painters; and while he retained relationships with some artists, only Matisse seems to have occupied a significant part of his consciousness. For Stravinsky, the hierarchy was more complex, inasmuch as the rival schools of music continued throughout his life. For many years he saw himself as locked in competition with Schönberg, the leader of the rival school; only after Schönberg’s death did Stravinsky himself feel free to grapple with twelve-tone music. Graham found herself similarly embattled with other leaders of modern dance; and though Graham had trained most of the best of the next generation, she desired ardently to remain the figure emblematic of dance, even after her long-delayed retirement.

A major part of Eliot’s assignment as an editor and critic was precisely to attend to the cultivation of the domain of literature, spanning fiction and poetry. Seldom has an honored practitioner also served as its chief evaluator (Freud might be considered another exemplar of this dual role within psychoanalysis). Eliot performed this task with more generosity of spirit than one might have predicted; he believed in a hierarchy of literary quality, susceptible to judgment apart from political and social attitudes. At the same time, particularly with respect to predecessors, he enjoyed playing an iconoclastic role; and in his rewriting of literary history, he was, whether or not consciously, attempting to boost his own stock.

The model of a field, with a set of judges operating consensually, is perhaps least germane in a consideration of Gandhi. In one way, his domain, politics, was the oldest and broadest; but in another way, satyagraha, like psychoanalysis, was a domain of his devising, and as the founder, he was by definition in the best position in the field to render judgments about its practitioners and practices. But Gandhi was not in the business of making evaluations; he was in the business of bringing about change. Here he was playing for very high stakes; and his competitors were the major political figures of his time, like Lenin and Churchill, and the major religious thinkers of other times, like Christ and Buddha. Gandhi was surely aware of these considerations, though he seems to
have been genuinely humbled by such lofty comparisons. In the end, Gandhi's creativity is closely linked to the success of his reform efforts: he was amazingly successful in the middle years of his life, but far less successful thereafter.

With this discussion of individual, domain, and field considerations, I conclude a review of the "data" relevant to the theoretical and empirical issues that guided my study. Definitive answers about these issues remain elusive. At the same time, however, one may speak of strong trends with regard to certain issues—for example, the prevalence of marginality or the unimportance of prodigiosity; and of striking domain differences with respect to other issues, such as the possibility of lifelong creativity or the inevitability of political strife. As others add data points from these and other domains, and from this and other eras, we should be able to facilitate the transition from an idiographic, Gruber-like effort to a nomothetic, Simonton-style research enterprise.

Asynchronies Assessed

In part I of this book, I introduced an organizing framework, designed in response to the question Where is creativity? The essential burden of the "triangle of creativity" has been to investigate the dialectics among the individual person, or talent; the domain in which the individual is working; and the field of knowledgeable experts who evaluate works in the domain. No matter how talented the individual is, in some abstract sense, unless he or she can connect with a domain and produce works that are valued by the relevant field, it is not possible to ascertain whether that person in fact merits the epithet "creative." In some cases, of course, there may not be a fit initially between the nodes of the triangle; but unless some kind of rapprochement can be arranged among individual, domain, and field, an ultimate decision about an individual's creativity cannot be made.

Occasionally, an almost perfect fit among individual, domain, and field will exist: this is the textbook example of a prodigy. Indeed, in some societies, such alignment is all that is ever wanted. In our modern world, however, few if any prodigies make a ready transition to the world of the creative adult. That is because we seek from adults a kind of innovation, a departure from the norm, that not even the most talented youth can fathom. The closest that one comes to the adult prodigy is an individual like Mozart or Picasso, who was blessed with a stunning talent and who eventually became an acknowledged master; but as is well known, both men experienced anything but a smooth transition from youthful to adult practice. More commonly, as I have shown, the individuals who made the most remarkable breakthroughs could not have been considered prodigies by any strict definition of that term.

