

generated by the use of 7 million tons of coal a year, year in and year out. The snag is that not a single kilowatt-hour of this electricity would accrue until the whole dam across the Severn estuary had been built — a process likely to take 15 years and to cost £5,660 million without allowing for the cost of paying interest on this substantial sum of money while construction is under way. But is not any scheme that produces energy from a renewable resource, such as the slopping one way and another of water in a tidal estuary, inherently worthwhile? That is what the enthusiasts for the Severn barrage have been saying almost since the beginning of the electricity supply industry itself. Unfortunately, a careful reading of the Bondi committee's first report shows the argument to be false.

As in other industrially developed countries, the British demand for electricity is a reasonably well-defined function of the time of day and the season of the year. Inevitably, the daily pattern of demand is linked with the movement of the Earth about the Sun and not with the movement of the Moon about the Earth, with the result that maxima of demand coincide only by accident with tidal maxima. Similarly, seasonal variations bear no constant relationship to the occurrence of spring or neap tides, which are related to the relative alignment as seen from the Earth of the Sun and the Moon. None of this is surprising. The consequence is, however, that a dam across the Severn would be capable of generating electricity at times only randomly related to those at which electricity demand is greatest. Accordingly a Severn barrage (or any other tidal scheme for generating electricity) will not substantially reduce the need for building other kinds of generating plant to satisfy the maximum demand on the system. (This blunt statement is a little over-gloomy, for electricity utilities would in principle be able to plan routine maintenance of conventional plant on a lunar calendar and thus obviate the need for some capital investment.) Such benefits as there are from tidal schemes, however, consist only in the avoidance of fuel costs at conventional power stations, some of which may be shut down when barrage schemes are ready to generate electricity. Overall, the crucial question is whether, over the lifetime of a barrage, the initial capital cost will be justified by the conventional fuel (coal, oil and uranium) that would be saved.

The Bondi committee, which includes several enthusiasts for big dams, puts a brave face on this daunting prospect. On the basis of a calculation of the present value of the conventional fuel that a Severn barrage would save, it concludes that the most modest version of such a scheme would just about pay for itself. There will be much technical interest in the way in which this calculation has been carried out — and curiosity will be satisfied only when the full report of the study is published two months or so from now. Already, however, it is clear that even this calculation is over-optimistic. The committee has assumed in calculating costs and benefits that the annual rate of interest on capital is either 5 per cent or 7 per cent — much less than the cost of the money the British government is having to borrow to finance less ambitious projects than the Severn barrage. But that is only half the story. The Bondi committee, with its hand firmly on its heart, makes the honest declaration that the economic benefits of investing in nuclear power stations would be roughly twice those of investing in the Severn barrage.

None of this implies that schemes for the exploitation of renewable energy should not be examined. The Bondi study is a model of how such exercises should be carried out. But enthusiasts for the use of renewable energy resources should acknowledge that conclusions such as those that have now put paid to dreams of a barrage across the Severn are likely to afflict many other projects for generating electricity in unconventional ways. After all, the properties of a stream of electrons in an electrical conductor are independent of the source of the electrical potential that drives them. By making uneconomic judgements about the virtues of different sources, it is possible to waste vast amounts of wealth that might be used in other ways. This is not to say that the United Nations conference at Nairobi should promptly adjourn, and amalgamate with the meeting of the major electricity utilities at the next World Power Conference, for there

is much that might be done by a sober appraisal of small power sources for use in places where there is hardly any power of any kind available at present. But, in the long run, the hard economics that have ruled out the Severn barrage in Britain are likely also to apply elsewhere.

Cricket and patriotism

The British, much depressed for several years by problems in Ulster and of economic misjudgement and mismanagement, have been so curiously uplifted in the past few weeks by a royal wedding and their success in beating the Australians twice at cricket that the question must be faced whether the psychological benefits of these public spectacles can be more widely spread. For if there is the slightest chance that peoples elsewhere might be given the courage to face intractable problems — or perhaps even the excuse to forget about them for a time — by a suitable patriotic display, should not governments other than the British be ready with plans for suitable ceremonies? Precedents set by the Roman emperors, however politically prudent 2,000 years ago, would no longer be acceptable, while the chances are small that governments will value royal weddings so highly that they would embark on the constitutional upheavals necessary to introduce monarchies of their own. On the face of things, only the game of cricket is potentially adaptable to other circumstances than the British, and even there the prospects are not bright.

The difficulty with cricket is that it is not widely understood. There is, however, no reason to accept the complaint of those not subjected to an English education that the game is inherently incapable of being understood. The way in which cricket has spread through much of the British Commonwealth gives the lie to this canard; the fact that West Indian cricketers are probably now more skilled than any others is a sign that cricket could become an international vehicle for national contentment, even chauvinism. To that end, the most urgent need is for a deeper understanding of what cricket is about. It may even be necessary to simplify the rules.

The fundamental principles of cricket are by no means unique. As in baseball, one person throws a ball at another, who is equipped for his defence with a piece of wood called a bat. Superficially, cricket is more objective than baseball in that a batsman's defence is held to have been unsuccessful if the ball strikes one of three pieces of wood planted on the ground behind him, and not merely on the say-so of an umpire who has to judge whether the ball passes at the right height over an object laid in the ground. What puzzles potential devotees of cricket is that the ball-throwing act is routinely performed in each of two opposing directions and that there appears to be no limit to the number of people who can be invited to throw the ball. It is also puzzling to many that ball-throwers (called "bowlers") may legitimately bounce their projectiles on the ground in front of the hapless batsmen, thus introducing an element of disconcerting randomness into their trajectories.

Fortunately, these faults are easily remediable. One-ended cricket played on an adhesive surface (so that cricket balls could not be bounced) would plainly make it possible for others than the Old Commonwealth to understand and thus to enjoy a game to which they are at present denied access. The time taken by cricket matches could be reduced if batsmen were given less substantial pieces of wood. For obvious economic reasons, it would be necessary to reduce the duration of international matches from five days to five hours, which to a first approximation would require that the presenting surface of the standard bat should be reduced by approximately five-sixths. The disadvantage that it would then be difficult for batsmen to accumulate large individual scores — one of the prerequisites of national cricket heroes — could be offset by multiplying by six the present rewards for batsmanship. No doubt there would be many in places where cricket is understood who would resist these innovations. But should tradition be allowed to stand in the way of a wider distribution of the benefits that cricket might bring?