

outset welcomed Gorbachev's *glasnost* and his plans for *perestroika*, as if dismayed at the degree to which he has been weakened by the ferocity of their protests at what seemed to be backsliding, are now offering the olive branch of some kind of coalition government. If it could be realized, it might just work. But the chances are only small, while those of breathing new life into one of the discarded economic plans have been much reduced by the widespread sense of having been monkeyed with that Soviet people now widely share. □

Soft on software

Europe, which plans to protect software against piracy, should now give some thought to those who buy it.

EARLIER this month, the European Commission did the decent thing by the international software industry by requiring member states to adopt uniform copyright laws on commercial software. Both equity and commercial prudence require nothing less. To copy a piece of commercial software illicitly is theft of a literal kind, where the victims are those who have invested skill, time and money in the development of a useful set of computer instructions. The uniform extension of copyright legislation to software is also commercially prudent; otherwise, the supply might dry up. Software manufacturers say they are pleased with the development, but also (rightly) that enforcement is not child's play.

So far, so good. But before tears are shed for software manufacturers, some thought should be given to their licit customers, and to the terms on which software packages are sold. The use of the term copyright suggests an analogy with books, but the analogy is inexact in at least two ways. First, a book (at least from a reputable publisher) is a finished product that is unlikely to be substantially revised for at least some time; software packages, on the other hand, are published almost breathlessly, with 'version numbers' growing steadily in each of their two significant digits. Second, books enjoy well-understood economies of scale, with the result that publishers price their products so as to make money if their expectations are required, but otherwise lose. By contrast, the intrinsic value of a software package is negligible compared with the selling price.

These circumstances put software purchasers at a disadvantage compared with mere book-buyers. For one thing, having bought a software package advertised as serving some stated purpose, they must then pay extra to upgrade to a new version that will actually do the job. Second, they derive no benefit from economies of scale. Whereas a successful book will probably appear eventually more cheaply as a paperback, a successful and widely used software package will keep its original high price until some other manufacturer is able to achieve the same results with a separately written set of codes. And as things are, it is not possible for people to buy only part of a software package, perhaps to carry out only one of many functions. The European Commission, which is often fierce in its execution of anticompetition policy, should now look at the other side of the software coin. □

Cholera marches on

The outbreak of cholera in northwestern South America could cast a long shadow on the world.

CHOLERA is always with us. That is literally the case. The causative organism, *Vibrio cholera*, is widely spread among the human population, but the enterotoxin that the organism secretes is likely to cause intestinal disease only when there are as many as 100 million organisms in the gut. The consequence is that cholera organisms can be widely spread yet cryptic in a population until some external agency, usually a deterioration of hygiene, causes them to multiply. In the early decades of the nineteenth century, the disease was commonplace in major European cities. Even now, it is endemic in cities such as Calcutta, where sporadic cases repeatedly crop up. But what is to be made of the outbreak of cholera since January in the South American states of Chile, Peru, Ecuador, Colombia and, now, some parts of Brazil?

More than 150,000 people have been affected in Peru alone, of whom more than 1,000 have died. It seems to have been recognized by the governments of the region, which met last week in Bolivia, that the necessary remedies are those well understood for more than a century — supplies of clean water, foodstuffs similarly free from contamination and better sanitation. But this simple recipe is more easily stated than made reality. Otherwise, the present outbreak, which is but the latest manifestation of a pandemic that began in Indonesia in 1961 and which caused 150,000 cases in Africa a decade later, might have been avoided.

Dr John Wood, the London physician, made himself a legend when, in 1854, he removed the pump-handle from a polluted communal water supply in the City of London's Broad Street, bringing a cholera outbreak quickly to an end, but plainly there can be no such simple solution in the vast region already affected in South America. Public education in the principles of personal hygiene is the only ready expedient. The nightmare — made explicit at the weekend by an official of the Panamanian Health Organization — is that the outbreak might spread to the great cities of the Amazon basin and, from there, to Brazil's shameful shanty towns around São Paulo and Rio de Janeiro.

There is an even more daunting prospect. Iranian health officials are already alarmed by cases of cholera in southern Iraq, among the people recently afflicted by the Gulf War and its aftermath. (Whether cases are officially reported depends on the willingness of governments to take such invidious action.)

Already fragile public health arrangements have deteriorated and, worse, the tragic displacement of people from their homes has made them dependent on makeshift and insecure sanitary systems. In general, cholera is an attribute of poverty, and of the lack of public investment in water supplies and sanitation, but social upheavals like those to be expected in the Middle East in the next several years are also precipitating causes. We shall hear a lot more of cholera before much more time passes. □