experiments, with animals on a deficient diet and given p-dimethylaminozoabenzene, and similar compounds, the induction of liver tumors was prevented by making up the dietary deficiency. In the conclusion, the author states that a specific growth-inhibiting substance found in animal tissues, particularly in brain and liver, and effective in the prophylaxis of skin cancer induced in mice and benzpyrene and methylcholanthrene, is ether-soluble and thermostable.—G. H. H.


A substance with toxic properties, not salted out by sodium chloride but precipitated by absolute alcohol, was isolated from a mammary adenocarcinoma of the mouse.—G. H. H.


The pathogenesis of cancer may be regarded under two aspects: 1) the mechanisms by which any somatic cell becomes a cancerous cell, and 2) the factors that reinforce these mechanisms. The author discusses the problem in relation to cancer of the breast and of the gastric mucosa. After histophysiological studies of surgical specimens, he concludes that an analogy exists between the phenomenon of carcinogenesis of the secretory adenomatous cell of the mammary gland and that of the heterotopic secretory cell of the gastric mucosa. Both types of cells seem to have lost their permeability for mineral substances, and retain organic products of nuclear metabolism. A theory of carcinogenesis is outlined.—G. H. H.

Clinical and Pathological Reports

Clinical investigations are sometimes included under Reports of Research

**Multiple Tumors**


Double cancers with different histological structure are relatively rare (1.5%). They can grow simultaneously or in the same patient or be successive. The possible clinical latency of one of the tumors may be misleading in the appreciation of their real chronological appearance. The evolution of such tumors seems more rapid than other cancers. Their study does not throw any light on the etiological problem of cancer in general.—R. J.

**Diagnosis—General**


The theoretical foundation of two kinds of polarographic serum reactions concerning typical changes in human serum from individuals suffering from cancer, sarcoma, inflammations, infections, or certain bile or liver disorders is discussed in detail.

Some experimental facts elucidating the nature of the pathological changes in sera are reviewed. The erroneous objections to the author's original interpretation, brought forward by certain authors, especially by V. Moravec and his collaborators, are dealt with. It is shown that the experimental results of the latter authors concerning the polarographic examination of two horse sera, one normal and the other sarcomatous, are not, as these authors believe, contradictory to the present author's theory, but on the contrary, when investigated more exhaustively than these authors were able to do, even yield valuable evidence in support of it. Closely analogous results to those of the authors mentioned have been obtained by the present author with human sera and are fully explained. Finally the cause of the pathological change in the blood stream is discussed.—Author's summary.


The aim of this communication is a critical examination of the polarographic test for cancer given by serum filtrates after deproteination with sulfosalicylic acid. On the basis of experiments with different deproteinating agents, evidence of the albumose-like character of the substance, the increase of which indicates the pathological state, is brought forward.

A detailed study of the deproteination of sera with sulfosalicylic acid is described which reveals some important factors in diagnostic tests: (1) proper caution must be paid to the rigorous maintenance of a fixed time interval between the precipitation of proteins and the filtration of the precipitate, (2) the test is improved by introducing some excess of ammonia in buffered sulfosalicylic acid solution. The improved test was checked by tests on 183 cancer patients and was found positive in 177 cases.
A modified mode of procedure was worked out in which 0.1 c.c. of blood taken from the finger was polargraphically examined instead of serum. The diagnostic results are illustrated by concrete examples.

The former hypotheses that the observed increase of the protein degradation products in the blood is to be ascribed to the dispersion of foreign proteins in the bloodstream is supported by experiments on the parenteral application of milk to normal individuals. After the application of milk a positive filtrate test is obtained, which later a certain time again returns to normal.—Author's summary.


Early cervical cancer has been detected by the cervical smear method when the lesion has not been palpable, nor diagnosed by 50% of the surgical biopsies.—A. K.

Therapy—General


One thousand eight hundred cervical epitheliomas were examined at the Cancer Institute from 1922 to 1937; only 63 of these were observed early in their development. Fifty-seven patients were treated at an early stage by irradiation. Among these, 66.66% were considered cured after a period of observation averaging 15 years, although it is known that recurrence of the disease may be observed after 20 years. The late appearance of metastases remains unexplained. The recurrence of the tumor in its original location is relatively rare, distant metastases being more frequent. Local bacterial infection makes the treatment sometimes difficult. A discussion is given concerning the degree of radio resistance of the different anatomical types of cancer. The age of the patient does not seem to play a predominant role in the degree of malignancy of these tumors.—R. J.


