of the extent to which the present proposals follow those of the Trend Report, that the demand for fresh consultation is largely specious. A government must take its own decisions once it is satisfied it has ascertained the facts and the views of those concerned. As to the status of members of the Institution under the new arrangements, he readily agreed as to the desirability of full consultation

In reply to specific questions, Mr. Stewart said that no decision had yet been taken regarding the National Physical Laboratory or as to whether there would be any change in the organization of the Atomic Energy Authority. He would not say yet whether the Committee on Scientific Manpower would continue as at present or whether separate committees would deal with technological and with scientific manpower. This was a matter which the Department of Education and Science and the Ministry of Technology would have to consider jointly. The Ministry of Technology would also be concerned with the development in the civilian field of the kind of research and development contract familiar in the field of defence. There would also be an Advisory Council on Technology with the Minister as chairman and Prof. P. M. S. Blackett as deputy chairman (see also p. 922 of this issue of *Nature*). Finally, there was a need to take a broader view of the educational process. It was necessary not only to provide a sufficient amount of skilled manpower but also to achieve in the population as a whole a general understanding of what a technological civilization meant.

This explanation of the Government's proposals was welcomed in a particularly well-informed speech by Mr. E. Lubbock, who asked what would be the role of the new Council of Engineering Institutions and whether they would be represented on the new Advisory Council: he thought it might well be a valuable source of advice. Otherwise there was little constructive comment in the debate, the main other topic being the future of the *Concord* project. This was raised by Mr. Lubbock and other speakers in relation to its effect on Britain's technology generally, and although it was originally raised by Mr. Q. Hogg, who also asked about Britain's support of the European Launcher Development Organization and the European Space Research Organization, Mr. Stewart left it to the Minister of Aviation, Mr. R. Jenkins, to reply in winding up the debate.

Sir Lionel Heald, who stressed the importance of the aircraft industry in Britain's technology, quoted Sir George Edwards's opinion that *Concord* represented the first full collaboration in such a venture by two great European powers and that it might be the first step to a world rationalization of the civil aviation effort. He was concerned as to the effect of discontinuing the *Concord* project on the other collaborative projects. Mr. N. Marten, liko Mr. A. Neave and many others, was concerned about the future of the design teams and other workers in the industry if the project was discontinued. Mr. E. S. Bishop's concern that public expenditure on research and development should be well spent and not wasted was also generally shared.

Dr. J. Bray questioned whether discontinuance of the *Concord* project would, in fact, lead to a considerable loss of skilled manpower to the United States, and pointed out that the maximum number of workers who might be redundant by the end of 1965 was 6,000. Strong support for the project came from Mr. Angus Maude, who was convinced that supersonic transport was bound to come, but very reasonable answers were given to his specific questions by Mr. R. Jenkins in his reply on the debate. Mr. Jenkins reiterated that the only decision taken so far was to ask for an urgent review of the project, and he had personally explained to the French Minister of Transport in Paris Britain's doubts about the project. He had also had talks with the French Minister of Defence and the Minister of Science, who had French responsibility for the European Launcher Development Organization; a meeting had been arranged for January at the request of the French and Italian Governments, when the rising costs of this project and their allocation would be discussed.

As regards *Concord*, Mr. Jenkins said that neither Britain nor France had as yet spent or committed large sums, and up to the present time only about 3,000 people were involved, mostly in Bristol with about 400 in Coventry. The point had been reached where costs and the amount of labour involved would begin to rise fairly sharply. Besides these short-term reasons for desiring to review, there were long-term reasons. All should be satisfied that the counterbalancing technological and social considerations were commensurate with the costs. Whatever view was eventually taken of the *Concord* project, he was convinced that in the interests of both the French and the British aircraft industries, the two countries should work as closely as possible alongside each other. Collaboration so far had been happy and our doubts were entirely about the *Concord* project, not the collaboration. If the Government was convinced that the project was in the best interests of both countries it would wish it to go ahead, and even if there was an area of legitimate doubt a solution might still be found which would retain the possibility of developing a supersonic airliner which would be economic. But it could not be assumed that Britain's scarce resources permitted her to develop every existing possibility.

