Some of the frustration and despondency about national parks may well spring from the attempt to deal with as much as nearly one-tenth of the country. Clearly, not only the standard of control, but also the degree of financial aid, may need to be different in different parts of our parks as at present delimited. There may well be a case for closely examining all the parks, and for establishing within each some kind of classification from a scenic point of view. The varying needs of open-air recreation also need to be assessed. At present British national parks lack the basic information necessary for sound planning decisions. But the planning officers of nine of the ten parks are also responsible for the remainder of their respective counties, and the staff of the Commission (including administrative, technical and clerical officers) numbers only 30. The simple fact is that there is not enough manpower on the job. How can three field officers cope with the variety of questions that arise ? Very little money has been spent on the parks—taking the country as a whole, less than a penny a person a year. The future of the parks could be transformed with the aid of a relatively modest increase in expenditure, in manpower and in technical expertise. Finally, in the light of 14 years experience and of the changing circumstances of the country, the Act of 1949 now stands in need of amendment.

FUTURE OF THE AEROPLANE IN THE CIVIL AND MILITARY FIELDS

IN his presidential address to Section G (Engineering), Dr. S. G. Hooker describes the "Future of the Aeroplane in the Civil and Military Fields". The cost of developing aircraft and engines is now so high that Government financial support is essential.

In the military field the industry is maintaining the full strength of the Royal Air Force and developing important new aircraft such as the *TSR* 2, *P* 1154 and novel types of transport.

In the civil field it is engaged on the *VC* 10, *BAC* 111 and the Anglo-French supersonic airliner *Concord*.

The exports of the industry are worth between £100 and £150 millions annually, and it is to be hoped that the *Concord* will gain a large share of the market which will arise when the 500 big jets at present in service become obsolete.

If we can produce a transatlantic airliner with a cruising speed of Mach 2·2 the current journey time to New York will be approximately halved, occupying about 3 h. A further increase in cruising speed to Mach 3 would save only about 0·5 h because of the increasing proportion of time spent in take-off, climb, descent and landing. Present knowledge of supersonic flight stems from military aircraft, which have been attaining supersonic speed since about 1950. Mach 2·2 was chosen for the *Concord* because higher speeds would prohibit the use of an aluminium structure or of conventional rubbers and plastics.

The overall thermodynamic efficiency of a turbojet is increased at supersonic speeds and should reach 50 per cent at Mach 2·2.

The engine chosen for the *Concord* is the Bristol Siddeley *Olympus* 593, a development of the engine used in the *Vulcan V*-bomber and *TSR* 2 supersonic strike aircraft. Such an engine will produce horse-power of the order of 100,000 at Mach 2·2 at 36,000 ft., which indicates the order of difficulty of its development.

Great efforts are being made to ensure that the *Concord* is at least no noisier than present jets. The high rate of climb will help to attenuate the noise heard on the ground near airports and if the transition to supersonic speed occurs at something over 40,000 ft. the sonic boom should not be an appreciable nuisance. Sonic boom, however, may limit the size and range of future supersonic airliners.

The *Concord* carries more fuel and less pay-load than a subsonic airliner, but has greater productivity because of its high speed. Compared with a *Boeing* 707, the potential revenue per hour of the supersonic transport is 50 per cent greater, while its operating costs are greater by only 20 per cent.

There is an urgent demand for vertical take-off, single-seater strike aircraft capable of high subsonic speed at ground-level and supersonic speed at altitude. Such an aircraft could well be of the established single-engine type provided that the engine can both lift and propel it. The Bristol Siddeley *Pegasus* has been designed for this purpose and has been flying successfully in the *P* 1127 *VTOL* strike aircraft.

The *Pegasus* has a large front fan which supercharges the high-pressure compressor and supplies by-pass air which is expelled through two nozzles on either side of the engine near the front. The exhaust from the turbines emerges through a similar pair of nozzles at the rear. All four nozzles can be directed downward or in any angular position up to the horizontal to give lift, thrust or a combination of the two.

Such an engine has the following advantages: (1) conventional installation; (2) choice of conventional, short or vertical take-off; (3) freedom from erosion and re-ingestion problems; (4) simplest possible installation and maintenance.

The *P* 1127 was never intended for supersonic speeds and the more advanced Hawker Siddeley *P* 1154, capable of both supersonic speed and vertical take-off, is now being developed.

In the lift/thrust engine for the *P* 1154 the thrust at the front nozzles can be doubled by burning additional fuel in them. The extra power is available for vertical take-off as well as supersonic flight. This type of engine has obvious application to both civil and military transports.

The ramjet is a simple engine depending on high forward speed for efficient operation. At speeds above Mach 3 it is becoming the most efficient powerplant known to man.

Flight at hypersonic speeds—above about Mach 5—is possible provided that suitable combinations of speed and altitude are observed. At such speeds the ramjet is the only possible air-breathing engine.

Studies show the possibility of an aircraft weighing 300,000 lb. and carrying a payload of 20,000 lb. over a range of 4,000 miles at 4,000 m.p.h. at altitudes between 100,000 ft. and 200,000 ft. and may be the reality of to-morrow.

THE TENTACLES OF TRADITION

IN his presidential address to Section H (Anthropology) Mr. Peter Opie considers folklore and "The Tentacles of Tradition". In the nineteenth century men of culture awoke to the possibilities of a new source of knowledge, and urged each other to garner the "fast perishing relics of the common people". Since then the investigation of folklore has grown in significance as it has become evident that the relics are not fast perishing, do not belong only to the common people, and are not necessarily relics.

It is becoming clear that folklore, while retaining ancient characteristics, is a living force which readily adapts to changes in environment. While some customs wither away and their memory becomes romantic to us, others prosper to such an extent that they become ordinary, even tawdry, and possibly commercialized.

In A.D. 960 it was ordered "That every Priest industriously advance Christianity, and extinguish Heathenism, and forbid the Worship of Fountains". To-day it scarcely matters which spring, well, pool, or fountain we visit,