What seems defining in the creative individual is the capacity to exploit, or profit from, an apparent misfit or lack of smooth connections within the triangle of creativity. From an analytic point of view, there are six possible areas of asynchrony: within the individual, within the domain, within the field; between individual and domain; between individual and field; and between domain and field. Individuals who avoid any kind of asynchrony may well be prodigies or experts, but they are unlikely to become creative people; those who experience asynchrony at all points may be overwhelmed. I have hypothesized that an individual will be judged creative to the extent that he or she exhibits several asynchronies and yet can withstand the concomitant strain.

In the previous pages I have provided evidence of each of these kinds of asynchronies. It would be possible to look for each kind of asynchrony in each case study, but such a quest for forty-two or more asynchronies would be forced and, therefore, not revealing. Instead, I want to recall some of the more striking asynchronies that have emerged.

At the level of the individual, I noted the asynchrony between Picasso's excellent spatial and bodily capacities, on the one hand, and his meager scholastic capacities, on the other. Within the domain of physics, the strains at work in the years before Einstein's cutting of the Gordian knot were apparent. Within the field of clinical psychiatry, there were the deep divisions between those who valued Freud's work and those who felt that it was errant nonsense; and, of course, the tension between mass (low) and elite (high) fields characterizes the several art forms.

One can with equal readiness amass instances of asynchronies across nodes. Freud exhibited a set of intelligences that were unusual for a natural scientist but that finely tuned the newly formed domain of psychodynamic practice. Graham's early dances were remote from the tastes of regular concertgoers, but they excited pivotal newspaper reviewers, who helped create a new field for modern dance. Finally, with Gandhi, the domain of legalistic or militaristic conflict resolution functioned adequately within a British setting but made less sense to the field of twentieth-century Indians seeking to build their own society.

A problem with the hypothesis of fruitful asynchrony is that one can all too readily find instances of asynchronies. Do creative individuals really experience or exhibit more asynchronies, or are they simply better at exploiting them? Here the example of marginality is useful. By definition, most individuals are not marginal within their community; hence, to the extent that there is a larger proportion of marginal individuals within the
ranks of the creative, one has evidence that asynchronies may actually be associated with creative output in a statistically verifiable way. But it seems equally true that creative individuals, once they have felt the pain and pleasure of asynchrony, often continue to seek asynchrony, even as many other individuals “escape from freedom” and rush to the comfort of majority status.

I maintain that each of our individuals stands out in the extent to which he or she sought conditions of asynchrony, receiving a kind of thrill or flow experience from being “at the edge” and eventually finding it difficult to understand why anyone would not wish to experience the fruits of asynchrony. Such a pattern clearly characterizes each of the creators, independent of the degree of asynchrony or marginality with which each began. Though highly gifted in many areas, Freud was riven with asynchronies within himself and with respect to other individuals and to the several domains in which he worked. And whenever it looked like he might be moving somewhat closer to the establishment, Freud made the move typical of creators of traveling closer to the edge, confronting yet more complex issues, making even stronger demands on those around him.

Though by any definition as creative and successful as Freud, Einstein may not have had the same drive to be asynchronous in his life or his work. At an early age he had already identified the issues on which he wished to work, and like the bear of which his secretary spoke, he would have continued to work on them for the next millennium. Einstein’s personality and gifts had suited him well for his revolutionary discoveries between 1905 and 1920. In that sense, the world of physics interacted perfectly with his particular strengths and style. Thereafter, his asynchrony with physics became too great. He distinguished himself as a commentator on the world scene and on the enterprise of science.

Each of the four artists was characterized by considerable asynchrony, but this lack of fit affected them in different ways. From an established family and with strong academic and professional credentials, Eliot had to stretch the most to induce asynchrony. But the combination of his strange personality, difficult marriage, and decision to live abroad on his own finances, yielded an almost desperately asynchronous individual by the end of the First World War. Thereafter, the asynchronies lessened somewhat, perhaps mirroring a muting of his creative talent. Graham can be seen as an opposite to Eliot, since she had neither the family connections nor the social advantage, as then defined, of being male. By personality, she was strengthened by challenges (as Eliot was probably not), and so she was able to thrive under asynchronies of her own devising, as well as those inherent in her situation.

