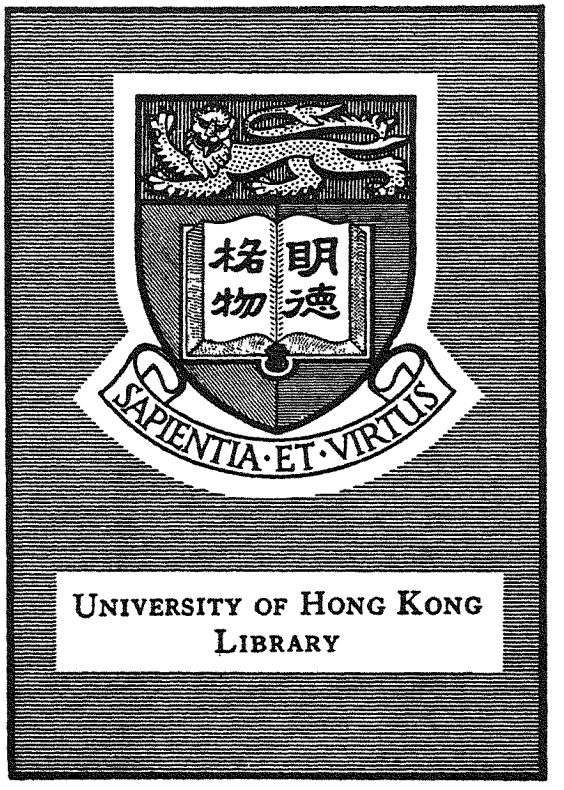
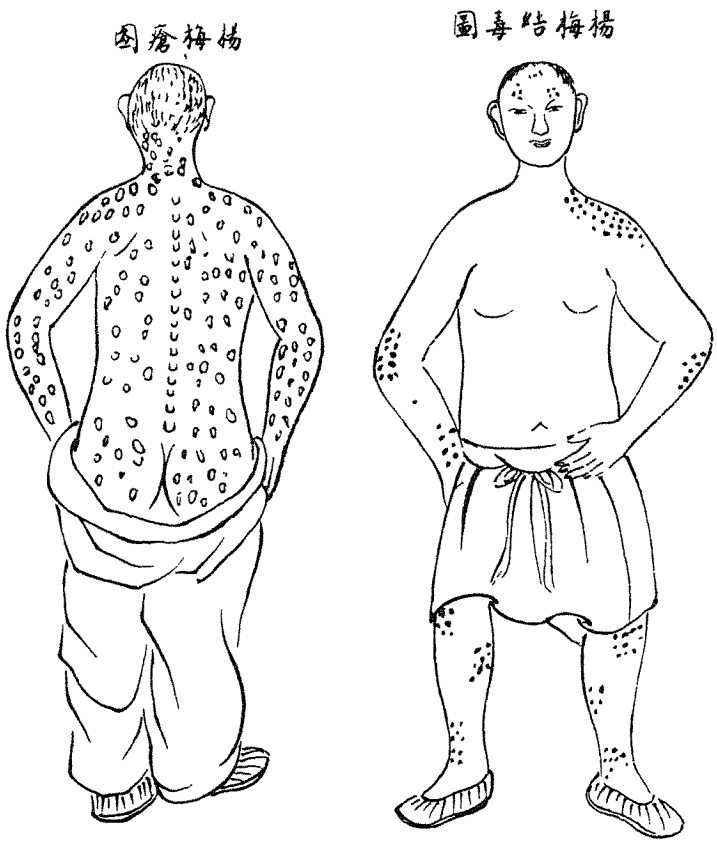


PATHOLOGY PROTOCOLS II

(Second Term in Pathology)

UNIVERSITY OF HONG KONG
Department of Pathology
1953



This is a reproduction of a wood-cut illustrating secondary syphilis. The original illustration is found in the *Golden Mirror of Medicine* (御纂醫宗金鑑) which, issued in 1749 A.D., was written by a staff of eighty persons in compliance with an imperial order from the Emperor Ch'ien Lung. The accompanying discussion mentions many clinical variations of the lesions including vesicles, nodules, discharges, etc., as being differing manifestations of the same disease. The disease is described as being contagious and as being contracted through sexual contact. The influence of noxious humors or gases is also discussed. The origin of the malady is ascribed to South China, and among the names given for it is that of "Canton Sore."

