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"No casualties": the words that
every user and operator of safety
and survive/ equipment hopes to
hear. In this case—the Japan Air
Lines DC-8-62 which hit shallow
water in San Francisco Bay three
miles short of the airport main
runway last November—there were
96 passengers and 11 crew on board

SAFELY THUS By GEOFFREY SCOTT
A "Flight" special feature on airborne safety and survival equipment

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URING THE TEN YEARS ended December 31, 1968, more
than 11,000 people died as a result of nearly 1,000 air
transport accidents, not counting those which occurred
in the Soviet Union and the Chinese People's Republic. Over
the same period, at least 70 civil aircraft crashed into water with the loss of over 2,000 lives; and some 3,300 people did not survive the 520-odd air transport accidents on land or water that could be classified as survivable.
When I started to prepare this guide, I was inclined to the view that air safety departments and airline managements were influenced too strongly by economic and other con-siderations in their attitudes towards survivability. Now I am not so sure. Although it could be argued that economics, politics and a reluctance to face awkward decisions have resulted in rather less action than the air travelling public has a right to expect, there are so many conflicting considerations that solutions to all the problems seem almost unattainable. While safety is improving in terms of fatality rates (see Flight, January 16), the number of people killed annually in air transport accidents is not decreasing. The total for 1968 was about 100 more than for 1967. The number of accidents in 1969 has already reached fifteen. Nine have been serious, 150 people have died and two jet airliners have crashed in the sea. Everyone connected with air transport must be contemplating with dread the inevitability of an accident involving one of the new large-capacity jets.
Disasters resulting from, say, collision with a mountain, or from mid-air disintegration, are beyond the scope of this review. Our purpose is to consider the oii-board provisions that are made to save the lives of those who are involved in survivable accidents. Proof that such provisions are extensive may be found in the following guide (pages 337 to 340) to products of more than 70 British airborne survival equipment manufacturers. The question is, are these provisions yet com-prehensive enough and if they are not, why not?
Three recent accidents make classic examples of the sur-vivable category: the BOAC Boeing 707 at Heathrow (April 8, 1968), an emergency (though "soft" wheels-down) landing following a serious in-flight fire, as a result of which five died out of a total of 126 on-board; the SAS DC-8-62 off Los Angeles (January 13, 169)—a jet transport night ditching in deep water, with the loss of 15 out of 45 lives; and the BUA One-Eleven at Milan (January 14, 1969)—* "hard" wheels-up emergency landing outside the airport and in the dark, immediately after take-off, without serious harm to any of the 33 passengers and crew. Collectively, these three near-disasters must have put to the severest test most of the emergency procedures and equipment carried in the aircraft

Taken in sequence, the phases of a survivable accident (preceded, of course, by routine pre-take-off passenger briefing) are impact survival, escape and survival after escape. Although mercifully not always present, the menace of fire sometimes becomes an uncontrollable factor during the escape phase. Ground firefighting equipment, covered more appropriately by the annual Airport Equipment guide in Flight (December 5, 1968), is not included in this review.

Passenger briefing

There still seems to be no satisfactory solution to this awkward problem. If briefing is too thorough, it could be argued that the effect would be too alarming; if it is too conscientiously frequent on a multi-stop journey, the know-it-all regulars might get irritated. As a result, preference appears to be inclined rather towards reticence. I wonder if anyone has ever attempted to find out exactly what percentage of passengers actually does "get the message."
"Good evening, ladies and gentlemen, welcome aboard obblebobbleeek ." In the frequently inaudible mumble that follows, there is probably something about finding printed emergency instructions in the seat pocket. Thus, for a start, survival could depend entirely on the adjustment and operation of the PA system. If it were adjusted for a full aircraft, passengers remaining after the next stop might be blasted off their seats, and vice-versa. Adjustments having been carried out in the hangar when an aircraft is empty, it is understand-able if hardly anyone can hear properly when it is full. Printed instructions are all very well, assuming everyone reads and understands them. But, even if each passenger has discovered his booklet or plastic card, how many will have read the contents so thoroughly they can, remember exactly what to do before, during and after an emergency landing— possibly in the dark and possibly in the sea—which could happen within minutes of embarkation, or maybe four or five hours later when everyone is thinking about getting home? However little time is available to tell each passenger exactly what to do in an emergency, with 490-seaters so shortly in prospect they must somehow properly be told. Two suggestions are, first, to issue passengers as they check-in at the airport with illustrated "Safety Onrboard" leaflets. The selection of leaflets held at the counter would cater for different languages, and cover the various types of aircraft used. Secondly, each seat table might be faced both sides with the emergency procedures notice. Although not very decorative, this would at least ensure that notices are promin-ently within passengers' view. Continued overleaf