

ually weaving a picture of the external world, tearing down and reweaving, inventing other worlds, creating a miniature universe. The communal mind of literate societies—world culture—is an immense-ly larger room. Through science it has gained the power to map external reality far beyond the reach of a single mind, and through the arts the means to construct narratives, images, and rhythms immeasurably more diverse than the products of any solitary genius. The boom is the same for both enterprises, for science and for the arts, and there is a general expansion of its origin and nature and hence of the human condition, proceeding from the deep history of genetic evolution to modern culture. Consilience of causal explanation is the means by which the single mind can leave most swiftly and surely from one part of the communal mind to the other.

In education: the search for consilience is the way to renew the crumbling structure of the liberal arts. During the past thirty years the ideal of the unity of learning, which the Renaissance and Enlightenment bequeathed us, has been largely abandoned. With rare exceptions American universities and colleges have dissolved their curriculum into a stew of minor disciplines and specialized courses. While the average number of undergraduate courses per institution doubled, the percentage of mandatory courses in general education dropped by more than half. Science was sequestered in the same period; as I write, in 1997, only a third of universities and colleges require students to take at least one course in the natural sciences. The trend cannot be reversed by force-feeding students with some-of-thus-and-some-of-that across the branches of learning. Win or lose, true reform will aim at the consilience of science with the social sciences and humanities in scholarship and teaching. Every college student should be able to answer the following question: What is the relation between science and the humanities, and how is it important for human welfare?

Every public intellectual and political leader should be able to answer that question as well. Already half the legislation coming before the United States Congress contains important scientific and technological components. Most of the issues that vex humanity daily—ethnic conflict, arms escalation, overpopulation, abortion, environment, endemic poverty, to cite several most persistently before us—cannot be solved without integrating knowledge from the natural sciences with that of the social sciences and humanities. Only fluency across the

IF THE WORLD really works in a way so as to encourage the consilience of knowledge, I believe the enterprises of culture will eventually fall out into science, by which I mean the natural sciences, and the humanities, particularly the creative arts. These domains will be the two great branches of learning in the twenty-first century. The social sciences will continue to split within each of its disciplines, a process already rancorously begun, with one part folding into or becoming continuous with biology; the other fusing with the humanities. Its disciplines will continue to exist but in radically altered form. In the process the humanities, ranging from philosophy and history to moral reasoning, comparative religion, and interpretation of the arts, will draw closer to the sciences and partly fuse with them. Of these several subjects I will say more in later chapters.

I admit that the conference of natural scientists often seems overweening. Science offers the boldest metaphysics of the age. It is a thoroughly human construct, driven by the fact that if we dream, press to discover, explain, and dream again, thereby plunging repeatedly into new terrain, the world will somehow come clearer and we will grasp the true strangeness of the universe. And the strangeness will all prove to be connected and make sense.

In his 1941 classic *Man on His Nature*, the British neurobiologist Charles Sherrington spoke of the brain as an enchanted loom, perpet-

boundaries will provide a clear view of the world as it really is, not as seen through the lens of ideologies and religious dogmas or commanded by utopic response to immediate need. Yet the vast majority of our political leaders are trained exclusively in the social sciences and humanities, and have little or no knowledge of the natural sciences. The same is true of the public intellectuals, the columnists, the media interrogators, and think-tank gurus. The best of their analyses are careful and responsible, and sometimes correct, but the substantive base of their wisdom is fragmented and ipsided.

A balanced perspective cannot be acquired by studying disciplines in pieces but through pursuit of the consilience among them. Such unification will come hard. But I think it is inevitable. Intellectually it rings true, and it grates unmissably that rise from the attainable side of human nature. To the extent that the gaps between the great branches of learning can be narrowed, diversity and depth of knowledge will increase. They will do so because of, not despite, the underlying cohesion achieved. The enterprise is important for yet another reason: It gives ultimate purpose to intellect. It promises that order, not chaos, lies beyond the horizon. I think it inevitable that we will accept the adventure, go there, and find out.