OUTLINE OF THE COURSE, AND SUGGESTIONS AS TO LABORATORY PROCEDURE

The following discussion is a summary of the course, the histopathological slide program and suggestions as to laboratory procedure in the second term of general pathology. In addition to this manual of protocols you will receive a mimeographed, detailed schedule outlining the subjects for daily study in lecture and laboratory and indicating the slides to be studied each period.

The first term in general pathology was devoted to a study of basic pathologic principles, including the disturbances of circulation, degenerative changes, infiltrative and necrotic processes, concretions, and concluding with the processes of acute inflammation and tissue repair.

The work of the second term builds first of all on these principles by considering their application and modification in the granulomatous diseases. The method of teaching continues to be that of attempting to point out the major principles involved and illustrating these by studies of selected disease entities. Examples are drawn from the mycobacterial diseases (tuberculosis, leprosy), spirochaetal diseases (syphilis), mycotic diseases (i.e. fungi), parasitic diseases (protozoal and helminthic). The latter portion of the term is devoted to introductory studies of the pathologic principles of neoplastic diseases (i.e. tumors or cancers). The illustrative examples are largely drawn from the more common and important neoplasms.

It is evident that time does not permit a detailed study of the pathology of all diseases, or even of a major portion of the important diseases. The third term's work in pathology, dealing largely with systemic pathology, partially rectifies this lack by means of a more detailed systemic study of disease and in so doing also delves further into the pathology of neoplasms. If, however, the student has a good grasp of the principles taught in the first two terms he should have little difficulty in working out the pathology of most of the diseases that he will encounter.

Protocols are furnished to go with the histopathological slides in as far as such histories are available. These histories are in all cases the actual histories of the patients from whom the pathologic material is derived. We hold it a part of scientific honesty not to present manufactured histories as actually being histories of patients. Where available histories are sketchy and not adequately instructive, an additional illustrative history may be appended. These appended histories are also actual records of patients and are not "manufactured" for the benefit of the student. All such additional histories, unless otherwise indicated in the text, are from the files of the Department of Pathology, University of Chicago.

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The student will find that careful attention to these protocols will be repaid by an enriched medical vocabulary and a better understanding of the correlation between the clinical manifestations of disease and the pathologic processes underlying these manifestations.

THE LABORATORY WORK

The laboratory work is in essence similar to that of the first term.

Emphasis is laid on the use of the low power and medium powered objectives of the microscope, especially in the study of neoplasms. The high power objective is only occasionally necessary and the oil immersion objective can largely be dispensed with. Excessive use of high powered objectives in the study of neoplasms (a common tendency on the part of students) often leads to bewilderment and confusion.

On certain specified days there will be a study of gross specimens, correlated with the phase of work being studied or just completed histologically. There will also be several short discussions on gross pathology to correlate the changes in the gross specimen with pathologic physiology and microscopic changes. Whenever possible, fresh, unfixed specimens from current necropsies will be demonstrated. Occasionally, demonstrations of projected colored slides of gross and microscopic specimens will be arranged.

Notebooks

Periodically you may be assigned slides to draw, describe and discuss. We ask that such a write-up have a particular form as follows:

1. Clinical history and necropsy findings
2. Drawing
3. Objective description
4. Interpretation
5. Correlations and comments

Some further comments on each of these divisions are necessary. The abstract of the history is an abstract of an abstract; hence, sometimes it cannot be very much further compressed although frequently it can. It should contain the salient and pertinent features of the case to be correlated in parts 4 and 5 with the microscopic findings delineated in **Part 2** and described in Part 3. The drawing should be of representative portions of the section under discussion. Drawings at several different magnifications may be necessary in order to give proper orientation with respect to the whole section and to show important cellular detail. Not all of us are artists. Hence the aim of the drawing is a clear picture of the pathology, not a work of art. Drawings should

