

would be produced by high spontaneous activity, making the basket cells inexcitable to surface stimulation and therefore unable to inhibit Purkinje cells. They give evidence for some sustained activity of the basket cells in unanaesthetized preparations: if this were reduced by Purkinje collaterals the facilitation of antidromic invasion following surface stimulation would also be explained. Bloedel and Roberts conclude that the lateral inhibition produced by activity in a group of parallel fibres does not in fact exist in unanaesthetized preparations and that it is therefore difficult to incorporate it in any theory of cerebellar function.

#### PUBLIC PERFORMANCE

### Gabor on Holography

A SPARKLING lecture on the development of holography was given at the Royal Institution last Friday evening by Professor D. Gabor of Imperial College, London. With an endearing combination of panache and heavy footed humour, Professor Gabor managed to engage the wider tastes of an evening audience, pandering successfully to the conflicting lusts for knowledge and entertainment. Those eager to glean the finer details of the physics of holography were not left in the cold, and the speaker managed to weave in the technological and commercial aspects of the subject with disarming ease.

Although many in the audience must have been familiar with the general idea of holography, nobody could have failed to be impressed with the array of apparatus and slides that Professor Gabor brought along to turn the subject into a living phenomenon. A ripple tank, illuminated from behind, displayed more clearly than any textbook photograph the way in which waves from two slits will interfere, and a live showing of a laser-illuminated hologram gave a vivid illustration of the quality of pictures reproduced from holograms.

The diagram which Professor Gabor used to indicate how the object ray and the direct light combine to form the hologram suffered somewhat from a surfeit of lines, but the following demonstration of a three-dimensional image of Abraham Lincoln, complete with shadow and projected from a mottled and shapeless hologram was captivating. A collection of slides showing the practical applications of holography, including the measurement of minute defects in car tyres and the possible uses for three-dimensional movie projection, will have touched the hearts of those who see the fulfilment of any discovery as lying in its practical benefits to mankind.

Probably the most serious note that can be drawn from this lecture is educational. How much more enticing a subject becomes when it is portrayed in an imaginative and illustrative way. Freed from an unnecessary jumble of concepts and from unnecessary rigour, the talk will have ensured that those present will not readily forget the idea of holography.

#### ORGANOMETALLICS

### Encouragement for Catalysts

THE Science Research Council has announced its intention to give special support to research in organometal-

lic chemistry. It will make grants of up to £300,000 in 1969-70 if it receives proposals of sufficient merit. The decision arises from the report of the Organometallic Chemistry Panel, one of a number of panels set up last year to search chemistry for areas which deserve special attention in these days of shrinking government support for science. The panel concludes that organometallic chemistry, "the most rapidly developing area of chemistry", has a huge economic potential.

Organometallic molecules—defined as those containing metal directly bonded to carbon—are not new to chemistry. Grignard reagents and organolithium compounds have been used in organic synthesis for many decades, but it is only comparatively recently that the variety and scope of this direct merging of the organic and inorganic have been appreciated. A host of organometallics is now known and some of them have already carved sizable niches for themselves in industry. Perhaps most important are the Ziegler-Natta catalysts—mixed alkyls of titanium and aluminium—used in the polymerization of olefins.

In its report, the panel speculates about the future growth of the field. It feels that industrial catalysis will continue to see the main applications of organometallic chemistry, and predicts that in twenty years, perhaps half the catalyst systems in use in the heavy organic chemical industry will be organometallic in nature. If British industry lags in the development of these catalyst systems, it will be faced with a bill for exported royalty payments in the region of £15 million a year by 1980, while, if even one or two of the important catalyst systems of the 1980s are British innovations, the panel estimates that the country may earn about the same amount in imported royalty payments.

Organometallic catalyst systems now nearing application show activities and selectivities which are about an order better than the best known heterogeneous catalysts, but their performance still falls far short of that of enzyme catalysis. Many enzymes are in a sense organometallics, and the panel sets the duplication of enzyme performance as a target for organometallic chemists. Other areas where organometallics can be expected to prosper include the stabilization of plastics and the manufacture of silicones.

The panel recommends that the extra money should find its way into existing centres of research, and estimates that it should sustain about 150 additional workers in the field. It rejects the creation of a central specialist institute, making a gentle reference to the "well-known difficulty of disposing of such an institute when, as is inevitable, its work is done and interest in this particular field of chemistry wanes".

The report is consistently Baconian: academic curiosity yields second place throughout to the needs of industry. The panel seems particularly anxious that too much effort should not be spent on the routine synthesis of new organometallics. Every known organic compound will have its organometallic cousins, but in the words of the report "the generation of a second Beilstein of organic compounds would not be helpful at this stage". In fact, the panel preaches a sense of direction and a level of cooperation between industry and university which have so far been unknown in British chemical research. It will be interesting to see what happens to these golden intentions in the years to come.