The report emphasizes that a range of supporting facilities would be needed to get the best out of the space telescope. Smaller orbiting instruments with mirrors between 30 and 60 inches, as well as rocket-borne telescopes, would not only make good test-beds before the 120-inch telescope is launched, but would also carry out programmes where the full 120 inches is not necessary. Like astronomers everywhere, the authors of the report cannot help asking for more ground-based instruments, which they say are necessary if time on the space telescope is not to be wasted on research which could equally well be done from the ground if only the telescopes were available. It seems, for example, that if the 120-inch telescope were orbiting at present, astronomers would be using it to make up for the dearth of southern hemisphere telescopes. Of course, by the time the orbiting telescope could be launched—and four years ago the date was put at 1979, based on an immediate start—the situation in the southern hemisphere will be much improved.

The report makes the orbiting telescope seem a suitable project for US space funds, because it combines a fair amount of scientific merit with the necessity for some prestigious manned space flight. There are three reasons why an astronaut would be necessary: to check the telescope once it has been launched, to carry out repairs and to modify the system as the programme progresses. Otherwise there is no reason for permanent manning and the telescope could be controlled from the ground.

COMMUNICATIONS

Satellite Manoeuvres

SOME action is to be expected on the dusty question of a domestic communications satellite system in the United States. For several years, the Federal Communications Commission has been labouring to decide which organization under what circumstances would be allowed to have the profitable licence to operate such a system. Two Presidents have stayed the commission's hand, apparently realizing the size of the empire at stake. Now the last delaying tactic seems to be ending; Mr Nixon's own communications study group has been looking at the proposals framed by the various hopefuls for several months, and with Canada far ahead of the United States in the eminently sensible plan to link far-flung regions by satellite, Americans feel the pressure of competition from the north. Somebody is going to get the American licence soon.

This is why the recent moves by the Columbia Broadcasting System and the American Telephone and Telegraph Company should not be taken at face value. CBS, the largest American television network, has proposed that it and the other two networks combine and put up their own satellites so as to transmit their own programmes. In this way, the networks would between them save the $45 million a year they now pay AT&T to transmit television programmes over its land lines—not to mention the $20 million more they would be paying if the AT&T is allowed to raise its rates, as it wants to do.

If the past were any guide, AT&T should have greeted this proposal with horror, reminding all concerned of its own plan, on the FCC's desk, to incorporate a domestic satellite system into the national communications network which it already offers most of the United States. Instead, the big telephone company had put out a disarming statement to say that wise public policy might be to permit any organization to apply for a satellite licence. AT&T did not claim any monopoly for itself.

Both manoeuvres play into the hands of Comsat, the half-public, half-commercial corporation that runs American interests in the international communications satellite network. Comsat has been begging the FCC for years to be allowed to put up a domestic network, at least on a demonstration basis. But every time the FCC has seemed on the verge of giving permission, another applicant has intervened. AT&T has, so far, been a strong opponent of Comsat (even though it is also the largest shareholder) out of obvious fear of the day when much of its transcontinental business would be shunted to the newer corporation, with its equipment in the sky. But AT&T, like many others, is now wiser about communications economics than it was a few years ago. Satellites are certain to be a headache and AT&T is having a hard enough time meeting the growing demand for telephones and for the transmission of computer data to fight very hard for an entirely new business. And both AT&T and the television networks seem to agree that it will be better if Comsat runs an American satellite system than some total outsider.

Who would be left out? The Ford Foundation, for example, or the General Electric Company? GE has put forth a plan which would devote a national satellite network entirely to the transmission of computer data and business mail. There is no point, GE's engineers argue, putting up satellites and receiving stations only to save 20 or 30 per cent of the cost of transmitting messages over the ground. Satellites must offer really big reductions—something like 90 per cent—and the way to do this is to let them offer radical new services: instantaneous delivery of business mail (defined as that which does not require a personal handwritten signature) to offices by teleprinter, for example. That is the kind of use of satellite which could shatter the whole rigid structure of American communications, and one that presumably the television networks and AT&T hope to avoid.

The same could be said of the Ford Foundation's plan, put out several years ago, to have a national satellite network publicly owned, with the fees charged to the commercial television companies being used to provide free transmission for a national educational television service. (Both Comsat and CBS now have incorporated similar philanthropic offers in their satellite plans. Although these would give non-commercial television a free ride, they would not allow its governors much voice in the running of the system.)

The latest manoeuvres by CBS and AT&T, therefore, strengthen Comsat's bid and rule out the possibility that any further novelties will be suggested for an American domestic satellite system. It is probably just as well—so long as the FCC lets Comsat have a go on a purely temporary basis. Action has been postponed ridiculously long. Places like Alaska, with little in the way of land-line communication, need satellites. It is positively un-American to leave a new technology mouldering on the shelf while musing about the many possible uses to which it might be put.