Stravinsky and Picasso can be seen as similar on some dimensions, opposite on others. Stravinsky came from a family that was centrally involved in the musical arts, while Picasso’s father, though an artist, possessed distinctly limited talent. Whereas Stravinsky wished to escape from bourgeois complacency, Picasso wanted to escape from provinciality. Both men could have remained with their early successes—the music of Firebird and Petrouchka, the art of the blue and the pink periods—but both were impelled to strike out in more radical directions. And despite the eventual success that greeted their frankly iconoclastic works, they were stimulated for the rest of their lives to search for asynchronies in both their professional efforts and in their relations to other individuals.

Once again, Gandhi presents a complex picture. On demographic grounds, both within his country and as a citizen of the world, Gandhi was most asynchronous with his surroundings. In addition, his decidedly odd personality and philosophy helped ensure that he would always stand out from those around him. At the same time, however, his work was predicated on the assumption that he could illustrate, indeed exemplify, deep connections to the rest of his society: that he could appear as a typical representative of the larger Indian community. Thus, he had to cultivate, to embody, a being who was at once synchronous with the rest of society and humanity and distinctly marginal, someone positioned to bring about radical social change. Perhaps this dual assignment can itself be seen as a form of asynchrony; that is, it may be even more anomalous for the creator to retain one foot in the camp of the ordinary than to be completely dissociated from one’s society.

Those in search of asynchronies can feel rewarded by these case studies, which document considerable initial asynchrony as well as a decided taste for creating more. In this way, the creative individual certainly differs from the individual who does not seek to stand out in any way. But is the creator also different from members of a reasonable control group—a group composed of individuals in a related domain who are equally ambitious but perhaps less successful, such as Wilhelm Flies in the domain of medicine or Pierre Janet in the domain of psychiatry (see chapter 3)? My own hunch is that our seven model creators are different, and that the degree and type of asynchrony they represent is somehow more fruitful—more fruitful, say, than Wilhelm Flies’s scheme, which was too bizarre, or Pierre Janet’s scheme, which was less sharply delineated and less expertly disseminated. But in the absence of convincing methods for evaluating both asynchrony and fruitfulness, this must remain a speculation.
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The Two Emerging Themes

Any researcher embarking on a large-scale study must be guided by certain assumptions. In the absence of such a rough roadmap, his or her journey is almost impossible to envision. Yet, at the same time, most researchers remain open to the possibility of surprises or of new discoveries: after all, if one knew exactly what one expected to find, then the journey would hardly be worth undertaking. Here, as elsewhere, the favorable degree of synchrony is detectable.

Two themes I had not anticipated emerged during my work on these case studies. Consistent with the developmental perspective, one theme represents a relatively brief period of time, during which the creator made a major breakthrough; the second theme covers a significant portion of the creator's adult life.

The Matrix of Support at the Time of Breakthrough

Because of my familiarity with Freud's life, I had known that, during the time of his greatest loneliness, he had gained sustenance from his relationship with Fliess. While few scholars have felt that Freud obtained indispensable ideas from Fliess, Freud clearly needed the latter's support and listening ear. And since Freud destroyed Fliess's correspondence, we cannot determine the extent to which he gave Freud either valuable ideas or acute criticisms.

When I began to learn about other creators, I gradually became struck by the fact that, far from being an isolated case, the Freud-Fliess confidant relationship represented the norm. As we have seen in the preceding chapters, Braque played much this role for Picasso; Horst, for Graham; Pound (along with Vivien Eliot), for Eliot; and the Diaghilev circle (along with special figures like Roerich and Ramuz), for Stravinsky.

It is possible to stretch the facts to cover the remaining two creators as well. For Einstein, the first rank of support came from the members of the Olympiad, with whom he had such regular and intimate contact during the years before his epochal discoveries. More proximal support for his relativity theory came from his close friend Besso and, with reasonable likelihood, from his wife Mileva as well.

I feel less secure in invoking the name of one or a few individuals who served as confidants for Gandhi. But, as suggested in chapter 8, the defining moment at Ahmedabad might not have been possible if Gandhi had not been aligned with one family member (Anasuya Sarabhai) and against another (Ambalal Sarabhai), to both of whom he felt powerfully connected.

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Perhaps, in this sense, I can legitimately include the Gandhi example within the pattern of confidants as well.

