to Champe, Strohl and Schlesinger (*Virology*, **50**, 482; 1972) tumour cells induced in hamsters by injections of adenovirus 12 contain a factor, resistant to digestion by nucleases but sensitive to pronase, that reduces by up to 99 per cent the yield of adenovirus 12 made in permissive cells infected by this virus. Champe *et al.* claim that this inhibitory factor decreases the rate of replication of adenovirus 12 in permissive human embryonic kidney cells as well as the final yield of virus from each cell and that it does not inactivate purified infectious viruses. This fact, and the observation that the factor does not inhibit T antigen synthesis in infected cells, leads them to conclude that the factor is more likely to inhibit some late events in adenovirus 12 replication than the adsorption, penetration and uncoating of the virus. The factor is virus specific and therefore not likely to be an interferon. but so far Champe *et al.* have no real idea as to its target.

Reznikoff, Tegtmeyer, Dohan and Enders (*Proc. Soc. Exp. Biol. Med.*, **141**, 740; 1972) have addressed themselves to a superficially at least not dissimilar problem, namely the identification of the resistance of certain AGMK cells to SV40. Most AGMK cells are fully permissive for SV40 and are killed by the virus as it replicates, but some AGMK cells become chronically infected rather than lytically infected and may even be transformed by SV40. Reznikoff *et al.* have investigated the effects of SV40 specific antiserum on such chronically infected AGMK cells. In the presence of this antiserum clones of chronically infected cells can be cured of all detectable traces of SV40 virus and its antigens, and at least one cured clone of cells cannot be infected by SV40 virions but can be infected and killed by naked SV40 DNA.

One simple interpretation of these data is that part of the resistance of these cells to SV40 stems from some block before the uncoating of the viral DNA, but there is almost certainly more to the story than that, not least because an absolute block to virus penetration and uncoating would obviously preclude the emergence of SV40 transformed AGMK cells.

SOLID STATE

More on Ferrofluids

THE properties of ferrofluids—liquids like mercury containing small particles of a ferromagnetic substance—have been further examined by Shepherd, Popplewell and Charles of the University College of North Wales, and their results are published in a recent issue of *J. Phys. D.* (**5**, 2273; 1972). Ferrofluids are of particular potential importance because they can be used as an efficient means of energy conversion; if part of a ferrofluid contained in a toroid is placed in a magnetic field and heated to the appropriate Curie temperature the whole fluid will move. It turns out that the power that can be generated in this way per unit mass of fluid depends on the square of the change in magnetization with temperature (dM/dT) and on several other parameters such as the Curie temperature.

Shepherd and his colleagues have made ferrofluids containing particles of iron–nickel alloys of various compositions. In most cases the largest of the particles were of order 1,000 Å, and the concentrations were 1 to 2 per cent by weight. Their method of making the ferrofluid is electrolytic, and utilizes a mercury cathode and an electrolyte of ferrous nickel ammonium citrate of the appropriate composition for the alloy required. Magnetic measurements on several Fe-Ni ferrofluids at 77 K showed that the coercive force for a fluid of a given particle concentration and composition passes through a maximum as the current density used in the electrolytic cell is increased. Shepherd *et al.* conclude, however, that the maximum is not attributable to an increase in particle size such that the particles contain more than a single domain; rather, it is a consequence of variations of size and shape in an essentially single-domain region.

COMPUTERS

On-line in the Lab

from a Correspondent

COMPUTERS, it need hardly be said, are, or ought to be, the experimenter's best friends, for they collect data, work out results, and, better still, run apparatus. Nevertheless, how to choose a computer, how to link it to an experiment and how to use it to best advantage remain questions to which answers are far from obvious. Faced with such problems the research worker will benefit from the experiences of other scientists who have taken the plunge and are now engaged in computer-linked experimentation.

Such a communication exercise between current users and prospective users of laboratory computers was the chief purpose of a conference organized by the Electronics and Computational Physics groups of the Institute of Physics and held on January 3 at Imperial College, London.

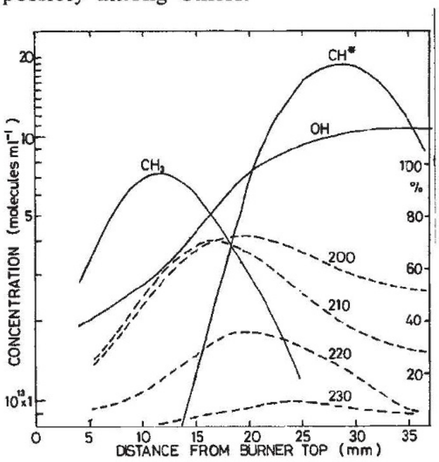
The special features of the conference included an audience which, although non-expert as far as computer applications are concerned, consisted of trained scientists; contributions solely from "users", thereby excluding parties

Methyl Radicals in Flames

RELATIVELY little is known of the exact way in which methane flames burn, except that methyl radicals are involved. Their concentration, however, is known in only the most approximate terms, chiefly because of the difficulties of applying mass spectrometry to the problem.

In 1960, Gaydon *et al.* (*Proc. Roy. Soc.*, **A256**, 323) first used absorption spectroscopy to detect the ultraviolet absorption of methyl radicals at 216 nm and to calculate at least an upper limit to the methyl radical concentration. In next Monday's *Nature Physical Science* (January 29) Harvey and Jessen report that they have used improved absorption techniques to detect strong absorption at 216 nm in several types of flame. They burned methane, ethane, propane, ethylene and acetylene at pressures of about 4 torr and gas flow rates of about 10 l. min^{-1}.

In order to make the study of the distribution of the methyl radical concentration within the flames more simple, Harvey and Jessen diluted the flow of hydrocarbon and oxygen with 3 l. min^{-1} nitrogen. What they found is shown in the diagram. It also turned out that there is another absorption feature at 212.5 nm in the flame spectrum; this is presumably part of the methyl spectrum. Unexpectedly, Harvey and Jessen find that the methyl radical concentrations are roughly the same (1 in 10^2 to 10^3) in the other hydrocarbon flames examined. In acetylene, for example, they say that their results are consistent with the occurrence of the reaction $C_2H_2+OH \rightarrow CH_3+CO$ possibly among others.



——, Concentration of CH_3 and OH and intensity of CH emission at 430 nm (arbitrary units); — — —, variation of continuous absorption at various wavelengths (nm).