no statistically significant differences between cancer and control households in the proportion of households with these pets, the average number of pets owned during the previous 10 years, the average number of years that pets had been owned, the degree of handling of pets, or the spectrum of illnesses in pets. Less than 30% of the patients with cancer belonged to families that owned cats.

Hanes and his colleagues refer to an unpublished case-control survey by R. Schneider in northern California. In this study the households in which cats had died from histologically confirmed cancer were compared with control households with healthy cats. Schneider found no excess of human cancer in the former. None of these findings completely exclude the possibility that isolated cases of cancer in man result from infection with oncogenic viruses transmitted from cats or other pets, but they strongly suggest that such transmission plays little part in the causation of human cancers in general.

10 Hanes, B., et al., Journal of the National Cancer Institute, 1970, 45, 1155.

Hydatidiform Mole and Hyperthyroidism

In the past few years many cases have been recorded of tumours arising from tissues lacking an endocrine function yet producing a variety of substances which have a hormonal effect on the patient. Tumours of the bronchus have been shown to contain an adrenocorticotropic and an antidiuretic substance.1 Sclerosing haemangiomata containing a parathormone-like material,2 renal cysts with erythropoietin,3 and sarcomas with insulin-like material are other examples. Recently it has been shown that tumours of the germinal cells can produce thyroid-stimulating substances.

The thyroid is well known to be responsive to pregnancy. For instance, mild thyrotoxicosis may occur, the basal metabolic rate may be high, the level of protein-bound iodine tends to rise, and the uptake of iodine by the thyroid gland is greater than in the non-pregnant state.4 It is possible that the raised basal metabolic rate is due to the increasing oxygen demands of the fetus, the raised protein-bound iodine to an increase in the plasma thyroid-binding globulin produced by oestrogens, and the excess uptake of iodine to reduction of iodine in the thyroid gland secondary to increased urinary excretion of iodine. But an alternative explanation has recently been advanced. J. M. Hershman and W. R. Starren5 isolated from normal human placentas a material with thyrotropic activity which they called chorionic thyrotropin.6 They showed, moreover, that the average thyrotropic activity in a placenta was the same as in the pituitary gland. The association between pregnancy and thyrotoxicosis extends further, for frank thyrotoxicosis is known to occur in patients with tumours of the placenta.

Probably the first recorded instance of this association was by L. Tisne and his colleagues.8 They showed that in association with hydatidiform mole the uptake of radioiodine by the thyroid gland was higher than in normal pregnancy, and could be accompanied by the clinical signs of thyrotoxicosis. Similar reports9 suggested that the concurrence of these two diseases was more than coincidental, because evacuation of the uterus or treatment of the placental tumour relieved the thyrotoxicosis. Further, the recovery of a thyrotropin from patient's plasma and from the tumour was further proof of a causal relationship. That an association of this kind is not restricted to the female was shown by N. H. Steig- 

How common a finding is thyrotoxicosis in patients with hydatidiform mole or chorioncarcinoma? In a review of 93 patients with metastatic trophoblastic disease W. D. Odell and his colleagues10 found 7 with evidence of thyrotoxicosis, and two of these had raised levels of thyroid-stimulating hormone in the plasma. In all cases treatment with methotre xate resolved both conditions.

Interest has now shifted to identifying the thyroid-stimulating substance in these tumours. Hershman and H. P. Higgins12 report a further two patients with hydatidiform mole and thyrotoxicosis severe enough to threaten life. Removal of the mole in both patients cured the thyroid disease, and both have since had normal pregnancies with no disturbance of thyroid function. From one of these patients a thyroid-stimulatory substance was obtained which differed immunologically and chemically from both human pituitary thyrotropin and normal chorionic thyrotropin. This molar thyrotropin, as it has been called, was also unlike long-acting thyroid stimulator (LATS) in its duration of action and its chemical structure, since LATS is now known to be an IgG antibody.

Thus four distinct substances have been isolated which stimulate thyroid activity. Since hydatidiform mole and chorionepithelioma appear to be the source of one of these, we must include these two tumours as parts of the enlarging interface between oncology and endocrinology.