There is more to be said about this confidant relationship. First, under ideal circumstances, it ought to have two dimensions: an affective dimension, in which the creator is buoyed with unconditional support; and a cognitive dimension, where the supporter seeks to understand, and to provide useful feedback on, the nature of the breakthrough. The prototypical supporters—Fliess, Horst, and Braque—apparently assumed both roles. Certainly, between them, Pound and Vivien Eliot cover the waterfront, too. With Einstein, the need for affective support may have been less pronounced; with Stravinsky, the various kinds of support may well have been distributed among diverse figures, including Fokine, Nijinsky, Benois, Monteux, Roerich, and Diaghilev himself. Again, I have the least to say about Gandhi, though it might be relevant to remark that the support of large multitudes of strikers, workers, religious individuals, and his own loyal team of intimates must have meant a great deal to the Indian leader.

As I have perceived it, these relationships harken back to important associations early in life. One model entails the exchanges that take place between the mother and the infant, as the mother attempts to teach the child the language and rules of the culture in which they will both live. Thanks to the mother's constant efforts at interpretation, the infant passes here from a state of ignorance to a state of knowledge. Another model entails the exchanges that take place between close friends—siblings or peers—as they explore the unfamiliar world together and relate to one another what they have discovered.

Such processes must be replayed at the time of the breakthrough. The difference is that the language being forged is new not just for a single child but for the rest of humankind. The creator is in the throes of discovering this language, as a means of solving certain issues—often personal as well as discipline-based—and, perhaps, of illuminating others as well. The creator must be able to devise and understand the language well enough to use it and then gain sufficient mastery to communicate it to others (lest it be autistic). In so doing, the creator draws on earlier models of teaching a new language to an ignorant but willing pupil.

It would be bizarre and unnecessary to maintain that this form of communication represents any kind of a conscious replay of the mother-child dialogue, or of the kind of intimate conversations that take place in early life, for instance, between siblings, twins, or close friends. Yet, I find these analogies helpful in conveying the phenomenal flavor of this exchange. I would submit, further, that a creator who has not gone through an earlier effective communication process, such as the mother-child or nurse-infant...
dialogue or the conversation between close friends, would have difficulties
in effecting this most radical kind of adult communication. It is notable that
this support in adult life is related specifically to the creation of new
work—a replaying of an earlier situation in which elders rewarded a gifted
young child's achievements.

My claim, then, is that the time of creative breakthrough is highly
charged, both affectively and cognitively. Support is needed at this time,
more so than at any other time in life since early infancy. The kind of
communication that takes place is unique and uniquely important, bearing
closer resemblance to the introduction of a new language early in life, than
to the routine kinds of conversations between individuals who already share
the same language. The often inarticulate and still struggling conversation
also represents a way for the creator to test that he or she is still sane, still
understandable by a sympathetic member of the species.

The Faustian Bargain and a Creative Life

I have alluded in previous chapters to a Faustian bargain struck by each
creator. The Faust legend is but the best-known exemplar of a widely held
belief that creative individuals are special by virtue of their gift, and that they
must pay some kind of a price or adhere to some kind of an agreement to
sustain that gift. In a trivial sense, of course, this proposition has to be true:
one cannot remain an expert writer or performer unless one practices one's
craft regularly. In its more dramatic sense, however, this claim has the air of
fancy: after all, why should we think that a creator need be in communication,
or in cahoots, with a personal god or a private devil?

I was quite surprised to find that the creators, in order to maintain their
gifts, went through behaviors or practices of a fundamentally superstitious,
irrational, or compulsive nature. Usually, as a means of being able to con-
tinue work, the creator sacrificed normal relationships in the personal
sphere. The kind of bargain may vary, but the tenacity with which it is
maintained seems consistent. These arrangements are typically not de-
scribed as pacts with anyone, but at least to me, they resemble that kind of
semimagical, semimystical arrangement in the West we have come to asso-
ciate with Dr. Faustus and Mephistopheles. Equally, they have a religious
flavor, as if each creator had, so to speak, struck a deal with a personal god.

