Soviet education

What prospects for reform?

NEXT Saturday, 1 September, the Soviet Union will celebrate its new "Day of Knowledge". Although the opening of the academic year has long been observed with special feature articles in the Soviet media, the raising of the event to the status of a nationwide festival is associated with the reform of primary and secondary education which comes into force next month.

The new reform, aimed at bringing up young people to meet the challenge of the "scientific and technological revolution", envisages three major changes. Compulsory schooling is to begin a year earlier — at six years of age rather than seven in most cases, and at five where, as in Estonia, the difficulties of the local language are considered to need an extra years' schooling. There is to be a "resolute improvement" of "military patriotic" education, preparing boys for their army service and girls for civil defence work. Most important, the "Leninist principle of a unified labour and polytechnical school" is to be implemented so that all pupils from senior forms are involved in "labour training" in appropriate production enterprises.

Of these three points, the upgrading of "military-patriotic education" seems to have crept into the resolution at a fairly late stage. (It was not mentioned, for example, in *Pravda*'s account of the Central Committee meeting on 11 April which discussed the resolution in otherwise considerable detail.) The lowering of the school age is apparently necessary to allow the pupil to absorb new scientific knowledge, as well as providing more time for labour-training and "military-patriotic" work. The labour training itself, however, has an air of *déjà vu*. Superficially it looks like a return to the Khrushchev era, when an over-zealous attempt to move classes from school-room to factory and *kholkoz* provided managers with a ready-made excuse for missed targets — that the children's presence had interfered with production schedules!

Part of the trouble with the Khrushchev scheme, it appears, was that nobody seemed quite clear whether the work training was meant to prepare the pupils for a job, or was simply an ethical lesson in the value and dignity of labour. This time, however, "labour training" is to be part of an improved programme of "vocational guidance", in which a production enterprise, organization or institution will be assigned to each school, and must allocate to the children "equipment, workplaces, skilled cadres and raw and semi-finished materials".

Just how this assignment scheme will work is not easy to see. Leading party activists have reiterated that the aim of the reform is to turn out "polytechnically" trained young people, who can respond rapidly to technological innovation without requiring major retraining. Assigning a factory to a school, however, suggests that the opportunities for vocational training afforded to the latter's pupils will be limited. On the other hand, taking the children to the factory for an afternoon or so each week will not solve the problem of technical training facilities in schools, many of which, to judge from complaints in the Soviet media, are underfinanced, ill-equipped and often housed in makeshift and unsuitable premises.

The reform appears to have caught the educational profession somewhat unprepared. During the "public debate" which preceded the formal resolution, numerous class and head-teachers pointed out that the reform would demand new textbooks and syllabuses, and also the training or retraining of additional staff. This would in its turn require a replanning of school budgets — no easy matter in the middle of a five-year plan. Pedagogic colleges, in particular, were perturbed that they would have hurriedly to revise their teacher-training courses.

Already, it appears, some doubts are being voiced as to how rapidly and effectively the new reforms can be carried through. A meeting of the Politburo on 1 August noted that "not all industrial ministries and departments" had "genuinely" started to cooperate with the scheme. An All-Union teachers' conference in Moscow last month noted that under the present training scheme not more than a quarter of school leavers use the labour skills they have acquired, with the implication that things may not be very different under the reform. **Vera Rich**

Japanese space research

Halley probe on show

Tokyo

THE construction of Planet-A, Japan's Halley's comet probe, has just been completed and the satellite is now on display at the new Sagamihara Research Centre of the Institute of Space and Astronautical Science (ISAS), near Tokyo.

Considerable excitement surrounds the completion of Planet-A, for it and the MST5 test satellite which will be launched before it will be the first satellites Japan has ever sent into deep space. ISAS, around which Japan's independent, university-run space programme is centred, has always managed to keep launching scientific satellites on a small budget, and Planet-A has been cleverly designed to do as much science as possible while keeping payload weight to the minimum. Altogether the satellite will weigh just 138 kg and carry 12 kg of scientific instruments. The launch vehicle will be a specially improved version of the three stage solid-fuel Mu3S which has already been used to put several satellites into Earth orbit. Addition of two strap-on boosters to a slightly larger rocket will give enough power to put Planet-A into orbit around the Sun.

Planet-A will be launched around 15 August 1985, after a further round of tests, disassembly, reassembly and even more tests have been completed, and will fly within 200,000 km of Halley's comet on 8 March 1986. Its major aim is to take vacuum ultraviolet (Lyman alpha line) images of the hydrogen coma of Halley for ten days or so before and after perihelion. Close to the Sun, volatile materials — principally water — will sublimate from the comet and be photodissociated to form a large hydrogen coma around it. The images should help to explain both the processes of coma growth and decay and the importance of the various routes, involving formation of intermediate radicals, by which hydrogen atoms are released from the water. To take images of the hydrogen coma, the camera lens and the charge-coupled device detectors should ideally be mounted on a non-spinning platform. But to avoid the weight of a complete 3-axis control system and differential heating of the satellite by the Sun, the satellite will be kept stably rotating at about 5 revolutions per minute (r.p.m.). While pictures are being taken, a momentum wheel will reduce spin down to about 0.2 r.p.m. and the image blur will be prevented by shifting the image on the charge coupled device in synchrony with the spin.

At the higher spin rates, a different set of instruments will measure the interaction of the solar wind with the comet's plasma tail and look out for turbulence produced in the tail and a coma by solar flare shock waves. This will be achieved by charged particle detectors for electrons and ions designed to measure the distribution of the solar wind plasma within ± 30 degrees of the ecliptic plane as the satellite cruises towards the comet.

During this phase, simultaneous measurements of the solar wind from as many probes as possible are desirable, and to help achieve this, clever use is to be made of the MST5 test satellite.

MST5 is to be launched in just four months' time — on 5 January 1985 — and is principally designed to test the new launch vehicle, attitude and control systems and the communications link. But it will also carry plasma wave probes and instruments to measure solar wind ion density and bulk velocity, and the interplanetary magnetic field. After launch, it will circle the Sun and then return to within 0.1 astronomical units of both Halley and Planet-A in March 1986 to complement Planet-A's solar wind measurements. **Alun Anderson**