A giant hemangio-endothelioma of the face, shoulder, and thorax of an infant regressed under heavy doses of deep x-ray therapy, and an associated thrombocytopenic purpura disappeared.—M. H. P.


The use of castration as a palliative measure and auxiliary treatment in carcinoma of the breast is discussed and its best indications are the presence of active tumor of the breast or when evidence of ovarian activity is present. Spontaneous menopause does not exclude the possibility of satisfactory palliation. In males with carcinoma of the breast and active disease, orchidectomy is indicated. Androgens and estrogens are contraindicated in both sexes.—A. C.


Results of treatment of 225 patients with adenocarcinoma of the uterine corpus have been reviewed. The absolute 5 year cure rate has been 45%. Poor results follow routine use of radium and x-ray alone. On the other hand, certain patients so treated may be salvaged many years later by hysterectomy for either recurrent or persistent carcinoma. Good results have followed the use of total hysterectomy, with or without pre- or post-operative irradiation. It is felt that preoperative irradiation will add nothing to the ultimate cure rates. The final results in the treatment of carcinoma of the uterine corpus are predetermined to a considerable extent by the presence of the metastases, the type and extent of medical and surgical complications, age, weight, and nutritional status of the patient.—A. K.


A case report. Most of the tumor disappeared in one month following the daily application of colchicine (100 gm. in lanolin).—C. A.


Two hundred and ninety cases of a total of 300 uterine myomas with bleeding, were treated by radiation. One hundred and eighty-six received roentgen therapy, 86 had radium (dilatation and curettage), and 18 had combined x-ray and radium therapy. The uterine hemorrhage was stopped in all but two cases. In one of these cases there was a uterine fibroid with a tubo-ovarian abscess found at operation, and in the other a polycyclic submuosal fibroid was observed. When the fibroids were still painful after uterine bleeding ceased, they showed little improvement following surgery. No explanation for the pain was found.—W. A. B.


Extra-sellar tumors may simulate true pituitary tumors, although no sign of enlargement of the sella is found on x-ray examination. These tumors are (1) crianiopharyngiomas, or tumors of Rathke's Pouch, (2) meningiomas of the tuberulum and diaphragm of the sella, (3) chiasmal gliomas, and (4) aneurysms of the intracranial portion of the internal carotid artery. Radiation has no effect on the meningiomas, and with crianiopharyngiomas and gliomas, the effect of radiation is poor and only temporary. True adenomas of the pituitary show marked sensitivity to radiation. A case is reported in which a parasellar tumor showed striking response to radiation, suggesting that it was of true pituitary cell origin. The patient's symptoms were similar to those seen with chromophobe adenoma.—W. A. B.


During 8 years (1937-1944) 1835 tumor cases have been treated by the authors with 1200 kV. x-rays. Most of these were malignant; the results are analyzed as separate groups and compared with published results of 200 kV. or other therapy. In general it can be stated that the most important advantage of supervoltage is the fact that skin damage can be avoided. The total dose which can be administered depends upon the reaction of the deep-seated organs in the paths of the rays. Deep seated, localized lesions are most amenable to this treatment, and the life of patients with these can be prolonged an made more comfortable. More information is necessary before
final conclusions can be drawn; in the meantime the authors recommend supervoltage therapy for selected cases of carcinoma of the cervix, bladder, lung, large intestine, rectum, anus, and tonsil, embryoma of the testicle, localized lymphoma, and Ewing's tumor.—E. H. Q.

**RADIATION**


Five case reports are described. In 4, the patients developed acute, fulminating ulcerative colitis, which had its onset during or several days after x-ray therapy for cancer of the cervix and which resulted in death within a few weeks. In the fifth case, the patient developed the same complication 6 weeks after irradiation of the abdominal lymph nodes for Hodgkin's disease and died in 2 weeks. The ulcerative colitis is attributed to at least two factors: (1) an increased permeability of the intestinal epithelium to bacteria, brought about by the irradiation, and (2) a tendency to spasms resulting from the irradiation and also from the subsequent inflammation.—G. H. H.


