# CAVES AS COMMONS

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In 1968, Garrett Hardin published his "Tragedy of the Commons". Although the ideas in his paper were not new ones, being based upon Lloyd (1833), Hardin's presentation attracted considerable interest. The purpose of this paper is to draw attention to what might be called "commons theory", to discuss its application to caves, and show the extent to which it provides a useful theoretical starting point for thinking about some of the basic issues in cave conservation.

Stated simply, Hardin's idea is that whenever a resource owned in common (e.g. the mediaeval village common) is freely available to all, each individual will endeavour to maximise his share of the resource, and in so doing, will contribute to its ultimate destruction. Thus, the village common was gradually over–grazed, eroded and salvaged only by enclosure or the prohibition of grazing. Hardin points to National Parks as one contemporary example of a common:

> "The National Parks present another instance of the working–out of the tragedy of the commons. At present, they are open to all, without limit. The parks themselves are limited in extent — there is only one Yosemite Valley — whereas population seems to grow without limit. The values that visitors seek in the parks are steadily eroded. Plainly, we must soon cease to treat the parks as commons or they will be of no value to anyone."

Turning to caves and cavers — many caves are, or are treated as if they were, common property. Each of us obviously benefits from one more caving trip, and in doing so makes some contribution to the ultimate ruin of the cave concerned just as surely as each truck-load of mined limestone contributes to the ultimate destruction of Mt. Etna. Some of you may think that is stating the case too strongly — but only the time scale is different. Given continuing access to caves, the result will be similar.

The analogy with the mediaeval common is all too close. Just as the removal of constraints upon the rights of the peasant to own his animals and the gradual democratisation of affluence destroyed the commons, so we can now see the constraints upon cave access removed by increasing mobility and technical capacity, along with the increased affluence of cavers. So, we are rushing headlong towards the overgrazing of our commons, and in some cases, it has already occurred. Few of us could now recall spending a weekend in pleasant weather as one of the only party (of three) at Wee Jasper or Bungonia. Few could recall, or even imagine what the Chevalier Cave was like when it was discovered in 1952, or even what the Xanadu section of Kubla Khan was like only so far back as 1966. Yet both these latter caves have enjoyed at least some restriction upon access.

The notion of carrying capacity must be understood at this point. As Aley (1976) has pointed out, this concept is also an agricultural metaphor. The farmer's concept of

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carrying capacity is that number of stock which can be grazed so that the renewable resources (pasture) are utilised without any damage to the non-renewable resources (soil). Now, within the normal time-scale, virtually everything within a cave is non-renewable, and so any destruction at all is permanent and cumulative. In other words, the carrying capacity of a cave is zero.

One intellectual trick to avoid facing the real problem is to talk about subjective carrying capacity — the number of people who can share in a recreational experience without adversely affecting the quality of that experience for others. As far as caves are concerned, this is just a trick which opens the way for the inexorable tragedy to which Hardin alerts us.

The technological solution is to protect the resources in some physical way. So, in tourist caves we have concrete paths, wire netting, handrails and the like. Some "wild" caves now have marked pathways or even plastic matting. As commendable as this may be, it is a compromise only delaying the end. To take the logical conclusion, would it still be caving if all caves were fitted with a transparent tubular walkway (or crawlway) so that visitors could enjoy the cave environment without even affecting the atmosphere? This may seem far-fetched, but remember that the atmosphere is one of the most easily impacted and important components of the cave environment. In fact, Geist (1979) is absolutely right in pointing out that one of the problems of any technological solution is that it puts the user (or caver) into a cocoon which only isolates him from the very experience which he seeks:

> "He who uses a propane stove instead of a campfire loses the knowledge and skills needed to find the proper kindling and wood, knowhow to coax a fire when the elements conspire against it nor will develop a pioneer's eye for selecting his nightly camp spot. He who is confined to trails laid out by others fails to develop a keen eye for landscapes or a sound appreciation of his bodily skills. In short, the camp stove, the foamy, the sleeping bag, the dehydrated food — great conveniences — all conspire to *lessen the interaction between the human being and nature*". (my emphasis)

In other words, technological solutions may buy time by delaying the process of despoliation, but they do not prevent it. More importantly, they may so dilute the quality of experience as to negate it. So we have a commons situation with a non-renewable resource — more immediate than the peasant with his cattle, because our resources do not regenerate next spring — and technology will not save us. Let us look at some other options.

Theoretically, we might increase the size of the commons. In practice, this can be dismissed. Caves are a relatively scarce resource, particularly in Australia (Jennings 1975) and we know that the rate of new discovery has slowed considerably. Interestingly, cavers are now repeating history by colonising the developing world — an attempt to expand the resource base which is a direct replication of colonial Britain (or other countries) of the 18th and 19th centuries. In this case, the end is likely to come much more rapidly!

