

What Makes Caltech Tick?

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Whether we want it or not, we are a family involved in intellectual and personal development for all our members

Social psychologists want to know how people interact with other people in a society, and to that end they spend a good deal of time observing people in small groups. People, they say, are shaped and influenced by each other.

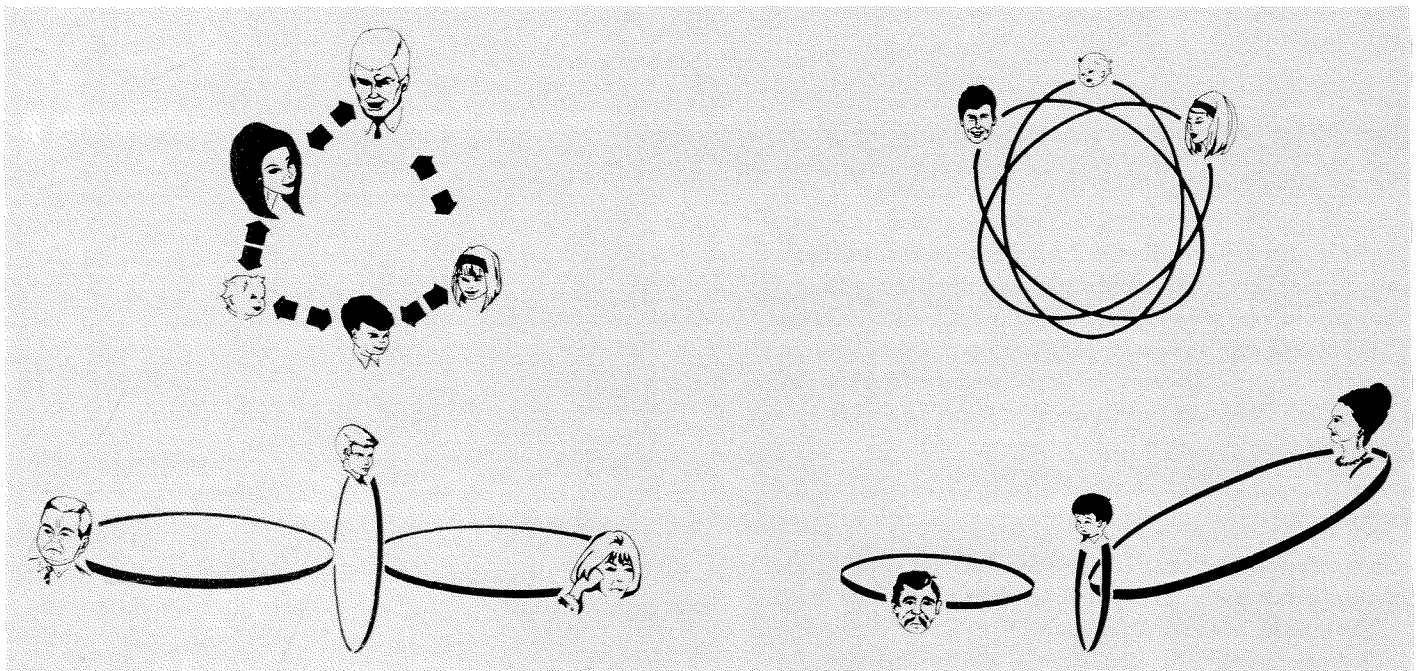
The social psychologists express the view that the family, which is the most important social influence on the child, can be considered as a special case of a small group. With this in mind, I would like to attempt to analyze a larger group—our own Caltech family—as if it were a constellation of fond relations like the family groups with which we are all familiar.

First of all, when people come together in small groups, the group begins to evolve a unique personality of its own

that is apart from the personalities of its individual members. The group acquires an image, a separate set of traits which are perceived by people outside the group.

The second characteristic of small groups is that they tend spontaneously to develop leadership and a power structure. Leadership is usually divided between a task leader who serves to guide the group toward its goals and a social-emotional leader who facilitates goal attainment by serving the emotional needs of the group.

