lying down. If one looks at an evenly rounded hillock at a little distance, the horizontal convexity is evident when one's head is upright, and the vertical convexity shows itself when one lies down or holds the head sideways.

I have not exhausted the subject, but perhaps I have said enough to suggest to some readers a source of interesting and amusing personal experimentation.

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THE OBLIGATION OF THE UNIVERSITIES

THE universities have, from all accounts, responded quickly and with a whole heart to the demands made upon them by the defense effort. In so doing they appear to have forgotten or to have disregarded their primary obligation to the community, as trustees of future leadership. With few exceptions, they have failed to insist upon deferment from military service of their graduate personnel, save in so far as such deferments are directly applicable to military defense. As a result, the personnel of those curricula from which immediate assistance is not needed is becoming seriously depleted. Many students of promise have been called into military service; others are shortly to be called; still others are transferring to departments in which deferment is likely to be had because of technological needs. The preservation of scientific research apart from its technological applications has seemingly received scant consideration. It is incumbent upon the universities to insist that this process of disintegration be halted before their primary function in the state is impaired, as it must be if deferment is not granted to promising candidates who would be expected presently to assume leadership and themselves direct the course of science.

We are faced with an emergency in more than a military sense. It is no longer a question of a year's service in a civilian peace-time army. It is now a question of the balance which must be struck between the various activities of the community as they affect our survival as a free people. It is a question of the intelligent direction and employment of human resources to achieve not only the military decision which we must achieve, but the utilization of it when the military effort is no longer needed. It is, I am convinced, now a question of the survival of science itself.

Science is an integrated whole. It is not physics and biology and chemistry. It transcends these disciplines and many more. It is a view of life and human effort based upon a continuous body of information which is being and must be constantly augmented. Its essence is the essence of democracy: of the free inquiry of individuals and the worth of individual judgments which are based upon observed and demonstrable fact. It is the very brain and nerve-center of our American civilization. Its antithesis is authoritarian dogma. It is a fragile fabric which depends upon warm human contacts from generation to generation. It can not be embalmed in printed words which later generations can discover in some tomb. It is a process, living and continuous, which rests not alone upon the research of a given master but upon the continued sharing of his experience and skills with the apprentice.

We are engaged in a struggle which is to determine whether our way of life and the scientific approach which is its base shall survive. The military effort is the present aspect of this struggle. In the long run it is not the decisive one. It can do no more than secure the ground over which a future more rational advance can be made. But it, no less than the non-military activities of the community, is finally dependent upon the resources and authority of science. Should army service be permitted seriously to deplete the oncoming personnel of science, particularly those to whom the universities and the community must look for leadership, its legitimate and mandatory activities will disappear and technology will wither at its source. We shall face the far-reaching consequences of a lost generation of leaders. The last war was won by a generation which was lost, and with their loss was lost the peace of Europe which it was their tragic responsibility to organize. To disorganize scientific research now is to place in jeopardy the military victory, to handicap it is to handicap the whole struggle for the community, both in prosecuting the war and in procuring the peace.

The community has invested heavily of its time and wealth in these young men in order to fit them for leadership in highly specialized and vital callings which few are equipped to undertake. I can not believe that the best interests of the community are to be served by deflecting exceptional students from the course upon which they have been set in order to make a transitory contribution which in many cases can be done more effectively by others of different temperament. Their specific knowledge and skills, continually augmented, may be of immediate and practical use in ways as yet unseen. The utility of scientific information is unpredictable. The curtailment of their training over any extended period will mean far more than the cessation of activities to be picked up again at the same point; a positive loss will inevitably have been incurred which it may be psychologically impossible to regain. The future effect of such loss upon both civil and military needs is incalculable.

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