A 4½ year old girl with neurogenic tumor in the paraventricular region received intensive irradiation. She menstruated for the first time at 12 years of age and regularly thereafter until 19, at which time she died as a result of recurrence of the neoplasm.—A. K.

**SKIN AND SUBCUTANEOUS TISSUES**


Sweat glands of the vulva give rise to a relatively rare but very interesting group of tumors. Clinically these growths are small and benign-looking, but the microscopic picture suggests malignancy and frequently the diagnosis of adenocarcinoma is made if the pathologist is not familiar with this type of lesion. There is only one case in the literature where unimpeachable evidence of malignant change has been demonstrated. In the series of 15 cases reported here, all tumors have been benign, and curable by simple excision. It is possible that rarely an adenocarcinoma of the vulva is of sweat gland origin, but such histogenesis is difficult to establish.—A. K.

**NERVOUS SYSTEM**


A review of 14 cases of hypophysial duct tumor, grouped as cystic or solid, is made. The tumors were located along the stalk of the so-called craniopharyngioma (crania-oral) duct. The tumors often implicated the floor of the third ventricle or broke through it to expand into the third ventricle, thereby causing hypothalamic disorders. Clinically, the cases presented symptoms and signs which offered diagnostic leads and could be divided into three groups: (a) vegetative disturbances, (b) general manifestations of increased intracranial tension, and (c) signs due to direct pressure by tumor. In addition x-rays disclosed calcifications in or about the sella turica. Surgical intervention was found to give only temporary relief.—A. C.


Angiomatosis of the scalp, meninges and brain should be suspected when a "child who has a "port-wine mark" in the area of the trigeminal nerve develops convulsions, hemiparesis, or mental retardation. The diagnosis is confirmed by the finding of simous, double-contoured calcifications in the roentgenograms of the skull. Localization of the pathological process may be aided by electroencephalography and pneumoencephalography and, in the author's opinion, should be confirmed by stereoscopic angiography, especially in cases where there is no gross calcification. In the case reported, one month after extensive resection, the patient showed marked improvement but the author feels that final judgment concerning the results of surgical intervention should be suspended for a number of months or years.—A. C.


A case is presented which was diagnosed as a slow-growing fibrosarcoma after superficial biopsy of the cortex in the parieto-occipital area. The diagnosis was based on the presence of interlacing bundles of collagenous fibers due to the marked hyperplasia of the walls and adventitia of blood vessels in close proximity. Two days after biopsy the mass was removed and revealed, on section, the typical picture of glioblastoma multiforme underlying the area of original biopsy. Since many neurosurgical procedures are based on primary biopsy studies, such a potential source of error must be kept in mind.—A. C.


Two cases are presented showing the syndrome of occlusion of the posterior inferior cerebellar artery due to metastatic neoplasm of the latter part of the medulla. In both cases the primary site was in the lungs. In one of the cases, while the clinical picture was not too cut, the necropsy findings bore out the diagnosis. In the second case, the signs and symptoms were typical, but necropsy was not performed for verification.—A. C.


A case of hemangioma of the medulla oblongata is reported in which the clinical picture consisted of persistent dysphagia and left-sided cranial nerve signs. The onset was sudden and the termination rapid. On necropsy a cavernous hemangioma, which was considered the basis for the symptoms, was found in the floor of the fourth ventricle with hemorhage into the tumor. Blood vessel tumor of the bulbs are rare, especially when unassociated with similar lesions elsewhere in the body or nervous system.—A. C.

**BREAST**


The incidence of malignant changes in chronic mastitis is over 10%. These changes generally occur in cases showing intense epithelial hyperplasia, particularly of the intracystic papillomatous type. Simple sclero-cystic forms very rarely give rise to cancer. A discussion with 15 case reports.—C. A.
FEMALE GENITAL TRACT


A case of leiomyoma of the ovary complicating pregnancy is reported. There are only two other reports where this type of neoplasm has been found in association with pregnancy.—A.K.