In normal families, it is believed, father assumes task leadership while mother, as the social-emotional leader, salves wounded feelings and keeps communication lines open. I personally believe that both leadership roles are



In the traditional hierarchical family (top), day-to-day interactions flow down from parents to child and upward from child to parents. Parents also interact with each other, though not always equally. But normal families may often be more accurately represented as the nucleus of an atom, with mother, father, and children as separate entities whose orbits interlock to form the nuclear family (top

right). Pathological family systems may be "schismatic" (lower left), in which mother and father endlessly struggle for power, trapping their children on the battlefield between them. Or they may be "skewed" (lower right), with one parent assuming all the power, reducing the other to an impotent satellite, and developing an overwhelming relationship with the children.

increasingly shared by both parents, but whatever the pattern, power structures in normal families are well defined.

In pathological families, this is not the case. Sources and bases of power are ill defined; leadership is either reversed or blurred. Two types of pathological family systems, termed "schism" and "skew," are considered by psychologists Theodore Lidz and Stephen Fleck to be prime examples of families likely to produce a schizophrenic child.

A third characteristic of small groups is that they are dynamic and not static. Relations, roles, power, and leadership are defined, but flexible enough to change at crucial periods in the group's development and as situational pressures demand.

A fourth characteristic of small groups that may be applied to families is that they are constantly interacting and communicating in various ways, both verbal and non-verbal. By communication, groups know each other's perceptions, ideas, feelings, and attitudes; and group members learn of the expectations and sanctions of leaders. Some small groups communicate clearly and effectively, while others do not—and so it is with families.

Fifth, small groups develop rules and norms that govern the members' behavior. Clear communication is crucial here, since for optimal group functioning each member must be aware of rules so that he may then conform (or deviate) with the full knowledge of the consequences of his behavior.

Lastly, groups and healthy families develop cohesiveness. If all other factors operate positively, the normal family creates a kind of emotional glue that holds it together. This affectionate cement is missing in disturbed families. A disturbed family seeking aid usually asks the clinician to "fix" its most overtly troubled member. But the therapist, knowing that the "problem" member of the family is simply the one who is screaming for help, tries to assess the entire family, and with luck and not a little tact may convince the family that the whole system needs an overhaul. Only that will eventually fix the troubled family member.

I have not been asked to intervene in the Caltech family, and there is no identified patient in our group. Nevertheless, any system can stand an assessment and minor overhaul, and with a little humor and some objectivity we can expand our view of the family to include an entire scientific community.

I shall assume that the children of our Caltech family are its graduate and undergraduate students—all hard-working siblings in the scientific disciplines. The parents are, of course, the faculty, administration, and staff. Depending on their relative ages, they serve as mothers, fathers,

grandparents, aunts, and uncles, but in general as authorities when it comes to the conduct and development of the student/children.