The only allusion I found to a deliberate experience of this sort was in
the biography of Picasso, the most overtly superstitious of the seven cre-
tors, regarding his sworn oath to stop painting if one of his sisters recovered
from a critical illness (indeed, a singular bargain). As noted in chapter 5,

Picasso elected to devote his life to painting when she died, and I argue that
Picasso took this commitment as a license to sacrifice not only himself but
others in the service of his painting; the bargain that had not been honored
gave rise to a "counterbargain" that sanctioned his otherwise outrageous
behavior toward so many other people over the course of his life.

The extreme asceticism associated with the lives of Freud, Gandhi,
and Eliot represent another variant of the bargain. Freud and Gandhi
both renounced sexual relations at a very young age and subjected them-
sements to many kinds of seemingly unnecessary (and perhaps unwise)
deprivations. In addition to being virtually celibate, Eliot endured a miser-
able marriage for many years, seemingly as part of the bargain that he had
forged to lead the poetic life. Revealingly, following his divorce, and es-
specially following his second marriage, he became much happier, but also
much less productive.

And what of the other figures? Graham did not renounce the pleasures of
the flesh, but she was wary of maintaining an intimate love relationship
for many years, denying herself not only a spouse but also children. She
seems to have been celibate once her marriage broke down. Stravinsky
seems not to have been notably ascetic or abstemious, but, like Picasso, he
retained a singularly cruel attitude toward other people—possibly, in his
mind, a necessary part of his creative personality. The fact that he wrote
legal documents on the very day that he completed Le sacre du printemps
underscores to me the close relationship that he discerned between the
committed innovator and the embattled litigant. (Cf. Picasso's reported
equation of Rape and Work). Of these seven figures, Einstein seems the
least likely to have made any kind of conscious or unconscious pact with
respect to his own creativity; yet he commented so often on his distance
from other individuals, and his inability to relate to them, as to suggest that
he viewed this disjunction from the human sphere as part of the price he had
to pay for being able to think originally about the physical world.

As with the many empirical issues just discussed, it would be an exag-
geration to maintain that either of my emerging themes constitutes a
prerequisite for a creative breakthrough. I have tried to introduce various
nuances while considering each creative figure. But I believe that the two
emerging themes do open a unique window into the experience of being
highly creative. If one feels in possession of (or possessed by) an enormous
talent, one may well feel that the talent comes with a price; and one may seek
to make that covenant as explicit and unmistakable as possible. By the
same token, when one is working at the edge of one's creative powers,
invasive territories never touched before, the need for help and support is
unprecedentedly great; at least in some ways, the best model for this is the
time, shortly after birth, when the caretaker helps the infant make initial
sense of a new world.

Remaining Questions

Even if this study is convincing in its major lines, it raises a host of ques-
tions. I will comment on five raised frequently by those who have become
familiar with my point of view.

• Did I select the right people? My original intention in this study was to
choose individuals representing each of the several intelligences. I then
decided to add the condition that the individuals must have lived in the
shadow of the twentieth century. By dealing with individuals who lived at
roughly the same time and were exposed to the same general international
currents, I could gain some control over at least one source of variation. At
the same time, I would have to restrict the emerging portrait of creativity to
its practice during a specific historical era.

Of course, within any domain, or set of domains, many individuals
could have been chosen. In addition to the significance of the figures I was
considering, my major criteria were individuals on whom considerable
information existed, and individuals to whose work I was personally at-
tracted. While I sympathize with those who might have preferred a cohort
with fewer white males or more non-Europeans, I hope that the study will
be judged on its power for explaining the work of these seven individuals,
rather than on the costs of not including subjects who represent other
populations.

• Did I select the proper domains? Again, the decision to deal with a
manageable number of domains meant that many areas had to go unsam-
ped. Dealing with a poet meant that I could not deal with a novelist; dealing
with a physicist left no room for a biologist, mathematician, chemist, or
astronomer; a focus on high art involved a neglect of popular art; and
neither inventors nor business people nor athletes have infiltrated my sam-
ple. Again, I hope that readers can focus on the insights gained from the
present analysis and, if so motivated, extend this study to other individuals,
other domains, or other populations. Only additional studies will reveal
whether the generalizations offered in this chapter can withstand extension
to domains, eras, or individuals that I failed to sample.