A dermoid cyst is described containing a miniature human-like structure (homunculus) free in the lumen, with remnants of an umbilical cord. Pertinent literature and theories are discussed with emphasis on the organizer theory.—A.C.


Theca cell tumors in women long past menopause have been found to have a strong hormonal effect resulting in hyperplasia of the endometrium and development of feminizing characteristics such as atypical uterine bleeding and breast enlargement. In the case reported, a 72 year old woman, these changes took place 21 years after menopause.—A.C.


Case report.—A.K.


Case report and review of the literature.—A.K.


The case presentation of carcinoma corpus uteri never occurs before the menopause is erroneous. These tumors occurred in two sisters, married, age 32 and 34. A right ovarian cyst weighing 24 lbs. had been removed from the elder sister 10 years before. The breasts did not show any hyperplastic changes. Another sister had undergone trachelorrhaphy in one case and the Fothergill operation in two other cases, early cervical carcinoma was discovered. In one, no evidence of recurrence has been determined after 7 years in spite of refusal of all further treatment. In another there has been no recurrence after more than 5 years following a course of radiation. In the third case, carcinoma has recurred in the cervical stump and uterine body in spite of ample x-ray and radium therapy.—A.C.


Seven cases of cancer of the vaginal scar following total hysterectomy and 41 cases of cancer of the cervical stump following subtotal hysterectomy are reported. In the latter group, cancer appeared within a year in 15 cases: in 6 of these the tumor was a secondary growth of utero-ovarian origin and in the 9 others the tumor was primary. It is the authors’ opinion that in these cases a tumor existed at the time of the operation, but passed unnoticed. Cancer appeared after a period of 3 years in 26 cases. These growths are considered as true tumors of the cervical stump. The cervical stump is more apt to become cancerous than the ordinary cervix.—C.A.

Male Genital Tract


In a series of 43 patients with known malignant tumors of the testis, the over-all 5 year survival rate was 42%. Of patients free from demonstrable metastases at admission, treated by orchietomy and x-ray therapy, 71% survived 5 years; of those having metastases, only 30%. Although it is usually stated that a seminoma offers a better prognosis than teratoma, in this series the two showed no significant difference. There was no significant difference between groups irradiated preoperatively and those irradiated postoperatively, but, in view of the...
malignancy of the disease, it is recommended that such treatment be preoperative or immediately postoperative. The authors' scheme of irradiation is given in detail.

—E. H. Q.

**Urinary System**


Case report.—A. K.

**Intrathoracic Tumors**


In this 54-year old patient, the start of the tumor signs coincided with local trauma to the chest. The development of the lesion was very rapid. The origin of the tumor is discussed. Many arguments support the opinion that the tumor, although resembling a primary tumor of the pleura, was in reality of bronchial origin. A survey of the abundant literature on the subject showed that actually in only one case was the diagnosis of primary pleural tumor certain.—R. J.


Ten cases of lymphangitic carcinosis of the lungs, seen in recent years at the Massachusetts General Hospital, are presented to illustrate the lymphatic spread of cancer. Autopsy was performed on 7 of the group. The roentgenologic appearance presents a typical pattern which is entirely different from that of the usual pulmonary metastasis. It is characterized by a network of increased density, radiating from enlarged hilar lymph nodes and trabeculating through the lung fields in an uneven manner, and is interspersed by numerous fine nodules. It is more marked in the lower and central portions of the lungs and occasionally may be unilateral. Differential diagnoses of miliary tuberculosis, pulmonary edema and congestion, sarcoid, pneumococcosis, and bronchiectasis, among others, must be ruled out. The microscopic picture in the lungs is characterized by widespread perim etration of the lymphatics by tumor cells and, in a certain number of instances, profound arterial damage. Anaplasis of the tumor, rather than its primary site, appears to be the important factor in this form of dissemination.

The age and sex incidence, the mode of spread and the arterial changes are discussed. The common clinical findings are dyspnea, cyanosis, productive cough and rapid cachexia. Pulmonary signs are minimal, but pulmonary symptoms overshadow those which arise from the primary tumor.—E. H. Q.