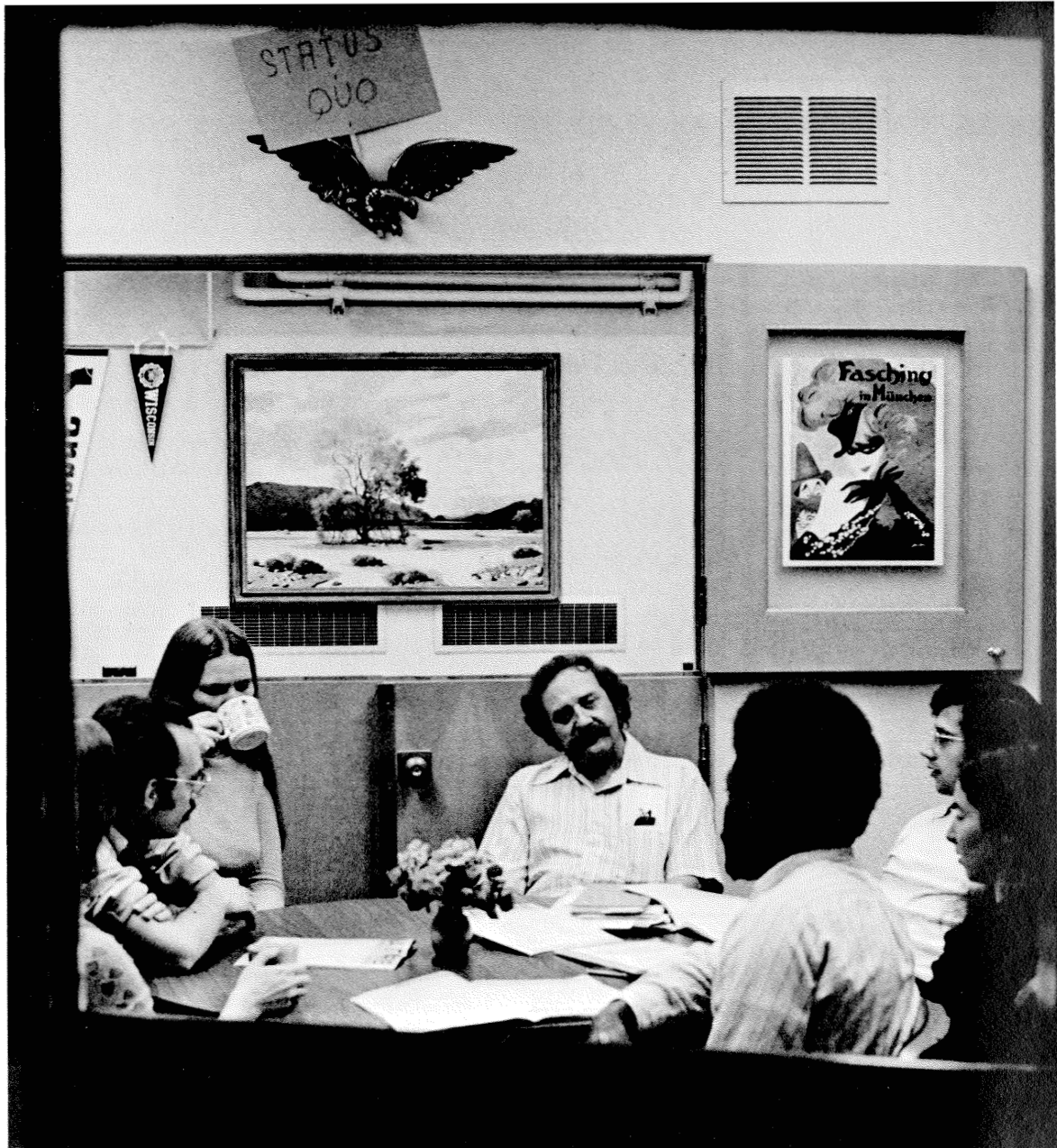
How can we assess the functioning of this family? How can we understand some of its behavior? Is it a healthy family, or does it fit into clinical categories that could be called disturbed? To answer these questions, we return to the six characteristic factors of family functioning.

First, unique personality. The unique personality of the Caltech family is a powerful image indeed to those who perceive it. It is seen as a highly prestigious group of the intellectually elite. To quote from the Caltech catalog: "Caltech . . . in the words of a senior Dutch astrophysicist, may well have become the center for scientific excellence in the entire world." That's quite a reputation, but most students will tell you it's no help in getting a date. In fact, though the Caltech family image may be considered a polar opposite to that of the Jukes and the



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Kallikaks, it is not necessarily any more attractive. To many outsiders, a group of people who appear so far above them intellectually, and therefore so different from the normal, may also appear to be frightening and downright weird. Thus, the children of our Caltech family, the students, find themselves carrying a label which may not fit but is maddeningly difficult to dispel.

