be a view of the utmost *naïveté* to assume that studies of animal behaviour imply any decrease in the stature of man. For it is sound scientific common sense to see that, if only because of the existence of science itself, man displays emergent qualities far transcending those of the organisms most closely related to him.

THE USE AND MISUSE OF CLIMATIC RESOURCES

PROF. A. AUSTIN MILLER, in his presidential address to Section E (Geography), emphasizes that the climate of a country is one of its natural resources and may be regarded as an annual income of rain, warmth, energy, etc., the conservation and expenditure of which should be systematically planned. The first step in such planning is a full and fair assessment of the available resources; but although voluminous climatic records are available, there are still extensive areas where they are inadequate. Moreover, the data are not always of the most useful kind; more information is needed on evaporation, river flow, actual insolation, soil temperatures and micro-climate, not normally included in the duties of meteorological observers. This emphasizes the need for team-work and co-operation between scientists in many fields—climatologists, geographers, hydrologists, engineers, agriculturists, pestologists, physicists, etc.

The total available revenue of climatic resources is reliable within broad limits over a full year; but the incidence varies diurnally, seasonally and, to some extent, capriciously with the weather. Studies of seasonal distribution and of variability are therefore indispensable, especially in regions of subsistence agriculture, where the population lives from hand to mouth. But the vulnerability of primitive agricultural systems is being reduced by scientific research. Knowledge of the nature and the degree of dependence of crops and stock on climate is rapidly improving in precision; with this knowledge and a full assessment of climate, it is possible to fit the crops to existing conditions and to attain higher yields, better quality, more efficient distribution and, above all, greater security. This applies throughout the world—not just to areas of backward and subsistence agriculture but even to the most advanced and intensive types of commercial horticulture. Much more widely than is generally recognized, supplemental irrigation is needed to obtain increased yields, especially of grass and vegetables.

In more advanced societies with industrial and urban characteristics, and greater technical resources, climatic planning involves: (1) redistribution in space, that is, transfer of water, power, etc.; (2) regulation of consumption in accordance with expectable climatic conditions, banking the surplus heat or rain of one season against the deficiency of the cold or dry season to come. Heat, derived initially from the Sun, is stored in the ground and in water bodies and can be extracted from them as required, magnified by the heat pump and used for domestic heating, refrigeration or even as a source of power. Water is stored in lakes or reservoirs at the surface or in water-bearing strata (aquefers) underground.

Despite an apparently generous rainfall, Britain (and many other industrialized countries) is in immediate danger of water shortage, mainly because of the rapidly growing demand for industrial purposes and the extension of piped supplies to an increasingly urbanized population. Water, from the mains, is now regarded as universally available; industry and settlement are no longer tied to natural supplies; on the contrary, the new industries and new towns, their sites selected for some other reason, demand and determine the water supply (piped). Four possibilities for remedying the resulting threatened shortage are being investigated: (1) extension of surface storage, together with means of checking evaporation losses, which are considerable in summer and enormous in hot climates; (2) transport by pipe-line from areas of surplus (the highland zone) to areas of deficiency and increasing demand (the lowland zone); (3) the re-charge of aquefers, such as the chalk under the London Basin, now being depleted by over-pumping; and (4) the re-use of effluents and other unpurified supplies for industrial and irrigation purposes for which potability is unnecessary.

The world map of power resources is undergoing a revolutionary change and some of the future supplies are climatically determined. Water-power, dependent on relief and climate, is already established; solar energy and wind-power are on the verge of entry into the list of geographical factors. But advances in the technique of transport of fluids (oil and water) by pipe-line and of power and heat (as electricity) by cable diminish the importance of the actual location of supplies and widen the geographical range of practicable utilization of climatic resources. Taken in conjunction with the new assessment of agricultural productivity and the discovery of new uses for hitherto neglected climatic assets, these developments hold out a whole new set of possibilities the potential effects of which are worthy of the close attention of geographers.

PRICE—AND COMPETITION—IN TRANSPORT AS AN INSTRUMENT OF POLICY

THE price of freight transport forms the subject of the presidential address by Prof. Gilbert Walker to Section F (Economics). Railway rates have so far been controlled by the close regulation of a supposed monopoly. For the future (as long, at least, as the Transport Act of 1953, now to be amended by the Transport (Disposal of Road Haulage Property) Bill, shall be effective) transport charges are to be determined by competition between carriers.

Price as an instrument for distributing scarce resources has much to recommend it. Its efficiency can be (and is in an appendix to the address) illustrated by the example of parking. Competition in transport, though active, is certainly not free. There is, by law, only the one carrier by rail.

Road hauliers are limited by law to successful applicants for a licence. The cost of transport does not necessarily reflect the amount of resources consumed by the respective services. The Transport Tribunal has recently heard the case of the British Transport Commission for a schedule of maximum charges to be applied subject to Clause 20 of the Transport Act of 1953. The Herbert Committee, reporting on electricity supply, has declared