ment of Anatomy, Birmingham University Medical School.

We have previously reported (Whur et al., Br. J. Cancer, 1973, 28, 417) that intraperitoneal injections of soybean trypsin inhibitor into tumour bearing mice reduced the number of tumour cells recoverable in the ascitic fluid by up to 92%, and tentatively proposed on the basis of scanning E.M. observations that this reduction was attributable to large numbers of tumour cells adhering to the peritoneum. We have traced the fate of radiolabelled Ehrlich ascites tumour cells in autoradiographs of sections of the peritoneum and of cells from the ascitic fluid from trypsin inhibitor treated and untreated mice.

Our results indicate that cells on the peritoneum of treated mice, previously postulated to be tumour cells, are in fact of host origin. The disappearance of tumour cells from ascitic fluid of trypsin inhibitor treated mice is probably attributable to an enhanced inflammatory response in these animals.

GROWTH OF A CANINE SOLID MAMMARY CARCINOMA IN VITRO AND IN Nu MICE. L. N. OWEN and D. R. MORGAN, Department of Clinical Veterinary Medicine, University of Cambridge.

The biological behaviour of spontaneous anaplastic or solid carcinoma of the mammary gland in the dog is similar to carcinoma of the breast in women.

A 14-year old cross-bred terrier bitch developed rapidly growing and infiltrating solid carcinomata in the pelvic mammary glands on both sides. Following euthanasia, metastatic tumours in the lungs were made into a cell suspension and cultured in TC 199 containing 20% FCS. Better growth occurred following transfer to RPMI medium + 30% FCS or a very complex medium containing glutathione, cortisol and insulin. The culture has now reached its 40th passage with an approximate doubling time of 5 days.

Cells from the 30th passage were injected subcutaneously into a Nude mouse and within 22 days palpable tumours appeared. The histological diagnosis was solid carcinoma of similar appearance to the original primary and metastatic tumours in the dog. Tumour cells grown in tissue culture have been injected into foetal dogs and newborn puppies immunosuppressed with antilymphocyte serum.

GROWTH CHARACTERISTICS OF A HUMAN BLADDER TUMOUR SUBCUTANEOUSLY IMPLANTED IN IMMUNE DEFICIENT MICE. C. R. FRANKS, Imperial Cancer Research Fund Breast Unit, Guy's Hospital, London, D. R. TURNER, Department of Pathology, Guy's Hospital Medical School, London, and D. BISHOP and F. T. PERKINS, National Institute of Biological Standards and Control, London.

In previous studies (Franks et al., Nature, Lond., 1973, 243, 91 and Proc. R. Soc. Med. (in press) 1974) it has been shown that human tumours can be grown by subcutaneous implantation in immune deficient mice. Growth has been assessed by serial measurements of the vertical and transverse diameters of the palpable tumour, and viability confirmed retrospectively at autopsy.

In this study, a papillary cell carcinoma of the human bladder on its second passage, 117 days after removal from the patient, was subcutaneously implanted in 5 mice. During the 70-day experimental period, needle biopsy was performed under anaesthesia at 14-day intervals using a disposable Menghini biopsy needle. The transverse and vertical diameters of the tumours were also measured using Vernier calipers.

The results show that between Day + 20 and Day + 25 there is a critical period during which the implanted tumours appear to undergo a process of selection, following which there is either an active increase in size or regression.

AGGREGATION KINETICS OF NORMAL AND TRANSFORMED BHK 21 FIBROBLASTS USING A PARTICLE COUNTER COUPLED WITH A CHANNEL ANALYSER. P. WHUR and H. KOPPEL, Cell Biology Unit, Marie Curie Memorial Foundation, Oxted.

We have examined cell aggregation in shaking suspensions using a Coulter model Fn counter coupled with a P64 channel analyser. After calibration this apparatus is used to detect the number of cells present in aggregates up to a maximum size of about 50 cells, and thus to calculate the net redistribution of cells between aggregates as aggregation progresses.
Initial results suggest that aggregation assessment methods based on changes in single cell or total particle counts may give misleading results under certain conditions. Using this technique, we have found that the extent of prior trypsinization has a critical effect on the subsequent kinetics of fibroblasts. Preliminary results with polyoma transformed fibroblasts show that initial cell suspensions contain a much higher proportion of single cells and form fewer and smaller aggregates than normal cells.

**Wednesday 9 April**

**CLUSTERING IN ACUTE CHILDHOOD LEUKAEMIA IN DUBLIN.** J. J. Fennelly, J. Bell and A. McBride, Temple Street Children’s Hospital and Our Lady’s Hospital for Sick Children, Dublin.

In a population of 80,000 in a Dublin area, 13 cases of acute childhood leukaemia occurred in a 3-year period. In a comparable Dublin area of similar population 2 cases occurred in the same period of time. Five of the 13 children lived within 500 yards of one another and of these 5, 3 were diagnosed within a space of 10 weeks. The predominant type of leukaemia was lymphoblastic. The father of one child with acute myeloid leukaemia developed acute leukaemia within 6 months of his son—both died within 6 months of one another. Screening tests on the 5 surviving family members showed a significant increase in herpes simplex virus titres. The expected incidence of this disease is just less than 3 per 100,000 per year. Our finding of 21 cases per 100,000 per year is statistically significant.

**ORAL AND PHARYNGEAL CANCERS IN TEXTILE WORKERS.** E. Moss and W. R. Lee, Department of Occupational Health, University of Manchester.

There was a highly significant excess (77%) of deaths in 1959–63 from oral and pharyngeal cancers in male textile workers compared with the male population of England and Wales. The excess occurred in tongue, mouth and pharynx.

Fibre preparers (mostly very dusty jobs) had a highly significant excess of 330%, weavers and knitters a deficit of 32%, spinners and winders an excess of 32% and bleachers, dyers and finishers an excess of 85%. Of 19 fibre preparers, 18 had worked with wool and only one with cotton.

Occupational surveys of oral and pharyngeal cancer patients and age-matched controls at Christie Hospital in Manchester and Cookridge Hospital in Leeds are now covering the two main textile regions of England. A significant excess of textile workers has been found in 57 female oral cancer patients in the N.W. region where cotton predominates.

**MALIGNANCY IN THE LARGE BOWEL, THE INTER-RELATIONS OF SEX, AGE AND SUB-SITES.** J. Powell, Regional Cancer Registry, Queen Elizabeth Medical Centre, Birmingham.

A total of 23,000 malignant tumours of the large bowel were registered in the Birmingham Region during the period 1960–71. The detailed classification used enabled sex and age specific incidence rates to be calculated for each sub-site.

Comparisons of these rates indicate a surprising similarity between the sexes in the proximal bowel, a change in the sigmoid and the well known excess of males increasing in successive segments of the distal bowel. Within the colon, the sub-site incidence shows some interesting contrasts. The ascending, transverse and descending colon have virtually identical rates despite their differences in length and surface area. On the other hand, the caecum, hepatic and splenic flexures have high rates out of proportion to their relatively small size.

It is interesting to speculate on the relation between these factors and current theories on aetiology of the hind gut.

**REPAIR PROCESSES AND THE RESPONSE OF DIVIDING AND NON-DIVIDING CELLS TO ALKYLATION.** A. R. Crathorn, Pollards Wood Research Station, Bucks.

It has been suggested that stationary phase cultures of mammalian cells might be better models of in vivo situations than