Being the most intelligent student group in the United States may be gratifying, but it can also be very lonely. What is more, this status carries with it two potentially damaging demands. First, if one attains the intellectual heights of the upper 1 percent of the nation in math and physics, there is terrific pressure to stay there. If you're that bright, how can you ever take a chance on doing anything dumb? Second, if you are consistently labeled different and possibly weird, you come to believe it. So some Caltech children, either before they join the family

or afterward, start to believe their publicity and think of themselves as apart from the human race.

Our faculty/parents are not immune to these effects. They too are embraced by the elite, egghead, weird family image. They share the pressure to constantly display their intellectual prowess without making human errors. And they too are affected by the label that classifies them as something only slightly less than gods.

We have, then, a family trapped in its glorified but potentially damaging public image. As the children of psychotics are expected to be crazy and the offspring of alcoholics are expected to drink to excess, the Caltech family (parents and children) are expected to be weird.

People, we often notice, live out the expectations thrust upon them by society, and because much of human behavior is learned, images tend to perpetuate themselves.



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The children of the Caltech family pull pranks and indulge in extracurricular activities not seen on other campuses because that's tradition and because it fits the image. Some of the more bizarre carryings-on are ways to relieve the pressure of constant academic success and of living up to the Caltech family image.

How does our second factor—leadership and power structure—apply to the Caltech family? Are the bases of parental power in this family clear? Is leadership well defined or do we fit into the fuzzy power muddle of the disturbed family? If the latter is true, are we skewed or schismatic? I take the view that, despite attempts to achieve and maintain a clear-cut democratic power structure, we lean toward skewed family power.

To give credit where it is due, it is true that Caltech probably succeeds better than many other institutions in its attempt to approximate a model of democratic family functioning. Because we are a relatively small academic family, students can be and often are included in decisions that affect the entire family. Student leaders are included in major committees concerned with both academic and administrative policies. Perhaps that accounts for the fact that their behavior does not include phenomena like riots and demonstrations.

But I suggest that there is a skewed relationship between task leadership and social-emotional leadership in our Caltech family—a case of too many fathers and not enough mothers, literally and figuratively.

Task leadership at Caltech is well (if not quite correctly) defined. The leaders are the faculty, and the task is a simple one: Prepare yourself for a brilliant career in science. Win the Nobel Prize. While this task is not by any means delineated by all of the faculty, I think it is initially accepted by the majority of the students.

Social-emotional growth is far less clearly defined and, too often, less stressed than is the task of scientific excellence. Thus, the social-emotional leaders of the community—encompassing many faculty members—are less evident to our student/children and perhaps less sought out by them, except for those faculty members who take pains to be visible.

Third, is Caltech a dynamic, healthy family or a static, disturbed system? How willing and able is the Caltech family to change as the developmental demands of its children change? Here we come to what I call the parent/teacher syndrome. Simply put, it amounts to this: Just as parents resist smart-mouth kids, teachers resist (and resent) the students who appear to be brighter than they. The rule is, "I expect you to advance, but don't go farther than I have gone and, above all, don't depart too far from my methods and my ideas."

The full development of the child requires allowing him increasing amounts of autonomy, and the intellectual and emotional growth of the student requires the same. We can build in such autonomy through Independent Studies

programs and the like, and this Caltech has done. But the real contribution to student development must come more subtly and more directly from the parent/professor who must support, even encourage his students to challenge him, to depart from his knowledge into realms of their own. This requires a real involvement with students, a keen interest in novel ideas and approaches, and a concerned devotion to teaching. Above all, it requires flexibility and a willingness to change both the systems and one's self. Like all institutions, we can use more of such flexibility to insure that we remain a healthy, dynamic family system and avoid the resistance to change that produces a withdrawn, noncreative scholar:

Perhaps this is the appropriate place to insert a plea for parent-understanding. Our society provides classes and degrees and certificates in almost every field of learning. But to my knowledge, no one ever teaches anyone to be a parent. Similarly, the college professor is seldom taught to teach. The PhD must know his discipline thoroughly, but he does not necessarily have to learn any method to impart it to others. Like bewildered parents who stumble on by instinct and the dubious example set by their parents, college professors stumble on in classrooms guided only by their instincts and the example of their own venerated professors. Often the instincts are bad and the example is worse in both cases. Perhaps there should be "professor-effectiveness training." It might even be student funded—a sort of counterattack from students who would provide grants to maintain teaching excellence that would compete with grants that maintain research.

