January

In a guest editorial, Carter (National Cancer Institute, Bethesda, Maryland) reviews the current status of treatment of large bowel cancer. Clinical and experimental research on solid tumors has shown that: (1) clinical staging of solid tumors is inaccurate, as surgical exploration reveals that most tumors are disseminated; (2) unrecognizable minimal residual tumor remaining after surgery is responsible for recurrence and death; (3) adjuvant therapy should be used as soon as possible after surgery, when the most effective therapy can be offered to the least residual tumor. Radical surgical excision is the only universally accepted curative treatment for invasive large bowel carcinoma, but it has had only limited success. Survival depends significantly on the location of the primary. Carter reviews studies on preoperative and postoperative irradiation, chemotherapy, combination therapy and immunotherapy. He postulates that the combined modality approach may prove most effective.

To determine whether the increased androgenic activity in breast cancer patients is ovarian in origin, Grattarola (Istituto Nazionale per lo Studio e la Cura dei Tumori, Milano, Italy) studied the excretion level of testosterone before and after ovariectomy in 40 patients with disseminated breast cancer. Two months after ovariectomy, the excretion of urinary testosterone decreased significantly. Five months postoperatively, the urinary testosterone was higher in six patients than it had been two months after surgery. The author postulated that the increased gonadotropic activity might have stimulated adrenal androgen secretion.

Dexamethasone, administered two months after ovariectomy, was used to inhibit excretion of adrenal androgen; 10 of 11 patients treated by ovariectomy plus dexamethasone experienced remission. The duration of the regression was longest in this group of patients.

February

Bartlett and associates (The Milton S. Hershey Medical Center, Pennsylvania State University, Hershey, Pennsylvania) discuss the immunotherapy of cancer in animals and pose the intriguing question, "Have models muddled?" The authors consider the following: What is immunotherapy? Are animal systems valid for clinical immunology? What imperfections exist in animal models? How do animal models relate to clinical immunotherapy trials? What are the appropriate directions for animal studies?

Clinical and laboratory investigators should use four distinct approaches in extrapolating experimental results to clinical applications. (1) General relevance of animal results should be established by application in several animal models, representing different tumors and species. (2) Gen-
eral relevance should also be supported by confirmation of results in various laboratories. (3) Further studies should be conducted on the basic mechanisms by which immune stimulants effect tumor growth, with particular focus on predicting the value of certain agents or the design of new ones. (4) Principles derived from animal models should be confirmed in controlled clinical trials before general clinical use.

Gonda et al. (Frederick Cancer Research Center, Frederick, Maryland) compared the ultrastructure of human normal and tumor cells as determined by scanning and transmission electron microscopy. The cultured cancer cells included carcinomas, sarcomas, melanomas and neural tumors. Scanning electron microscopy made it possible to see the three-dimensional image of the cell at high resolution. Tumor cells had striking degrees of surface activity, with numerous microvilli, filopodia, blebs and ruffles.

By transmission electron microscopy, the cytoskeleton of normal fibroblasts was shown to be well organized, with parallel orientation of microfilaments, filaments and microtubules. Desmosomes were readily demonstrated in normal fibroblasts and carcinoma cells in culture, but not in sarcomas, melanomas or tumors of neural origin. These studies provided correlative scanning and transmission electron microscopic analysis of human solid tumor cells in vitro.

A human gastric choriocarcinoma, serially transplanted into nude mice maintained under specific pathogen-free conditions, was studied by Kameya and associates (National Cancer Research Center, Research Institute, Tokyo, Japan). The restoration of morphology and function in these mice was verified. Production, storage and excretion of human choriocarcinoma cells were confirmed by its high content in serum and cystic fluid and by its intracellular localization. The tumor cells also contained placental alkaline phosphatase in their membranes. Hormonal effects on sex organs of tumor-bearing animals were evident.

In a study of stomach cancer in Japan, Haenszel and co-workers (National Cancer Institute, Bethesda, Maryland) reported that farmers in Hiroshima and Miyagi prefectures had a high risk of stomach cancer. The survey did not reproduce the association of stomach cancer with consumption of salted or dried fish and pickled vegetables, described for the Hawaiian Japanese. The lower stomach cancer risks for users of lettuce and celery agreed with the Hawaiian Japanese findings, and the combined results supported conjectures on possible protective effects of these foods. Lettuce, in particular, warrants attention, since similar findings have been reported in other studies. The elevated risks described for farmers using well water, particularly in the Miyagi prefecture, may be worth pursuing in view of other reports associating stomach cancer with nitrate levels in water supplies.