

## Preface

In February 1978, in the middle of a blizzard which brought the City of Providence to a standstill for more than a week, I managed somehow to get to the train station and thence to New York. The purpose of the trip was to attend a revival of Massenet's "Thaïs" by the Metropolitan Opera Company, but I took the opportunity to visit the offices of The Scientific American and to renew my acquaintance with Gerard Piel and Dennis Flanagan, publisher and editor of that magazine, for whom I had once done some work. In the course of our conversation, I was invited to do an article for them and I suggested "What Are the Dreams of Mathematics?", a topic I had been mulling about for some years.

Mr. Flanagan replied that it sounded pretty good to him and that he supposed that by 'dreams' I meant the goals of individual practitioners. I replied that I did not. Nor did I mean nocturnal dreams and their influence upon daylight thought and activity: Kekulé's ring of carbon atoms, for example. What I meant by dreams were the timeless, almost mythic drives which have resulted in the creation of characteristic expressions of human intelligence.

Does this sound pompous? Does it sound vacuous? Well, I supposed it ran that risk, but I thought it worth a try.

As I worked up my material, my mind, operating in typical mathematical fashion, began to generalize, and I wondered what the answers might be in other areas. I would write to friends and ask them: What are the dreams of law? What are the dreams of poetry? The important thing would be to distinguish, if at all possible, between dreams and goals. Goals are rather easily understood. Thus, to cure a certain disease or to find abundant supplies of energy appear as goals of medicine and technology in the late 1970's. The understanding of elementary particles is a goal of physics. But when a mathematician sits down to crack a problem, he doesn't often think he is creating a universal language, nor does a lawyer, when he handles a case, have the image of justice constantly in front of him. Nonetheless, the absence of these two tendencies would put both the mathematician and the lawyer out of business immediately. I don't think it profitable to push the definition too far.

As the first letters came in, I was intrigued by the dreams that were put forth--particularly in fields remote from my own--and this encouraged me to write to still more friends.

What also became clear were the sharp distinctions in the answers received from people in the sciences and the people with social or artistic concerns and, in order to see these distinctions with more clarity, I wrote to still more friends. The points of conflict became clear and, at the same time, the thought that the political antagonisms of the 1970's might affect the color of the map for fifty years or one hundred years, but the division of the world into two hostile intellectual cultures might affect the map of human thought for five hundred or one thousand years.

I liked to think that mathematics, my own field, with its feet planted in the world of experience and its head flying in the clouds of abstract thought was uniquely positioned to serve as a moderator between the claims of science and the claims of society.

When one goes from intellectual disciplines to social organizations, from professions to countries, who shall be spokesman and tell us what the dreams are? One suspects that one of the deep dreams of the United States is not to be found in the enunciation of high minded principles but rather in a kind of independent and restless nomadism, a desire to zip at random and at high speed over this beautiful land. Did not Alfred North Whitehead contrast the line of Whitman,

The wide unconscious scenery of my land  
with that of Shakespeare,

. . . this little world  
This precious stone set in a silver sea ?

And did not Red Skelton once say that all the material things that he treasured would fit into an overnight bag in an upper berth?

It is hoped that the readers will find directions and food for thought in the unadorned answers which now follow.