

that the supersonic transport *will be* and therefore acceptance of such a device is "realistic," and he will "... minimize the effect. . ."

Do humans have a choice or not? Why and/or why not should supersonic transports be built? Are there cogent *human* reasons why *any* sonic disturbance from civilian aircraft need ever be tolerated? Aircraft manufacturers, NASA and others take it for granted that this will come to pass, and therefore it is "realistic." Perhaps they are correct.

But where do the criteria of physics, as now practiced, include *any* reference to the *human* condition, that many humans *object* to things that "can startle people and shake buildings?" Does physics have a formula as to how big a minority must be to be protected? Does physics offer any proof that it is *desirable* for some people to startle others?

J. B. HATCHER
Minneapolis

Rights of society

The article by Harvey H. Hubbard on sonic booms is interesting. However, I do have reservations about his last paragraph, which is so typical of our attitude toward undesirable man-made environmental changes that I would like to restate it (*italics mine*):

"Because booms can startle people and shake buildings and their contents, there is serious concern for public acceptance of the sonic boom. As a result, supersonic transport will be limited initially to overwater operations. There are those who would ban the supersonic transport altogether, and a society for this purpose has been formed. Others are taking a more *realistic* approach. Consideration is being given to the development of advanced-design aircraft that would minimize the effects of sonic booms. Backup research is *already* under way."

What is so unrealistic about banning the supersonic transport altogether? Aren't supersonic transports made by human beings to serve other human beings and doesn't society have the right to decide whether it is desirable to have supersonic transports?

And what is so laudable about backup research on sonic booms being "already" under way? I, personally, am looking forward to supersonic travel.

However, I would want to insist not only that backup research continue, but that the problem of sonic booms be solved in a socially-acceptable manner before transports are allowed to cross the continents. In fact, I think society has every right to insist that standards for acceptability be developed and framed into legislation before that day.

MARTIN O. STERN
La Jolla, California

SST as pollution

Harvey H. Hubbard comments, "There are those who would ban the supersonic transport altogether . . . Others are taking a more realistic approach." To me, the SST falls in much the same category as pollution: It has the same effect of demeaning the level of life for large masses of the earth's inhabitants. The only reason for its existence is the profit of a very small minority, or perhaps the national prestige. But I am not convinced that either one is worth the cumulative price that will have to be paid by society, and until I am, I must disagree with Hubbard and claim that stopping development of the SST (at least with government funding) is the only realistic approach.

JAMES B. CONKLIN JR
University of Florida

THE AUTHOR REPLIES: Bailey Smith cites a federal court case in which he was awarded \$10 000 for sonic-boom damage and implies that the government made full payment. I have been informed by knowledgeable people that the government has made no cash settlement in this case.

References are made to sonic-boom-induced structural damage, and it is a matter of record that sizeable awards have been made to property owners for alleged damage. Paid damage claims, however, do not constitute scientific evidence of damage. In retrospect it is realized that many of these claims were paid without proper validation. It is also the considered opinion of many reputable engineers that in cases where damage was observed coincident with the occurrence of a boom, the latter was only an extremely small contributing factor.

John H. Wiggins Jr in the June 1967 issue of *Materials and Standards* cites evidence that boom-caused cracking in houses is below the "noise level" generated by natural causes until the nominal overpressures exceed about 10 pounds per square foot. He indicates,

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