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be properly labelled, indicating clearly the important structures and important changes in the process. **Part 3** is an *objective* description of the contents of the section. We trust you understand the meaning of the word "objective". It does not mean interpretation but a description of what you see in the slide, using only those pathologic terms which have previously become a working part of your vocabulary. With such a description any pathologist should be able to visualize the changes which are present even though the disease had never before been described. Once again, you will find this procedure of describing pathologic states not just a part of pathology laboratory but a very important part of all the remainder of your medical career. At first it will seem unnecessarily long-winded and arduous, but later as you develop an approach and a medical vocabulary it will become easier, provided you have acquired good habits. In **Part 4** you are to interpret the pathologic changes in the slide in combination with the gross findings at necropsy and make a pathologic diagnosis. This part then is a logical deduction from Parts 1 and 3, a step you will of necessity be making over and over again from now on in your practice of medicine. The purpose of **Part 5** is to correlate the story of the development of the patient's disease with the findings at the time of death at the autopsy and in your own specimen. In other words you are to work out the pathogenesis of the disease and the pathologic physiology which went with the morphologic changes. You are not limited to the facts in your history or the observations on your sections but can make use of textbook or library material for facts and theories. This is not, however, the place merely to "sling the bull". Into this part should go observations, facts and thought.

In reality this is a somewhat more elaborate, formal and written protocol of the process through which you should go mentally with each new tissue section you study during this excursion into the study of disease.

An alternative method of notebook study may be used in place of the above described write-ups. This may, for example, involve a paper illustrated from your laboratory material on the pathogenesis of the tuberculous tubercle, or a comparative discussion of granulomatous disease also based on available laboratory material. If these or other alternative projects are requested, their nature and manner of presentation will be fully explained in class.

Examinations

Major departmental written and practical examinations are held at the close of the term. From time to time unannounced ten minute quizzes will be given in the laboratory. These may be either written or practical in nature. Permission to sit for the final university examination in pathology is contingent on

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satisfactory performance in these examinations, and on a satisfactory understanding of pathologic principles as demonstrated in notebook write-ups and laboratory performance.

Textbooks and References

The general textbooks on pathology recommended in the first term will be found satisfactory.

The student should have a textbook available in the laboratory and should use it freely in his study of the histopathologic slides. Repeated questioning of demonstrators as to facts and descriptions that can be found in the general texts, reveals a failure on the part of the student to use his own ability and the sources available to him. The demonstrators are present to assist in clarifying your interpretation of the slides and to point out less readily evident correlations and facts based on their experience.

Medical dictionaries should be available and used in the laboratory. It is again suggested that groups of five or six students who can conveniently work together, arrange to have one dictionary available between them.

The following reference books will be of interest to the more progressive student.

Author	*Title*	*Publisher*
Pagel, Simmonds & Macdonald	Pulmonary Tuberculosis, Pathology, Diagnosis, Management & Prevention	Cumberlege, O.U.P.
Pinner	Pulmonary Tuberculosis in the Adult	Thomas
Rich	The Pathogenesis of Tuberculosis	Thomas
Dubos	Bacterial & Mycotic Infections of Man	Lippincott
Rivers	Viral and Rickettsial Infections of Man	Lippincott
Kidd	The Pathogenesis & Pathology of Viral Diseases	Columbia Univ.
Am. Assoc. Adv. of Science	The Rickettsial Diseases of Man	A.A.A.S.
Strong	Stitt's Diagnosis, Prevention & Treatment of Tropical Diseases	Blakiston
Cochrane	Practical Textbook of Leprosy	Oxford
Rogers & Muir	Leprosy	John Wright
Muir	Manual of Leprosy	Livingstone
Ash & Spitz	Pathology of Tropical Diseases	Saunders