SCIENTIFIC RESEARCH IN SCHOOLS

THE president of the Royal Society, Sir Howard Florey, presided at a meeting in the Society's apartments at Burlington House, London, W.1, on September 30, to hear an account of some of the researches which have been carried out by practising teachers assisted by funds administered by the society's Research in Schools Committee.

The president, in his introductory remarks to an audience of more than 140 comprising school science teachers, their research advisers and officials of the Association for Science Education, said that the Council and Fellows take a great pride in the work done in schools, with the help of the committee, and it is crucial to Britain's benefit for this kind of work to be undertaken in schools. In addition, it gives teachers an insight into the frustration and disappointment which often go hand in hand with research.

After the president's remarks two papers were read, followed by a discussion and an interval for tea. Then two further papers were read and a further discussion was held. A brief summary of the four papers is given here.

Studies of Sympatric Evolution in the Butterfly, Maniola jurtina. By W. H. Dowdeswell, Winchester College.

The number of spots on the underside of the hind-wings of the meadow brown butterfly (*Maniola jurtina*) was a characteristic well known to be subject to the action of natural selection. Among the females, a typical South European spot-distribution with a high mode at 0 spots changed abruptly to a bimodal distribution (at 0 and 2 spots) in the vicinity of the Devon–Cornwall border where no physical barriers exist which might restrict the flight of the insect. There was evidence that the braconid *Apanteles tetricus* may be one of the agents tending to reduce spotting, while the bacterium *Pseudomonas fluorescens* may have the opposite effect. We might have a situation here comparable with that controlling sickle-cell anæmia in man.

The Lower Carboniferous Flora of the Tweed Basin. By A. G. Long, Berwickshire High School.

Primitive pteridosperm ovules from Berwickshire suggested that the integument evolved by fusion of separate sterile lobes around a megasporangium.

Two species of ovules occurred within cupules also composed of sterile cylindrical processes. Such cupules showed features comparable to angiosperm carpels and suggested that the pteridosperm cupule was the precursor of the angiosperm carpel.

Three *Lepidodendron* specimens showed the transition anatomy between stem and root without a stigmaria.

The nearest comparable flora was that of the Saalfeld beds in Central Europe.

The Stowe Radio Telescope. By J. M. Osborne, Westminster School, London.

A brief outline of the Stowe radio telescope was given. The original concept was described and the discussion with slides included the results obtained. Their significance in the field of amateur radio astronomy was mentioned.

The Szilard–Chalmers Reaction in Iodobenzene. By T. A. H. Peacocke, St. John's School, Leatherhead.

The original theory of the Szilard–Chalmers reaction explains the retention of iodine-128 in the parent molecule in terms of the recoil energy of the active atom. The recoil energy is about 200 eV and would result in the production of 5–7 free phenyl radicals. An alternative theory recently emphasized by C. N. Walton[1] considers the total energy release in terms of the electron excitation produced by the γ-rays emitted following the absorption of the neutron. This energy is greater than the recoil energy by several orders of magnitude and would produce many more free radicals than the 5–7 predicted by the original theory.

To test the rival theories iodobenzene has been irradiated with neutrons in the presence of scavenger iodine labelled with iodine-131, using the *Lido* reactor at the Atomic Energy Research Establishment. The accompanying γ-flux produces considerable radiolysis. To differentiate this from the effect of slow neutrons, some tubes were surrounded with cadmium. The observed retention of iodine-131 was measured in the absence of cadmium (R_1) and in the presence of cadmium (R_2). At neutron fluxes of the order of 10^8 n cm^{-2} sec^{-1}, R_2 is less than R_1; as the flux is increased the differences become smaller and at high neutron fluxes become negative. This could be explained in terms of the increased γ-flux inside the cadmium box as measured with the ferrous sulphate dosimeter. Approximate calculations indicate that 10^5 atoms of scavenger iodine are captured per Szilard event. This indicates the production of at least this number of free radicals, which would give strong support to the electronic excitation theory. The conclusions so far drawn must be tentative and further work is in progress.

