

sonic constructor to the administration with a decision that funds should be committed to the construction of a supersonic civil aircraft. For one thing, of course, this is a bad year for raising money, so that a decent show of diffidence in asking Congress for large sums of money is prudent as well as seemly. And in any case—a more practical consideration—there is \$200 million left in the kitty from last year, which should keep the design teams at Boeing employed for a month or two yet. Certainly there are enough problems to keep them busy, for all the consequences of the substantial modification of the design halfway through 1966 have not yet been fully worked out. As much as a year may be needed before all the details are tidied up. The President may have picked his gladiator, but there is no need to give him marching orders for a month or two.

A breathing space, however short, may help partially to resolve some of the problems which still haunt the supersonic projects now going forward in Europe and the United States. The strictly technical problems are probably the least worrying, which is not to imply that they are anything but formidable. The Boeing version of the supersonic transport is particularly ambitious. At take-off, lift enough for 300 tons or so of titanium and aviation fuel, with human appendages, will have to be transmitted through two wing hinges which must nevertheless perform so accurately that they do not become lop-sided in movement and turn the aircraft upside down. But, if the engineering will be difficult, it will also be fun. On strictly technical grounds, it is better that the Boeing design should have been chosen in preference to the more conventional solution proposed by Lockheed.

But getting off the ground will be easier than winning the right to do so regularly. Supersonic flight could easily turn out to be an intolerable public nuisance, with the result that operations of certain kinds are entirely forbidden. Even if supersonic flights over land areas are allowed, however, they are bound to be hedged around with restrictions more severe than those which at present keep the operators of subsonic jet aircraft lying awake at nights. Sometimes it may be necessary to build new airfields for supersonic aircraft, which will also help to tip the economic balance against them. But all this implies that all the supersonic projects, European and American, are gambles of a kind.

The simple commercial uncertainties of supersonic transport aircraft are even more daunting, and not merely because it is hard to see that the development programmes will pay for themselves. In Europe, indeed, the British and French Governments have apparently now abandoned hope that sales of Concord aircraft will recover more than a nominal part of the £500 million to be spent on development. In the United States, no doubt, one of the issues to be hammered out in the next few months is that of how the administration and the Boeing company should share the risks and the putative profits of the programme that lies ahead. The most obvious difficulty on this score is that of knowing what the fare-paying demand for seats in supersonic aircraft will be. The Boeing

company may be right in its cheerful estimate that the demand for air transport will turn out to have doubled in the last half of the present decade, and there is every reason to expect that the rapid growth of air transport in the last two decades will continue for at least as long again, but that does not necessarily mean that people will pay the extra costs of travelling supersonically. Ironically, the Boeing company itself has chosen to invest an unprecedented amount of private capital in the construction of a line of jet aircraft capable of flying faster than any now in service and with twice as many passengers. As yet, it is too soon to know which of these will emerge as the more successful.

## NATURE BY AIR

BEGINNING with this issue of *Nature*, most subscribers to this journal in North America will be supplied each week with a copy which has been flown across the Atlantic by air freight and then distributed from New York by surface mail. The result will be that the journal should reach subscribers in the United States and Canada very soon after publication in London. Many subscribers in the United States will find that the journal reaches them on the date printed on the front cover—a circumstance which owes something to the near identity of the transatlantic time difference and the time taken for a jet aircraft to make the journey.

It is appropriate that there should be some kind of symmetry between the two sides of the Atlantic, for the numbers of copies distributed in the United States and the United Kingdom are approximately the same. (With Canada counted in, the centre of gravity lies somewhat to the West of mid-Atlantic.) But there are more cogent reasons why the delay in shipping the journal across the Atlantic by sea should have become intolerable. The increasing pace of change in science, and the urgency of a good many scientific communications, would be in themselves sufficient reason why copies of a weekly journal should not at the beginning of their useful life be incarcerated for two weeks or more in the hold of a ship. But periodicals of all kinds are more than mere providers of information. They serve also to give those who read them something which can properly be called a sense of community. (Readers know that at the least they have what they read in common.) But those who see their periodicals late tend to feel excluded from an experience which others have enjoyed. This, certainly, is why out of date newspapers are so hard to read. *Nature* seeks to provide the whole profession of science with a continuing and informed discussion of events as well as with a record of discovery, and therefore has a particular responsibility to be easily and quickly accessible. Sending it by air across the Atlantic is one of several steps which have been taken in the last century, and which will be taken in the next, to make it of greater service to those who read it.