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Author	*Title*	*Publisher*
Conant	Medical Mycology	Saunders
Maegraith	Pathological Processes in Malaria and Blackwater Fever	Blackwell
Boyd	Malariology	Saunders
Forbus	Reaction to Injury, Vol. II	Balliere, Tindall & Cox
Willis	Pathology of Tumors	Butterworth
Willis	The Spread of Tumors in the Human Body	Butterworth
Ewing	Neoplastic Diseases	Saunders
Akermann & Regato	Cancer, Diagnosis, Treatment & Prognosis	Mosby
Drennen & Dodds	Histopathology of the Skin	Livingstone
Illingworth & Dick	Textbook of Surgical Pathology	Churchill
Boyd	Surgical Pathology	Saunders
Schafer	Pathology in General Surgery	Univ. of Chicago
Foot	Pathology in Surgery	Lippincott
Foot	Identification of Tumors	Lippincott
Bethesda Naval Medical Center	Color Atlas of Pathology	Lippincott
Novak	Gynecological & Obstetrical Pathology	Saunders
Geschickter	Disease of the Breast	Lippincott
Berman	Primary Carcinoma of the Liver	Lewis
Bodansky & Bodansky	Biochemistry of Disease	Macmillan
Cantarow & Trumper	Clinical Biochemistry	Saunders
Sodeman	Pathologic Physiology	Saunders

REFERENCE TABLE OF NORMAL VALUES IN CAUCASIAN ADULTS FOR SELECTED LABORATORY TESTS

BLOOD CONSTITUENTS

Serum pH	7.35	—	7.48
Serum CO_2	22	—	30 mM/l
	50	—	60 vol. %

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Serum Cl	99	—	mM/l
	390	—	mgm. %
Serum Na	137	—	147 m. eq./l
Serum Ca	4 5	—	5.5 m. eq./l
Serum Inorganic Phosphorus	2.5	—	4.0 mgm. %
Serum Cholesterol	140	—	225 mgm. %
Cholesterol, Esters	30	—	60% of total
Plasma Proteins, total	6.0	—	7.0 gm. %
Plasma Albumin	4.0	—	6 0 gm. %
Plasma Globulin	1.5	—	2.8 gm. %
NPN (whole blood)	25	—	40 mgm %
Urea N (whole blood)	9	—	15 mgm. %
Uric acid (whole blood)	2	—	4 mgm. %
Creatinine (whole blood) up to	2 0 mgm. %		
Glucose (venous, unlaked blood filtrate)	60	—	90 mgm. %
Serum Icterus Index	below 6		
Serum Bilirubin—Direct	0.1	—	0.4 mgm. %
Indirect	0.2	—	0.8 mgm. %

CEREBRO-SPINAL FLUID

Total Protein	20	—	40 mgm. %
Glucose	45	—	65 mgm. %
Chloride—about	125 m/Ml		

URINE

Sp. Gr.	1 015	—	1.022
Urea Clearance	$\frac{U \sqrt{V}}{B}$		40-65
	$\frac{U \quad V}{B}$		60-90

MISCELLANEOUS

Sedimentation rate (Wintrobe) male, 0—6.5 mm/hr.; female, 0—15 mm/hr.

Gastric Acidity—Free acid, 25—50 units (cc. N/10 HCl per 100 cc); total 50—75 units.

The Congo red test for amyloid is negative if more than 50% of the injected dye is found in a 60 minute sample of blood (using as a 100% standard a sample taken 4 minutes after the dye is injected). To evaluate a positive result the urine must be examined to prove that the dye is retained in the tissue rather than lost by excretion.

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RANGE OF NORMAL WEIGHTS AND MEASUREMENTS FOR HUMAN (CAUCASIAN) ADULTS

Heart	250 — 300	gms.	
Lungs	350 — 400	gms.	(R)
	300 — 350	gms.	(L)
Kidneys	250 — 300	gms.	(together)
Spleen	100 — 150	gms.	
Liver	1,500 — 1,700	gms.	
Brain	1,200 — 1,400	gms.	
Thyroid	25 — 40	gms.	
Pancreas	80 — 100	gms.	

