Science at the British Association

Keith Hindley reports from Edinburgh, Scotland at the 141st Annual Meeting of the British Association for the Advancement of Science

Drug improves transplant success rate

Substantial improvements in the success rate of liver and other major human organ transplants are coming from the introduction of a new drug, cyclosporin A, according to Roy Calne of the Addenbrookes Hospital in Cambridge, England. The drug has proved highly effective in preventing organ rejection without distressing side effects, and its administration can eventually be dispensed with, he says. Heart transplants in pigs have shown an excellent survival rate — in one case the pig has survived more than a year after cyclosporin A was discontinued.

The human-ape common link

Recent speculation about the common ancestor from which ape and man diverged has suggested a heavy creature akin to the modern orangutan, a much lighter tree-swinging animal like a gibbon or a ground-walking primate like an Old World monkey. Now there is another contender as a result of a statistical study of how body form and proportions vary in similar animals of different sizes. Leslie Aiello, an anthropologist from University College, London, sought an ancestor that would readily modify into the various extant groups. Aiello dismissed the chimpanzee, orangutan and gibbon at once. All have either strengthened or lengthened forelimbs and small hind limbs adapted to a tree-climbing life. Only one animal stood out as a strong candidate — the Howlever monkey, a New World primate, which has short forelimbs and uses all fours for walking and climbing. Aiello is convinced that an early primate akin to the Howlever (lacking its prehensile tail, which represents a modern adaptation) is the missing link.

Turning the wind to good effect

A recent conference in London concluded that wind-driven cargo vessels may now be an attractive commercial proposition in the face of rising fuel oil prices (SN: 7/7/79, p. 6). The most effective way of harnessing the wind, however, may be not the large computer-controlled sailing ship suggested in recent years but a conventional-looking cargo vessel driven by wind turbines, according to R. I. Flewitt, director of the Wolfson Marine Technology Unit at Southampton University. After studying the performance of a large vertical cylindrical rotor, which catches the wind and converts it into propeller power, Flewitt believes that the turbine is superior to the sail, in part because it could as easily sail into the wind as in any other direction.

Computing at the speed of light

The modern electronic computer may eventually be replaced by much faster equipment that uses optical devices, according to Stanley Smith of the physics department at Heriot-Watt University in Edinburgh. Smith's group has been investigating the remarkable properties of an indium-antimony compound with a refractive index that varies with the intensity of light falling on it. They have found that a tiny increase in the incident light can produce a large change in the light emerging. This brighter emergent beam persists even when the triggering light beam is reduced again in brightness. In this way the crystal acts as a switch and "remembers" the triggering light impulses. The group has incorporated these properties into new computer components, which operate on low-powered laser beams and can respond in picoseconds.