Fire on board ship is one of the most serious risks for property and persons, as well as for the surrounding environment. A ship is evidently subject to the same risks with regard to fire as a civil or industrial land structure. On board ship there are tons of liquid fuel, electrical equipment, air-conditioning plants, engines, boilers, stores of flammable material and crew accommodation areas (kitchens, mess rooms, lounges, cabins, WCs). To all this we must add the load, which in cargo vessels consists of a high percentage of solid and liquid goods that are flammable or at least combustible, and often of a dangerous nature. In passenger ships the load consists of accommodation and entertainment facilities for the passengers and, in ferries, of a large garage for motor vehicles. Offshore rigs and tanker storage ships are essentially oil plants.

A ship, however, by its very nature, is bound to spend the greatest part of its working life at sea where, in the event of a fire, difficulties related to the meteorological and maritime environment coexist with the need to cope with the emergency, in conditions of limited space and without the possibility of immediate assistance in terms of personnel or facilities to combat the fire and to assist casualties, who may be burned, poisoned or traumatized.

Thus a fire on board ship during navigation represents an extremely high-risk situation which may cause (see Note 1) physical harm or death to passengers, and loss of the ship or considerable damage to its structures and equipment. Furthermore, when the ship is carrying mineral oils, chemical or gas products, gases will certainly escape into the atmosphere and very probably liquids and solids harmful to the environment will be spilt into the sea. When the ship is unable to manoeuvre because of the damage it has sustained, especially in narrow waters, it may run aground so that mineral oils from the ship’s fuel or the cargo are spilt into the sea. When the wrong rescue methods are employed, for example the indiscriminate use of large quantities of water, the ship may be lost as a result of instability, and not because of the fire (see Note 2).
MANAGEMENT OF MASS BURN CASUALTIES

PREVENTION, FIRE-FIGHTING AND FIRE SECURITY: THE FUNCTION OF THE INTERNATIONAL CONVENTIONS AND OF NATIONAL REGULATIONS

The main problem in fire prevention, fire-fighting and safety on board ship is that of knowing the 'enemy', i.e. fire (see Note 3), and the environment where it flourishes. This requires on the one hand technological means of reducing to an absolute minimum the possibility of fire breaking out and limiting its capacity to spread, so that there can be automatic intervention, and on the other proper training of fire-fighting and fire-prevention squads. Numerous papers have already been published on this subject and all have one aspect that is worth underlining: all the regulations, as they have been updated over time, have aimed to improve the standards in two respects.

1. Passive defence, in terms of the fireproof compartmentalization of the ship, the use of fire-resistant material, improved electrical installations, fireproof air conditioning/refrigeration/ventilation plants, proper stowage of combustible materials in relation to their flash point.

2. Active protection, in terms of fire detection and localization devices, automatic extinguishers of various types (sprinklers, sprays, and equipment using inert gas, CO₂, foam, halogenated liquids), mobile equipment for the use of the ship's fire-fighting squads (portable extinguishers, fire hydrants, foam extinguishers), and fire emergency training (see Note 4).

All these precautions are agreed upon and established by the International Maritime Organization (IMO) through international conventions, which are obligatory for all ships flying the flags of countries belonging to the convention, and through resolutions or recommendations providing guidelines, which, however, are not binding for the national legislation of other countries.

At present the 'Safety of Life at Sea — London, 1974' Convention (SOLAS) is in force (see Note 5), of which chapter 2 establishes merchant ship passive and active defence criteria.

It should be borne in mind that the SOLAS regulations are scarcely ever retroactive, i.e. they are applied — especially when introducing new ship-building criteria — only to 'new' ships. This explains, though does not justify, why it is mainly 'old' ships (see Note 1) that are liable to fires.

SOLAS 74 provides for obligatory programmed maintenance of all fire-fighting equipment for active defence and for maintenance in a state of working efficiency of all material for active or passive defence. All ships are subject to initial and periodic checks to ensure proper observation of the national and international navigation safety standards, including fire precautions. These checks are carried out by the maritime authority of the ship's flag state, which is responsible for issuing the relevant certification (see Note 6). In Italy the checks are carried out by officers of the Port Authority Body (see Note 7), in collaboration with inspectors from the Italian register of shipping.

In order to prevent ship-owners from using 'flags of convenience' to operate substandard ships in possession of certification 'of convenience', 14 European countries (see Note 8) have set up a control system, known as the Paris Memorandum or MOU (Memorandum of Understanding), for the correct