HEART

Wall of left ventricle, thickness	10 — 12	mms	
Wall of right ventricle, thickness	2 — 4	mms.	
Pulmonary orifice, circumference	7 5 — 8	cms.	
Aortic orifice, circumference	6 5 — 7.5	cms.	
Tricuspid orifice, circumference	10 — 13	cms.	
Mitral orifice, circumference	9 — 11	cms.	

KIDNEYS

Cortex, thickness	5 — 6	mms.
Medulla, thickness	15	mms.

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CASE HISTORIES TO SUPPLEMENT HISTOPATHOLOGICAL SLIDES

21—Squamous Cell Carcinoma, *Cervix Uteri*

The patient, a 39 year old Chinese woman, complained of having had a watery vaginal discharge and post-coital bleeding for half a year. On physical examination a cauliflower-like growth was found on the posterior lip of the cervix. The mass was friable and bled readily. The uterus was moveable. The uterus, Fallopian tubes and ovaries were surgically removed. These tissues were not significantly abnormal save for the cervix. The cervix was about 5 cms. thick, the anterior wall having a thickness of 1.2 cms. while the posterior lip was 2.2 cms. thick. The lumen of the cervix had a diameter of only 4 mms. The anterior lip of the cervix was free of tumor tissue, as were also the other tissues removed, but the posterior lip presented finely granular, friable tumor tissue which was not clearly demarcated from the underlying tissue.

A further illustrative history demonstrates some difficulties in treatment and some complications of this type of tumor. A 34 year old Caucasian housewife was first hospitalized for her terminating illness 16 months prior to her death. She then stated that she had noted post-coital vaginal bleeding for about one year. The discharge had lately become nearly continuous and she had noted low back pain while resting, dizziness and increased constipation. Physical findings included normal temperature, pulse and respiration, WBC 7,000, Hb. 10.2 gms. The cervix was hard, friable and indurated and contained a 2 cm. ragged crater. The broad ligaments were thickened. Biopsy of the cervix revealed a squamous cell carcinoma. X-ray therapy was started. Continued bleeding necessitated transfusions of whole blood. The patient was discharged, but continued to receive X-ray treatments. She received a total of 4,300 r to the cervix, following which a total of 3,400 mg./hrs. of radium was given to the corpus, cervix and cervical canal. The patient improved until one year before death when a sudden severe vaginal hemorrhage occurred and she was rehospitalized. Examination showed the cervix to be replaced by a necrotic ulcer which contained a spurting artery. The hemorrhage was controlled; transfusions were given and the patient was then discharged. One month later the patient developed suprapubic pain followed by incontinence. During the subsequent months the pain became more severe. She then developed diarrhea and bloody stools, nausea, vomiting and abdominal distension. The 7th and final admission was 5 days before death. At this time her Hb. was 6.0 gms., RBC 1.98 million. Heavy sedation was required to relieve pain. Respirations became shallower and finally ceased. At *autopsy* there was a squamous cell carcinoma, primary in the cervix with infiltration of the parametrium, vaginal wall and the urinary bladder and

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metastases in the pelvic and retroperitoneal lymph nodes; a large vesico-vaginal fistula with complete destruction of the ureteral orifices and distal ends of the ureters; bilateral, chronic and acute suppurative pyonephrosis, acute and chronic ureteritis and cystitis. There were also post-irradiation ulcers and atrophic-fibrotic changes in the colon just above the recto-sigmoid junction with fibrous fixation of this segment to the uterine corpus; and post-irradiation atrophy of the ovaries and tubes. Microscopically the center of the cervical erosion showed necrotic granulation tissue with no residual tumor. The margins of the cervix, however, contained tumor tissue showing very extensive necrosis.

308—Tuberculous Peritonitis

No history is available for this 2 year old Chinese boy. At *autopsy* a firm, caseous nodule was found in the lower portion of the right upper pulmonary lobe. The cut surfaces of the lungs showed miliary tuberculosis. The peritoneum was covered with numerous miliary tubercles and the loops of the intestines were so matted together by adhesions that they formed a large mas which was in turn adherent to the abdominal wall.