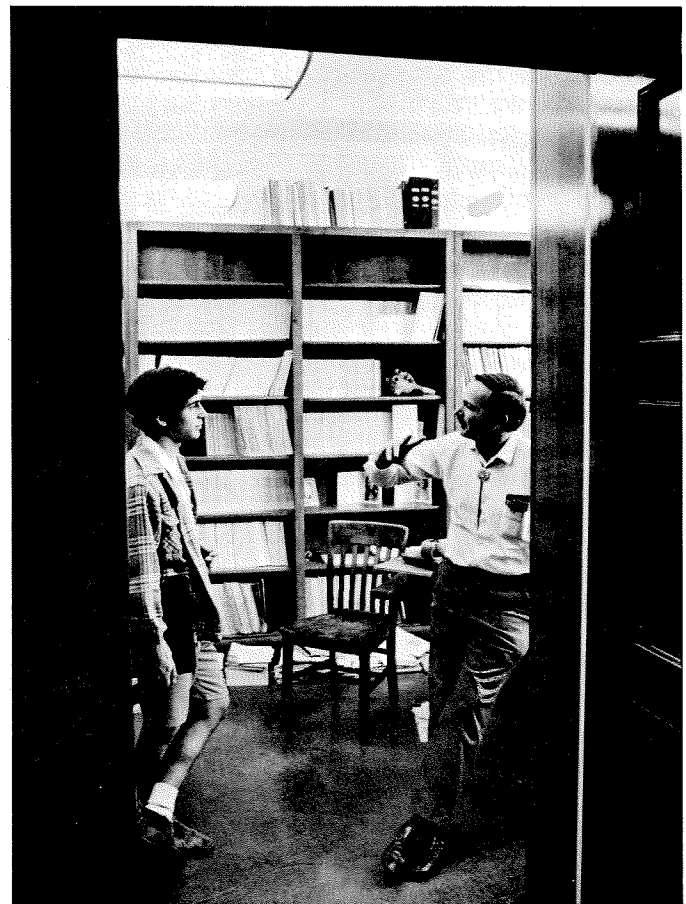
Fourth, what about Caltech's communications as a family? Are all lines open? Can all messages be understood? Theoretically there are no barriers to communication at Caltech, but practically we sometimes suffer the stalemate seen in troubled families where children and parents have stopped talking to each other. And, as in troubled families, this state of affairs results in misperceptions of motivation and feeling, frustration, and even anger.

I hear faculty members comment that students seldom come to see them even though they have advertised widely that their doors are open. Students tell me of working up their courage to approach some of our more renowned faculty members, only to retreat at the professor's doorstep. Or they make it into the office to find the faculty member absent or preoccupied. It seems to me that we ought to be talking more, but the responsibility lies with both parents and children in this community. You know, a great deal of communication is nonverbal—tone of voice, facial expression, and gesture convey a lot of emotional meaning. When a student falls asleep in my class or gets up and walks out, I know I've turned him off. But without more direct, honest communication, I probably don't know how I've done it. Sometimes students act like what clinicians call "passive-aggressive children"—

you know, the kid who just forgets to take out the garbage three days in a row because he's hurt and angry about something you said at dinner last Sunday night.

