swelling and rupture of mitochondria and a reduction in ATP/ADP ratio compared with untreated cells. These effects of concanavalin A were markedly reduced by \( \alpha \)-methyl-D-mannopyranoside, indicating that the concanavalin A binding sites on the LAT cells are sterically related to this sugar. The observed effects on the mitochondria may provide an explanation for the known cytotoxic effect of concanavalin A on ascites tumour cells.

ACCENTUATION OF CHLORAMBUcil EFFECT BY VARIOUS ADDITIVES ON RAT TUMOUR CELLS IN CULTURE, T. K. Basu, N. P. Bishun, R. W. Raven and D. C. Williams, The Marie Curie Memorial Foundation, Oxted.

Chlorambucil has been used extensively for the treatment of chronic lymphocytic leukaemia but the development of resistance to the drug has restricted its usefulness. An understanding of its mode of action when used in combination with other substances may lead to a wider application of the drug in cancer therapy. In recent years vitamin A and caffeine have been reported to enhance the anti-tumour effect of certain alkylating agents (Cohen and Carbone, \textit{J. natn. Cancer Inst.}, 1972, \textit{48}, 921; Cohen, \textit{J. natn. Cancer Inst.}, 1972, \textit{48}, 927).

In view of these observations, we have investigated the combined effect of chlorambucil, vitamin A, caffeine and phenobarbitone on an established tumour cell line derived from a male rat breast. The viable cell counts in chlorambucil (Chl), Chl + phenobarbitone (Pb), Chl + Pb + caffeine (Caf) and Chl + Pb + Caf + vitamin A were 61\%, 44\%, 40\% and 25\% of the control counts respectively after 3 days, at which time these combinations had their greatest efficacy.

FACTORS INFLUENCING THE ESTABLISHMENT OF HUMAN TUMOUR CELLS AS A XENOGRAFT, L. M. Cobb, B. C. V. Mitchley and J. M. F. Wood, Huntingdon Research Centre and Chester Beatty Research Institute, London.

In recent years it has been possible to obtain growth of human tumours in “immune deprived” rodents. We have observed that certain types of tumour, for example, carcinoma of the colon and rectum, almost invariably become established and others have proved difficult to grow. During this work a number of factors have emerged that seem likely to influence the establishment of human tumour grafts. These factors include species of recipient, method of immune deprivation, blood levels of sex hormones in the recipient and size and site of implant.

CHLORPROMAZINE STIMULATION OF PROLACTIN SECRETION: A TEST OF PITUITARY FUNCTION, R. G. Wilson, B. N. Cole, A. R. Boyns and A. P. M. Forrest, Department of Clinical Surgery, University of Edinburgh and Tenovus Institute of Cancer Research, Cardiff.

Phenothiazines cause a rise in plasma prolactin in normal subjects when given orally or by injection (Frantz \textit{et al.} and Bryant and Greenwood, 1972, Ciba Symposium \textit{Lactogenic Hormones}. Ed. G. B. W. Wolstenholme and J. Knight. London and Edinburgh: Churchill Livingstone). Turkington (\textit{J. clin. Endocr.} 1972, \textit{34}, 247) described the acute stimulation of prolactin secretion using 50 mg of chlorpromazine i.m. The prolactin response was diminished in hypopituitarism.

Six patients with breast cancer were similarly tested. The plasma prolactin response was measured by homologous radioimmunoassay. The mean basal plasma prolactin was 13-7 ± (s.e.) 7-5 mAmp/ml. This rose to a peak of 77-3 ± 11-4 mAmp/ml within 2 hours of the injection.

One to three months after yttrium implant pituitary ablation for advanced breast cancer, patients received a similar stimulation of residual prolactin cell function. This was in addition to the standard test of growth hormone response to insulin reduced hypoglycaemia (Stewart \textit{et al.}, \textit{J. Endocr.}, 1971, \textit{50}, 41). The two tests have been compared and both have demonstrated positive responses in the case of incomplete pituitary ablation, as proven by post-mortem histology of the gland.

The chlorpromazine test is simple and possibly safer than the standard test in hypophysectomized patients.