A further illustrative history is instructive. A 38 year old woman entered the hospital complaining of swelling of the abdomen, colicky pains, transient swelling of the face and extremities, dyspnea and orthopnea—all present for 5.5 months. At the age of 20 she had had a fistula-in-ano repaired. About this time she visited and slept with a tuberculous cousin; another possible contact was a sister with arrested tuberculosis. At the age of 23 a large hemoptysis followed an attack of "influenza." Pulmonary tuberculosis with pleurisy was diagnosed 3 years later when she became ill from over-fatigue after caring for her sick mother. She took a 4 year "rest cure" (at home) and was well for the next 7 years. She was then hospitalized for one month because of an acute illness with chills, fever, tachycardia and leukocytosis. Septic endocarditis, secondary to an infected cut was suspected but blood cultures were sterile. In the next few months she developed her present complaints and tuberculous peritonitis was suspected. She was in the hospital several times in the last 8 months of her life. From 2 to 5 liters of clear fluid were withdrawn from the abdomen on several visits; later taps were dry. No acid-fast bacilli were found in this fluid nor in the sputum, although X-rays revealed bilateral fibroid pulmonary tuberculosis. Her temperature was sometimes normal or subnormal; at times it rose to 103—104° F.; she once had chills with fever. Her pulse was always fast; B.P. 98/70 to 108/72. Abdominal cramps recurred. She sometimes had blood in the stools. Episodes of nausea and vomiting recurred. Three months before death her skin darkened noticeably. Fever of 103° F., nausea and vomiting were present terminally. *Necropsy* disclosed chronic fibroplastic and calcific apical tuberculosis of the lungs; fibrous obliteration of both pleural and pericardial cavities. Massive fibrocaseous

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tuberculosis of both adrenal glands and brown pigmentation of the skin (Addison's disease); caseo-ulcerative tuberculous endometritis and salpingitis; chronic adhesive tuberculous peritonitis; tuberculous ulcers in the ileum; chronic miliary tuberculosis of the lungs, spleen and lymph nodes. The abdominal cavity was almost obliterated by fibrous adhesions, and contained only a few cc. of fluid; beneath them, the peritoneum was everywhere studded by firm white miliary nodules. Coalescent small nodules (in lymph nodes?) were found in the thickened mesenteries. Kinking of the intestines, without marked obstruction, had been caused by the adhesions

590—Epidermoid Carcinoma, *Tongue*

The patient, a 62 year old Chinese woman, had a growing, hard nodule in the floor of the mouth and frenulum of the tongue for 7 months. The nodule ulcerated during the last two months and became painful On physical examination it was found in addition that a gland in the right submaxillary region was enlarged and palpable. The tumor, measuring 0.75 cm. in diameter, was excised.

A further history serves to complement this brief account. A 68 year old Irish brewer had first noted a small hard mass in the right side of his mouth at the base of the tongue nine years before he was first seen at the hospital which supplied his terminal care. A biopsy at that time was reported as revealing a carcinoma and 7,500 r were given to the right jaw at another hospital. Pain and a burning sensation in the area ensued and the patient became bedridden. He subsequently experienced a 60 pound weight loss and difficulty in swallowing progressed. On hospitalization he was emaciated, had a large 5 × 8 cm. firm mass lying under the right jaw and an ulcerating mass in the right tonsillar fossa. Codeine sedation was begun and the patient was discharged unimproved. Three months later he was again hospitalized having experienced bleeding from the base of the tongue and increased weakness. Five days before admission he developed fever, cough, labored breathing and became incontinent. On physical examination the previously described neoplastic growth was noted and in addition the patient showed dullness, friction rub and rales over the right lower lobe of the lung. The temperature and pulse rate rose rapidly reaching a terminal 105° F. and 136/minute respectively He became irrational and expired. At *autopsy* carcinoma of the tongue with massive metastases into regional lymph nodes, skin of the neck, epiglottis and thyroid were noted. In addition there was bilateral aspirative bronchopneumonia and purulent bronchitis with the formation of multiple small bronchiolar abscesses; edema of the lungs; portal cirrhosis of the liver; bilateral acute fibrinous pleuritis; hypertrophy, slight dilation and fatty degeneration of the heart. (Terminal aspirative and abscessive bronchopneumonia is a common finding in ulcerating oral neoplasms.)