A case is described in which there was evidence of malignancy although no metastases occurred. The vascular origin of the tumor was proved histologically.—R. J.

**Gastrointestinal Tract**


The growth was observed in 46% of a series of 50 routine autopsies on adults. The tumors arise most frequently in the fundus near the cardia. They are usually without clinical significance though they may sometimes enlarge and cause ulceration of the mucosa.—J. G. K.


Case reported in which fecal impaction with resulting intestinal obstruction and coma of undetermined etiology was relieved by multiple high irrigations. Six weeks later a similar episode occurred; operation, refused on the first admission, revealed concomitant adenocarcinoma of the sigmoid. The importance of sigmoidoscopy after treatment of fecal impaction is stressed.—V. J. L.


Most of the cases were treated by transsacral amputation of the rectum. By using this technic, more advanced cases can be operated on than by using the abdominal technic. A discussion follows concerning cancers developed on preexistent polyposis of the rectum, cases where the anal sphincter may be conserved, post-operative mortality and morbidity. The metastases are relatively rare. The liver metastases, after operation, frequently follows the recurrence of the disease in situ. The role of the medial hemorroidal veins in the propagation of the disease is stressed.—R. J.

**Peritoneum and Retroperitoneum**


A report of a case exhibiting the usual features of pseudomyxoma of the peritoneum, and the unusual feature of calcification of secondary peritoneal implants is given. The patient at the time of writing was alive and well 13 years after the onset of symptoms: some of the nodules had been removed surgically and others showed increasing calcification during the last 8 years.—M. H. P.

**Bone and Bone Marrow**


A case of a 62 year old man is described in detail. The relation between myelomatosis, plasma cell leukemia, and other malignant diseases of the myelo-plastic system is discussed. Plasma cell leukemia is here regarded as a leukemic form of myelomatosis.—M. H. P.

The benign nature of these tumors is now well established.

Nevertheless there exist important differences in their evolution and their response to surgical treatment or radiotherapy. The authors, after study of the literature available at the Cancer Inst. of Paris, believe that a difference in the histological form and anatomical behavior of such tumors is responsible for the difference in therapeutic results. They believe that an optimal time for the surgical intervention should be selected, depending on the "reactive state" of the tumor.—R. J.


Five cases are reported of the so-called eosinophil granuloma of bone, in children 2 to 9 years old, presenting clinically and morphologically a gradual transition to the fully developed Schüler-Christian's syndrome. An important difference in the histological form and anatomical behavior of such tumors is responsible for the difference in therapeutic results. They believe that an optimal time for the surgical intervention should be selected, depending on the "reactive state" of the tumor.—R. J.


Eosinophil granuloma of bone is a benign tumor that usually heals without treatment—G. H. H.


Four cases of neurofibromatosis with bone involvement are presented, in one of which neurofibrotic tissue was demonstrated in the narrow cavity of the femur. Roentgenograms, a photomicrograph, and a literature review with bibliography accompany this report.—M. H. P.


Nine proved and 2 probable cases of osteoid-osteoma are presented which conform clinically, roentgenologically, and pathologically to the criteria of Jaffe and Lichtenstein (Arch. Surg., 31:709, 1935; J. Bone & Joint Surg., 22:645, 1940) for diagnosis of this disease. In 1 case, the tumor occurred in an immobile bone, a site apparently not previously reported. Simple removal of the osteoid-osteoma (the nidus) brought prompt cure in all cases in which it was performed. Failure to remove the nidus resulted in persistence of symptoms.—M. H. P.


In the case reported, the original pathological diagnosis was "healing benign giant-cell tumor." However, a review of the roentgenograms suggested osteoid-osteoma as a more probable diagnosis, and the clinical and pathological features of the disease supported this. After operation the patient was free of pain and remained in good health.—M. H. P.


Case report.—W. A. B.

Blood Vessels


In a case of Kaposi's angiosarcoma, two groups of elements have been studied: (1) the histological aspects of the lesion with demonstration of the reticulo-histiocytic origin of the neoplasms, and (2) the abnormal cells in the blood. The basic lesion is the proliferation of the reticular and histiocytic cells derived from the histiocytes of the connective tissue. Kaposi's disease is more of a reticulosis than an angiomatosis.—R. J.