THE EFFECTS OF FENTAZIN ON ANDROGEN METABOLISM IN DMBA INDUCED RAT ADENOCARCINOMATA, W. R. Miller, R. Buchan and A. P. M. Forrest, Department of Clinical Surgery, University of Edinburgh.
Fentazin (perphenazine), a phenothiazine, increases circulating prolactin levels by inhibiting prolactin inhibiting factor. (Pearson et al., Trans. Am. Physicns, 1969, 32, 225). Female Sprague-Dawley rats aged 30 days were started on daily subcutaneous injections either of Fentazin (5 mg/kg body weight) or vehicle (0.2% citric acid). Both groups of animals received DMBA (5 mg i.v.) when aged 50 days. The in vitro metabolism of [3H]dehydroepiandrosterone and [3H]testosterone was determined in adeno-carcinomata subsequently appearing in the rats.

Adenocarcinomata from the Fentazin treated animals displayed greater metabolism of testosterone than those from control animals whereas the transformation of dehydroepiandrosterone was similar in both groups. The increase in testosterone metabolism was largely accounted for by a significant increase in 5α-reductase activity. These results suggest that prolactin may modify the intracellular environment of steroid hormones in rat adenocarcinomata.

TRIPLE CHEMOTHERAPY IN ACUTE NON-LYMPHOCYTIC LEUKAEMIA, J. J. Fennelly and L. O'Connell, Our Lady's Hospice, Dublin.

Thirty-two patients with acute non-lymphocytic leukaemia (22 myeloid, 2 monoblastic, 3 myelomonoblastic, 2 promyelocytic, 3 blast crisis) have been treated with combined daunorubicin 1 mg/kg i.v. × 1 cytosine arabinoside 2 mg/kg × 5 and vincristine 1 mg i.v. × 1 in 5-day cycles and followed by 6-mercaptopurine and cyclophosphamide when remission was induced, with reinduction at 3-monthly intervals. Sixty per cent of patients went into full remission, which has lasted from 6 months to 2 years. Two patients with acute promyelocytic leukaemia developed coagulation problems which were controlled by EACA and then went into full remission. Two patients with acute monoblastic and myelomonoblastic leukaemia went into full remission on this programme.

One patient who was extremely ill during induction of remission developed a severe neuropathy. Alopecia was a problem with higher dosage of daunorubicin and cardio-toxicity occurred in 2 patients. Reinduction at 3-monthly intervals with triple chemotherapy was smooth and in our opinion contributes to the prolonged remission in these cases. Age group did not significantly affect remission rate.

FAMILIAL HODGKIN'S DISEASE, J. J. Fennelly and A. McBride, Our Lady's Hospice, Dublin.

Three girls in one family developed nodular sclerosing Hodgkin's disease in 1967, 1970 and 1973 respectively. In addition, other members have had multiple viral infections, including infectious mononucleosis and herpetic infections. An intensive study of chromosomes HL-A typing, blood groups, immunoglobulins immunity (DNCB Mantoux test, lymphoblast transformation) has been carried out on all siblings (5) and parents and is presented, in addition to complete studies of viral antibodies, with emphasis on EB virus. The triple occurrence in this family at such time intervals suggests that some genetic factor, i.e. depressed immunity must in these cases provide an underlying milieu in which a viral infection may manifest itself as Hodgkin's disease.

USE OF THE CARCINOEMBRYONIC ANTIGEN AND SERUM ENZYME CHANGES IN THE DETECTION OF METASTATIC INVOLVEMENT OF THE LIVER, L. Steele, E. H. Cooper, A. Munro Neville and M. S. Losowsky, Department of Cancer Research, University of Leeds, and Chester Beatty Research Institute, London, and Department of Medicine, St James's University Hospital, Leeds.

The combination of estimations of carcino-embryonic antigen (CEA) with certain serum enzymes (γ-glutamyl transpeptidase (γGT) and leucine aminopeptidase (LAP) can enhance the separation of controls from patients with primary colorectal cancer and those with metastatic involvement of the liver.

γGT contributes to this discrimination in both the primary and secondary case. The mean values were: (i) control 13.94 ± 7.65; (ii) primary 21.65 ± 12.20 and (iii) metastatic 139.34 ± 96.22.

On the other hand, the LAP was elevated only in metastatic involvement of the liver and did not rise before the γGT exceeded 100 units: (i) control 41.55 ± 9.20; (ii) primary 40.27 ± 14.38 and (iii) metastatic 96.81 ± 50.39.