MICROBIAL PEST CONTROL

BRITISH COMPANY LOOKS TO THE FIELD

LONDON—One of the first projects for Microbial Resources, Ltd., a new company set up recently in Britain with £2 million in venture capital from Lazards, Schroders, and other prestigious City [London financial district] investors, appears to be in the environmentally contentious field of biological pesticides. Next summer Steve Lisansky and his colleagues will probably be spraying a virus to destroy sawfly larvae on 6000 hectares of pine plantation owned by the Forestry Commission in Scotland. They had some success in initial trials in the summer of 1984, using virus extracted from ground-up bodies of infected sawflies. Lisansky's four-man team (former employees of Tate & Lyle, Ltd.) also plan to exploit a Verticillium fungus in combatting aphids and whitefly, which pose a considerable nuisance to chrysanthemums cultivated in the greenhouse.

The man responsible for attracting City support for Microbial Resources, Ltd., was Ian Kent, the former managing director of FBC, Ltd., (a company formed through a merger of the agrochemical interests of Fisons and Boots). In 1984, Kent established a new venture capital company, Plant Resources, Ltd. (PRL, Cambridge), to manage investments in the realms of agricultural and environmental biotechnologies. PRL has since been looking for innovative projects needing both development capital and ongoing management expertise. It will concentrate initially on investments in the U.K. and continental Europe concerned with food processing, animal and crop improvement, agricultural technology, and water and waste management. A newcomer to Britain's expanding venture capital industry, PRL intends to create and organize operations in its chosen areas with more commercial, marketing, and financial input than is usual with venture capital investment. Under Kent and another former director of FBC, Robert Love, the new company plans to direct institutional investments amounting to no less than £10 million over the next two or three years. **—Bernard Dixon**

FERMENTATION TECHNIQUES

TRACKING FERMENTATION BY SOUND

STEVENAGE, Herts., U.K.—Many plant operators over the years have found themselves listening to the sounds emanating from their process vessels. The exquisitely sensitive human ear has been employed to complement data available from more orthodox monitoring gear. Now researchers at the Department of Trade and Industry's Warren Spring Laboratory here are trying to replace human experience with modern science. Led by Ken Carr-Brion, head of the Control Engineering Division, they hope to gain information from ultrasonic detectors attached to bioreactors for use in regulating fermentation and other biotechnological production processes.

The main problem, Carr-Brion reports, is the complexity of signals emerging from a typical brew. Particles suspended in the culture fluid hit each other and the stirrer blades, resonating after impact with frequencies characteristic of particle size. Scraping against the reactor walls provides a different type of sound emission. Grinding causes a third variety of signal. And the differing frequencies of sounds from bubbles forming and bursting complicate the picture further.

But the Warren Spring Researchers have produced some intriguing graphs showing sound emissions during fermentation by brewer's yeast (with the noise falling off abruptly after biocide is added). And they are now developing digital filtering methods allowing them to select particular regions of the sound spectrum for the information it can provide. Other techniques help to eliminate multiple reflections and correct for variables such as temperature and pressure. An alternative approach, now being explored, is not just to listen in but to pump specific frequencies of ultrasound into a bioreactor. Its reflections could give more precise insight into the condition of a culture than that available from natural noises alone. **—Bernard Dixon**

IMMUNOLOGY

CLINICAL TRIALS NEAR FOR HEPATITIS VACCINE

LONDON—The Wellcome Foundation is about to commence human clinical trials with the hepatitis B vaccine it will market throughout the world under licence from Biogen (Geneva, Switzerland).

Four years ago, following pioneering work by Ken Murray, head of the company's scientific board, Biogen became the first to report synthesis of hepatitis B antigens by genetic engineering techniques. Made by inserting the gene coding for the virus's surface antigen polypeptide into *Saccharomyces cervisiae*, where it can be controlled by a yeast promoter region, the vaccine is identical to the surface antigen of hepatitis B virus but with its usual carbohydrate groups missing. Efficacy and toxicology tests in chimpanzees have convinced Biogen and Wellcome that the agent has a major role to play in combating an infection now provoking growing apprehension among public health authorities. Globally, there are thought to be over 200 million carriers of hepatitis B—which, as well as causing chronic liver disease, seems to be responsible for up to 80 percent of cases of hepatocellular carcinoma.

To be registered and manufactured by Wellcome Biotechnology, the new vaccine is one of several under development that could supplant the currently available versions made—by Merck, Sharp and Dohme (MSD-Rahway, NJ) and by Pasteur Products (Paris)—from the plasma of hepatitis B carriers. MSD had reported success with its genetically engineered Heptavax-B, while Arie Zuckerman and his colleagues at the London School of Hygiene and Tropical Medicine are evolving vaccines based on entirely synthetic peptides.

—Bernard Dixon