Report of a case with detailed histologic description of the tumor.—C. A.


A case report with radiographs is presented of this rare tumor.—E. H. Q.


Five types of hemangiomas are considered. Hemangioma simplex, simple blood-filled areas on the neck in newborn infants, usually disappears without treatment. Capillary hemangioma, type 1, a bright red, non-elevated nevus, usually responds to treatment. Type 2, port wine stain, responds poorly to any kind of therapy. It should not be irradiated unless this can be done within the first month of life. Hypertrophic hemangioma, strawberry birthmark, responds well to radiation. Cavernous hemangioma, a soft, bulging mass, responds to irradiation unless associated with hyperplasia of fatty or fibrous tissues. In these cases the color disappears but part of the mass remains. Spider nevus, a network of vessels, is better treated by the electric needle than by irradiation.

Unfiltered low voltage x-rays should be used. The total dose depends on the depth and extent of the lesion, and varies from 300-600 r at a single treatment. This dose is repeated in a month and is in some cases followed by a third exposure.—E. H. Q.

HODGKIN'S DISEASE


Five cases of Hodgkin's disease of the skeleton are presented with roentgenograms, photographs, and photomicrographs. In 2 of the patients the disease was recognized clinically. In the other 3, only osseous changes were found and histologic examination was necessary to establish the correct diagnosis. One patient had subjective, but not objective, improvement after irradiation; 3 others died after failing to benefit from irradiation, and the fifth was under treatment for too short a time for conclusions to be drawn at the time of writing.—M. H. P.


Report of a case of mediastinal Hodgkin's disease characterized by an unusual combination of proclominal signs and symptoms. Clinical course, laboratory and autopsy findings are included.—C. W.

The report is divided into four parts: Part I, Medical Education in Cancer; Part II, Basic Elements of a Cancer Program; Part III, Basic Information for Use in Studying and Planning State-Cancer-Control Activities, with Organization Charts as of 1945; and Part IV, Summary and Recommendations. In Part IV the following points are emphasized:

1—There is need for medical schools to give more comprehensive and better integrated courses in cancer.

2—The number of centers prepared to give postgraduate training in cancer is not believed to be adequate to fill the need for specially trained personnel in this field of medicine and efforts should be made to develop such training at additional medical centers.

3—Short courses of various types and other types of cancer-education activities for practicing physicians should be expanded.

4—The traineeships given by the National Cancer Institute have been very valuable and should be continued and expanded.

5—The basic elements of a cancer program within a state should include statistical research, educational activities for the public generally, and for physicians, nurses, and dentists, the provision of cancer-prevention clinics, tissue diagnostic services, diagnostic and treatment clinics, adequate hospital facilities, and adequate institutional facilities for care of the advanced cancer patient.

6—The co-operation of all agencies engaged in cancer-control activities is necessary in order to provide a complete cancer service in a state.

7—Greater efforts should be made in the field of cancer research and to increase the use of available knowledge in controlling this disease. In order that more adequate cancer facilities and services may be developed in the United States the committee makes the following recommendations:

a—That a conference of representatives responsible for the planning of cancer courses in the curriculum of schools of medicine be called with a view to developing improved methods of teaching cancer.

b—That the National Cancer Institute expand the work of training physicians in the diagnosis and treatment of cancer.

c—That the National Cancer Institute give aid in providing the physical facilities, scientific equipment, and, if necessary, the training of personnel in a few cancer centers strategically located from a geographical point of view and associated with 1 or more medical centers.

d—That the National Cancer Institute be prepared to assist state health departments and other agencies in the development of state cancer programs which will embody the facilities and services outlined in this report.

e—That in order to hasten the development of more effective means of preventing, diagnosing, and treating cancer, the National Cancer Institute expand its program of research including the training of research fellows and the program of grants to aid research in other institutions.

f—That close co-operation be maintained between the National Cancer Institute and voluntary agencies in the further development and conduct of cancer-control activities in the United States.

g—That the National Cancer Institute request appropriations sufficient to enable it to carry out the foregoing recommendations.—R. A. H.

Correction
