1. Helicopters

The possible uses of helicopters in Fire Service operations have led to much discussion and they may be listed:

(a) Reconnaissance which may be sub-divided as follows:
   (i) The discovery of fires by infra-red or visual surveillance.
   (ii) The determination of the extent to which fire has spread.

(b) Control. A senior officer could use a helicopter as an "elevated platform" to control operations at large fires.

(c) Traffic Avoidance. A fire appliance could be guided through a built-up area by a controller in a helicopter so as to avoid traffic jams.

(d) Fire-fighting
   (i) On Land. Helicopters have been used in America for dropping water and fire retardants on forest fires and for rapid hose-laying. It has been suggested that they could be used to drop liquid nitrogen on fires.
   (ii) At Sea. The obvious advantage would be the shorter attendance time compared to a boat. Liverpool Brigade have experimented with a dummy fire on a ship when a helicopter landed men and a portable pump on the ship. The system worked quite well although the performance of the pump was limited by the freeboard of the ship.

2. Discussion of applications of Helicopters

It would be very interesting to try to establish the true worth of a helicopter in the reconnaissance, control and traffic roles outlined above and Liverpool Brigade seemed quite interested following their useful exercise at sea. Fire-fighting on land would be useful in forests though we have only limited areas of these, but in towns it could be a very dangerous practice unless one was sure that no firemen or survivors were in the area to be drenched. Hose-laying would be similarly hazardous.

Fire-fighting at sea might be a useful additional role for a general purpose helicopter but a hovercraft would give a better performance.

It is concluded that it is very doubtful whether any single Brigade could justify possession of a helicopter on a cost/effectiveness basis. However, the part-time use of a Service helicopter might well be justified and this could be established by trials.

3. Hovercraft

The SRN5 was considered and discussed at length with Mr. Shirling. It could replace several fireboats in fire-fighting roles because of its high speed (70 m.p.h.) and its indifference to tides; this should mitigate the high initial cost. Liverpool are again in the forefront and are considering buying one.
3. **Hovercraft (Continued)**

particularly to cope with fires which may (at some time) occur on the Mersey mud-flats.

Noise may be the cause of some objections in London but it is no greater than the low flying aircraft which are tolerated near London Airport.

I conclude that Liverpool should be encouraged to at least borrow and try a hovercraft.

4. **Fire Appliances**

Cheshire Brigade was interested in a study of the best vehicles to buy and when to replace them. This seems to me to be a very worthwhile study. A recent study by P.R. and P.B. on police vehicles showed (report 12/67) that 1.5 million pounds could be saved annually in England and Wales by better vehicle purchase, utilization and replacement policies. The large difference in price between, for example, Dennis and Merryweather appliances should make such a study quite promising.

5. **Hoses**

Studies on the cost/effectiveness of the new plastic lined or reinforced hoses as opposed to their traditional counterparts was planned but not started.

6. **Demonstration of American methods in Airfield fire-fighting**

Mr. Bom, Mr. Smith and I visited Weathersfield United States Air Force Airfield and saw a demonstration of the use of a Kaman helicopter in fighting aircraft fires. This is a special aircraft with two contra-rotating rotors which create a steady airflow which can be directed onto a fire to blow back the flames and enable a fire-fighting team, lowered from the helicopter, to approach the aircraft with a portable foam generator and attempt to rescue the pilot. This technique has been very successful with military aircraft which have valuable pilots and seem to crash quite often!

The helicopter cost £250,000 and for an adequate 24 hour coverage two were required, together with a staff of about 30 men in all. It is very doubtful whether this high cost could be justified at civil airports - a civil passenger death costs the airline about £10,000 in compensation - in view of the very infrequent crashes nowadays.

7. **Conclusion**

Trials with a helicopter and a hovercraft would be desirable so that their uses and operating costs could be established in a Fire Service context. Vehicle policies seem well worth investigating. Hose policies are likewise worthy of interest in view of modern developments.