I'd like my students to be more assertive about the things I do wrong in class and elsewhere; I'd like more interest in teaching evaluation; and I know other faculty members who would appreciate this candid approach also. But this must be multiple interaction. Parental figures in the Caltech family have to be openly supportive of open communication. Most of us on the faculty ought perhaps to take more time to track down our passive-aggressive students and say: "Listen, what did I say or do that you're not taking out the garbage?" Or in some cases: "What did I do that you're giving me all that garbage?" Then we might be able to talk to each other in the intimate way healthy families should.

In the area of rules and norms for acceptable behavior, the Caltech family is a behavior therapist's dream. Rules for ethical conduct are clearly defined, and sanctions are openly stated and fairly applied. Caltech's unique honor system operates to protect the rights of all family members and provides peer control of family behavior. Reinforce-



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ment for conforming comes from the satisfaction of being an accepted member of the group and contributing to a successfully functioning honor system. Deviation is handled by the student Board of Control, an organization whose members have a formidable responsibility.

But there are implied rules and norms that are linked to the elite image of the Caltech family and that are less overtly defined. There are unwritten rules of diligence, a subtle pressure to work 16 to 20 hours a day. It is not unusual for a Caltech student to stay up three or four days in a row, totally without sleep, to finish assignments. I can't imagine a parent who would allow his children to do that.

There are also implied and sometimes openly stated rules of dedication: "Thou shalt not let thy thoughts stray to the arts or humanities too often, or, God forbid, to social science." The Caltech family norm is devotion to the physical sciences. Like the under-achieving child of college-graduate parents who is made to feel like a failure, Caltech students who opt for an English major or transfer to Berkeley to study psychology are often made to feel that they couldn't make it in science. The Caltech family in this way makes it difficult for its children to make their own choices.

As for cohesiveness—Caltech is a cohesive family. Much of our closeness comes from genuine affection between family members, but some of it is a reaction to the society outside, to the "real world," as students call it. As we have said, Caltech is a family isolated by its excellence from the families outside its own home and yard. Its children often retreat within its boundaries (just as many of them did in their own nuclear families) with a sense of relief that here they can find others like themselves. To the extent that our home becomes one in which to hide from the real world, it inhibits personal explorations in that world, and our cohesiveness inhibits personal growth.

How does it all add up? Are we a schizophrenogenic family—a pathological slice of society driving its members into psychosis? Or are we a healthy family providing our children with optimal opportunity for growth? I think we are somewhere in between—a family with a lot of strengths that is not living up to its potential. A family that is too wedded to its image, too task-oriented, too often rigid, and too often closed in communication between members.

I do not think the comparison between a university and a family is a convenient but empty metaphor. Like most colleges and universities, we say that we do not serve in loco parentis, that we expect students (and faculty) to be functioning adults. But I think we are kidding ourselves. Whether we want it or not, we are a family involved in intellectual and personal development for all our members. You know, we college parents are very lucky. What would happen to us if those eager frosh and first-year graduate

students stopped appearing every September? How comfortable would we be if we didn't have students to do the little household chores (like carrying out our research), or how self-satisfied would we feel if we couldn't see them graduate and feel proud of their accomplishments.

It seems to me we owe it to them and to ourselves to be good parents—as all parents strive to be—to work at all areas of family functioning to make the developmental path from freshmen to colleagues as fruitful as possible. To do this we Caltech parental figures must be aware of our rigidities and attempt to be more flexible, we must be human to our students, our colleagues, and the community. We must maintain our excellence while increasing our humanity. We must support, encourage, and reward our children while simultaneously giving them the autonomy and freedom to outthink us and outreach us. We must allow them, even push them, to deviate from our values and to think for themselves even if that means thinking differently from ourselves. We must talk to them and listen to them. And we must extend ourselves and relate to the community around us so that we and they can be seen as real people in the real world.

We must realize that when we have problems with them or when they have problems with us, it is a family problem, and there is no target child whose behavior must be "fixed." We can then continue to be proud of our children and they of us. They might bring the grandchildren to visit. Maybe they will even support us in our old age. We may need it. □