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625—ADENOCARCINOMA, *Stomach*

This 50 year old Chinese seaman developed progressively severe vomiting over a period of 8 months until finally vomiting accompanied any intake of food and even of fluid. He had continuous weight loss and noticed a mass in the epigastrium for 4 months. For the last 1½ months he claimed to have had no bowel movements. A gastrectomy was performed. The *surgical specimen* presented an ulcer, 5 cms. in diameter involving the pylorus. The edge of this ulcer was slightly elevated and coarsely granular. Its base was finely granular and presented a number of hemorrhagic spots. Section through the wall of the pylorus revealed many grayish-pink nodules throughout the wall and extending to the serosa. The regional lymph nodes were firm and enlarged and on cut surface showed similar grayish-pink tissue infiltration which was interpreted to be neoplastic metastases.

A complementary history illustrates further the complications of neoplasms in the region of the gastric pylorus. A man of 67 entered the hospital complaining of increased abdominal distension for one year, dyspnea on exertion, belching and orthopnea for 4—6 weeks, with loss of appetite, increasing eructations, and in the last ten days, emeses of green fluid especially on arising in the morning. His stools were almost clay-colored, but there was no known weight loss. Aspiration of the stomach yielded 3,500 cc. of dark brown fluid with 60% solids. This fluid contained 140 parts of combined acid, no free acid, and was positive for Opler-Boas bacilli and lactic acid. Benzidine test on the fluid was positive. The total fluid aspirated for the day was 4,800 cc. The diagnosis was chronic obstruction of the stomach. Exploratory laparotomy revealed an inoperable carcinoma of the gastric pylorus. At *autopsy* the pyloric opening was found to be almost completely obstructed by tumor growth with metastases to gastric, hepatic, peripancreatic and perigastric lymph nodes, and infiltration of the wall of the duodenum.

826—ADENOCARCINOMA, *Breast*

This 51 year old Chinese woman noted a subcutaneous mass in her left breast for 14 months before she sought its removal. A radical mastectomy was done. The tumor mass measured 2 × 2.5 × 3 cm. and was adherent to the overlying skin which was slightly retracted. On section it presented a greyish-white, firm surface with fine, pale, yellowish streaks. Some small, hard, irregular nodules were found in the muscle underling the breast.

854—FIBROMA, *Ankle*

The patient was a 16 year old Chinese boy who had noticed a gradually increasing growth over his left ankle for an unknown period. The surgical specimen had a greyish-white, moderately firm surface and measured 2 × 3 × 0.5 cm.

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899—Epidermoid Carcinoma of the Breast

A young Chinese housewife, 33 years of age, had a hard growing mass first apparent in the left breast 8 months previously. On examination this mass measured about 4 cms. in greatest diameter. The tumor was freely movable but the overlying skin was fixed to the neoplasm. The axillary lymph nodes were firm and enlarged. A radical mastectomy was done. Gross examination of the specimen revealed a firm, irregularly-shaped tumor located directly beneath the skin about 2 cms. from the nipple. It measured 3 cms. in greatest diameter and had a greyish-white cut surface with many fine, yellowish spots. The axillary lymph nodes were firm and greyish-white on cut surface.

919—Epidermoid Carcinoma of Skin, *Heel*

A 61 year old Chinese woman had a fungating growth on the dorsal aspect of one heel for 3 months. This growth was removed surgically and the specimen presented for examination was cauliflower-like in shape, greyish-white, firm and fairly friable.

953—Basal Cell Carcinoma, *Sacral skin*

A 44 year old European woman had a wart-like growth on the skin of the sacral region some months prior to her present operation. This was removed by electro-cautery, but recurred again two weeks ago. Grossly the present growth was a granular mass of tissue attached to the skin. The mass was firm, with fine papillary projections supported by a delicate stroma.