Secondly, we might restrict the *uses* made of the commons. Thus, in agriculture, one might eliminate goats and restrict grazing to cattle only. Cave managers might argue (and have done so) that some caves should be used only for "serious" investigation.

This assumes that "serious" caving causes less user impacts than "sporting" caving — an unlikely and dangerous assumption. In fact, I believe this line of argument has nothing to do with uses, but is simply a cover up for limiting numbers on the basis of merit (see below).

A third, and the most frequent, approach, is to try and limit the number of *users* of the commons. Both management authorities and caving clubs have, in various ways, tried to limit numbers. Basically, three approaches have been used:

(a) advance reservation through a permit system

(b) merit, eg. members of 'recognised' speleological societies

(c) direct supervision by selected guides or leaders, the limited availability of which constitutes a limit on visitor numbers.

Another less frequently used technique is a direct limit on number and size of visitor parties. At least three others might be adopted:

(d) reservation by lottery

(e) queuing controls — which happens sometimes as the epitome of overuse, not as a means of limitation.

(f) pricing, eg. a $10 fee per cave per person.

None of this latter group is likely, even though each may well be considered, and each has advantages. For instance, a lottery system is probably the most just and equitable. All are discussed in far more detail than is possible here by Stankey & Baden (1977).

In practice, (a) and (b) are usually combined. We all know the problems associated with advance booking permit systems — for both managers and users. However, we rarely face the very serious ethical problems associated with merit rationing, especially when it is based upon such doubtful criteria as membership of a formally–organised group. Naturally, members of organised groups will usually be the last to question such a practice because they are the winners.

However, merit rationing has some advantages and could make a significant contribution to delaying the onset of tragedy, if it was based upon individual rather than group licensing. Merit rationing would be most beneficial if it was properly related to a selection and training program, which in turn was based upon identification of major user impacts, and knowledge of how to minimise these, and if we had the personnel and other resources to administer such a program. However, we do not live in the best of all worlds, and such a scheme seems unlikely. All of these systems discussed so far have one thing in common. They all focus upon rationing at the point of supply. What has not been seriously considered in the past, and could play a major role, is lessening pressure upon the commons by reducing demand. If all cavers agreed not to publish in popular media, not to otherwise publicise their existence, not to take Scouts, school groups or other similar groups caving, not to use car stickers — and so on — we would see a significant reduction in demand. Regrettably, human beings are incurable show-offs (cavers being no exception), and so this is also an unlikely option. Again, we play intellectual tricks,

for instance, by trying to not disclose cave locations to the public, yet publishing articles in glossy magazines which glorify caving as an activity.

So far, this discussion has only focussed on issues about who gets a share of the commons — but one might take up the issue of the size of the share. Using Kubla Khan as an example, one well-known caver has paid at least 200 visits to this cave; others perhaps 20, others one or two, and most none at all. Once the basic exploration is carried out in such a system, a just system of rationing might only allow each caver one visit in his lifetime! I would argue that, if we are genuine about our rhetoric, we would not continue to visit the same cave time and time again — merely as a result of personal discipline. Again, I am pessimistic.

We have dismissed technological solutions; recognised that we cannot increase the number of caves; recognised that, although we may limit uses or reduce the number of users (probably only slightly), this only delays the problem. Geist (1979) argues that delay offers hope in that it gives time to seek more adequate solutions. At the same time, it tends to convince us that something is being done and hence delays also the search for more adequate solutions. So far, so bad — a pessimistic picture. To quote Crowe (1969):

> "There has developed in the contemporary natural sciences a recognition that there is a subset of problems, such as population, atomic war and environmental corruption for which there are no technical solutions. There is also an increasing recognition among contemporary social scientists that there is a subset of problems, such as population, atomic war, and environmental corruption for which there are no current political solutions."

Two new sets of ideas which are currently emerging offer some hope for rethinking this whole dilemma. Again, it is probably not really correct to claim these as new — it is rather their growing acceptance which is new. The first are new ideas about responsibility, growing from the work by the philosopher Charles Frankel (eg. 1955). He argues that responsibility consists of having to answer for one's decisions to those affected by them. This notion has important and far-reaching implications for the possible salvation of the commons. The second set of ideas have to do with inanimate objects being conceived of as having intrinsic values, rather than merely being valuable only in terms of their utility to human beings. Not only is this perspective more important to our immediate concerns, but it is coming to be widely shared, not only by environmentalists like Leopold (1966), but by biologists (eg. Ehrenfeld 1976), philosophers (Godfrey-Smith 1980a, b), and even lawyers (eg. Tribe 1974). These are powerful ideas — but they will only help to solve the tragedy of our particular commons if we put them to work and use them. Space and time preclude dealing with them here, and, after all, this paper has concentrated on illuminating the nature of the problem.

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