• Has my focus been too cognitive? Without question, a study of equal
length could have been carried out with an entirely different focus: a focus
on personality, on conscious or unconscious motivation, on social supports.
Similarly, instead of focusing on individuals, I could have focused on the
field, as a sociologist might have done, or on the domain, as a historian, a
philosopher of science, or a philosopher of art might have done. I focus on
the cognitive area both because it is the one that I know the best and because
I think it is the one that can currently provide the most illumination. At the
same time, I am well aware that the cognitive story is not the whole story;
I hope that I have at least construed the cognitive domain in a relatively
broad way, ultimately reaching to affect, religion, and spirituality. Even so,
determined cognitivists will note that I do not probe as deeply as I might
have into the specific mental processes used by the creators, nor do I
propose any model of information processing by the creative person.

• Have I really focused on creativity? While most readers will accept my
list of individuals as creative, some will balk at my criteria. For example,
acceptance by the field indicates to some that I am looking at popularity or
worldly success rather than sheer creativity. And many will point to indi-
viduals whom they consider to be at least as creative as the members of
the cohort I selected.

I do not insist on the notion of acceptance by the field because I believe
that creativity is a popularity contest, but rather because I know of no other
criterion that is reliable in the long run. The phrase “in the long run” is
critical here; probably at any historical moment during the first half of this
century, the individuals listed here would not have been considered the best
by the relevant fields. Certainly, the number of negative, and even outraged,
reviews of the works of Freud, Graham, or Stravinsky would give anyone
pause. But I believe that, with the passage of time, individuals of merit do
come to stand out; and I underscore my belief that there is such a thing as
merit within a domain. Of course, this by no means denies the existence of
many other meritorious individuals who happen to have been missed by the
field. It is just that we have not even heard of these people, or, if we have,
we do not (at least yet) quite know what to make of them.

• To what extent are the results of this study limited to the modern era?
Having deliberately selected individuals who are roughly contemporaneous,
I am not in a position to say whether my findings about creativity would
apply to another time. My own guess is that certain findings are time-
bound, while others would have occurred whether I was looking at ancient
Athens, Renaissance Italy, France in the Enlightenment, or China in the
T'ang dynasty. However, it is clear to me that other factors, such as the
nearly instant availability of information about one's own domain and about
events in the world, color the picture I have presented. Moreover, I think
that the variety of creativity on which I have focused, with its radical, revolutionary, breakthroughs, is characteristic of our own era in the West, rather than a generic property of all creativities in all societies. Whether the picture that I have presented, in turn, helps us understand the nature of the era and the culture in which we do live is a question to which I turn in the Epilogue.

Epilogue:  
The Modern Era and Beyond

In characterizing an era with a specific label—indeed, in defining an era altogether—one runs the risk of making a claim that cannot be substantiated. It is perhaps least contentious simply to sort on the basis of numerical units, contrasting the seventeenth century with the eighteenth or, perhaps in Time magazine fashion, treating each decade of the century as a separate entity. However, purely chronological division has its costs. In drawing an arbitrary line at 1800, for example, one may ignore political watersheds like 1776 or 1789 or 1815, each of which seems far more important for the understanding of historical trends. And one misses the opportunity to define epochs in meaningful terms—for example, the period from 1815 to 1914 (a period of relative peace on the European continent) or the period of 1914 to 1989 (the two world wars and the cold war).

The Problem

In writing of the modern era, I am clearly transcending a purely chronological metric and averting a political delineation of eras. The term modern era is put forth in the same spirit as one might speak of the Renaissance, the Reformation, the Enlightenment, or the romantic era. And just as each of these refers, roughly, to the centuries following 1500, the term modern era is designed to refer to the personalities, events, and, above all, the ideas that have dominated the twentieth century in the West. At the same time, I intend no slavish adherence to the span 1900 to 2000. At least two of these seven modern masters, Freud and Gandhi, accomplished considerable work before 1900; and the last of the surviving titans, Graham, died in 1991.