Dr. F. P. Bowden, the chairman of the Committee for Scientific Research in Schools, in his closing remarks, said:

"This is the first occasion in the history of the society that scientific research carried out in schools has been presented in a formal discussion before it, which emphasizes the importance, at this moment of time, of science teaching in schools and it shows clearly the high level of ability with which some of our schools are manned on the scientific side. A wide increase of such research is without doubt one of our greatest needs in this country. Only a few days ago I was discussing with a research director of a major industry the implementation of his company's programme for the next five years. It was a highly imaginative programme and of great interest. Its successful prosecution, and that of similar companies, is vital to the economy of this country.

"It was clear that the programme could not be fully implemented because sufficient scientific and technical men were not available to carry out the work. There are many things we must do to cope with this situation and to breed more of them. It is clear that the cradle and source of them all is science in schools, and it is there that we must take urgent and effective action. This is one reason why we are grateful to the masters and the schools who are taking part in this scheme. There is no better way of showing schoolboys that science is an exciting activity than by doing creative work in it under their noses, and frequently with their participation. This is a fairly new scheme and it has developed quite rapidly—about 100 projects are in progress at the present time—but we would like to see it much more widely extended and we would be glad if you would tell your colleagues in other schools throughout the country about it.

"The other reason for our gratitude is a more usual one. One of the main functions and pleasures of the Royal Society is to hear of new scientific work and discoveries and to discuss them on their own merits. This has been an essential function of this meeting and it is very impressive to see the remarkably high scientific quality of the work which has been put before us. Of course, we have heard only a few papers; but it is typical of much of the work which is being carried out.

"We wish to express our thanks to the contributors and to the speakers for the very interesting afternoon they have given us, and to the president for presiding and taking part in the meeting. His presence here is a visible sign of the effective action which he, the Council and the officers of the society have taken throughout in supporting our committee and the scheme." R. H. Dyball

[1] Walton, C. N., *Radiochimica Acta*, **2**, 108 (1964).

HYDROXYCINNAMIC ACIDS AND RELATED COMPOUNDS

THE Plant Phenolics Group recently changed its name to the Phytochemical Group with the object of broadening the scope of its discussions into the whole field of plant products; but for its first meeting under the new title, held in the Department of Chemistry of the University of Sheffield during September 21–23, it appropriately returned to the topic of plant phenols and in particular to hydroxycinnamic acids. Investigations of the structure and properties of natural products and in particular plant polyphenols have figured prominently in the researches carried out in Sheffield under a founder member of the group, Prof. R. D. Haworth, and these problems continue to interest his recently appointed successor, Prof. W. D. Ollis.

The meeting opened on September 22 under the chairmanship of Prof. Ollis, who welcomed the group to Sheffield. The first speaker, Dr. J. B. Harborne (John Innes Institute, Hertford), revealed the general background to the meeting in a paper entitled "The Occurrence, Distribution and Function of Hydroxycinnamic Acids in Plants", in which particular emphasis was laid on the taxonomic interest which these acids and their combined forms possess. They also play a central part in the biosynthesis of many of the more complex plant phenols, and in this context Dr. Harborne made brief mention of the problem of the complete absence in plant tissues of 3,4,5-trihydroxycinnamic acid suggesting that, for example, it may be replaced by gallic acid.

The four speakers who followed dealt with the problems associated with the determination of the structures of compounds recently discovered and found to contain one or more of the known hydroxycinnamic acids.

Prof. L. Birkofer (University of Cologne) unfolded the story behind the isolation, characterization and structure