984—Mixed Cell Tumor, *Nose*

This biopsy was taken from the nose of a 32 year old female laborer. She had had a slowly growing mass in the bridge of the nose for 1 year. This tumor was stony hard in some areas, non-tender, and not adherent to the skin or underlying tissues. It was thought, clinically, to be a fibroma.

1070—Ascariasis, *Liver*

No history or autopsy findings are available. We borrow an illustrative example from Smith and Gault, "Essentials of Pathology."

The patient was a 12 year old Filipino whose illness began six months before admission with intermittent attacks of jaundice accompanied by nausea and vomiting. The present attack started ten days previous but became progressively worse, with fever (104° F.), intense jaundice, a rapid pulse, and dilirium. On physical examination the jaundice was noted, as well as enlargement of the liver, which was tender on palpation. Laboratory examination yielded little information of value except that the feces contained ova of Ascaris lumbricoides. *Pathologic Findings:* At autopsy, the tissues, particularly the serous membranes throughout the body, showed bile staining. The most interesting

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pathologic finding was in the liver. This organ was slightly enlarged and greenish yellow. Some obstruction was apparent in the common bile duct, it being impossible to express bile by pressure upon the gall bladder. The gall bladder was moderately distended. On opening the liver and bile ducts, seven adult round worms (Ascaris lumbricoides) were found, the largest measuring 25 cm. in length. One of the worms occluded the common bile duct. The mucous membrane at this portion was swollen and reddish gray. The bile in the ducts and gall bladder was thick and stringy, containing considerable mucus.

1150—KELOID

Two years after having her ears pierced (for ear rings?), a 19 year old Chinese girl developed a nodular growth on each of her ear lobes. Surgically removed, the nodules were firm, oval-shaped, measuring 2 × 2 × 3 cms. Their cut surfaces were uniformly greyish-white.

1265—SCHISTOSOMIASIS

This biopsy is from a 42 year old man who had intermittent attacks of pain in epigastrium, for 8 months and presented a lump bulging out in the epigastrium during the attacks. The biopsy was from this mass and consisted of a firm fibrous mass of tissue having lobulated fat attached to it.

1275—CARCINOMA OF THE PANCREAS, (*Acinar cell type*)

This 59 year old British sailor was in good health till two months prior to his hospitalization when he began to be troubled by attacks of dull back ache, intermittent at first but becoming more intense and frequent. One month later he had some epigastric discomfort. His appetite was only slightly impaired. For the last two weeks he had occasional loose bowel movements and gradually developed abdominal distension. On physical examination he was well-developed and nourished, though a bit pale. The abdomen was distended and a fluid wave could be elicited. There was an ill-defined, tender mass in the epigastrium but the liver and spleen were not palpable. X-ray findings were essentially negative. The patient's condition became progressively worse with anorexia and general weakness developing. He expired one week after admission. At *autopsy* the abdominal cavity was found to contain about 1,600 cc. of an amber, serous fluid. The head of the pancreas was firm and adherent to the liver. On section an ill-defined, greyish-yellow, firm tumor was found occupying the head of the pancreas. Well-circumscribed metastases were found in the peri-portal and para-aortic lymph nodes, in the wall of the ileum and colon, and in an adrenal gland.

1332—CARCINOMA OF THE LIVER

A Chinese teacher, male, aged 53, complained of having a mass in the right hypochondrium for over 3 months. His illness began with a loss of appetite 6 months prior to hospitalization.

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Two months later he noticed swelling of the ankles which subsided spontaneously in 2 months. At the same time he had a dull ache in the right hypochondrium. When first noted, the mass in this area was about the size of a fist and it gradually grew larger. No jaundice had been noted, but the patient had lost 20 lbs. in weight. On physical examination the liver was enlarged to 4 inches below the costal margin. It was firm and nodular. The spleen was not palpable and no other gross abnormalities were noted. Laboratory findings: RBC 3.14 million, hemoglobin 59%, WBC 7.800, polys 73%, lymphocytes 21%, monocytes 2%, eosinophiles 4%, Kahn test negative, serum albumin 3.7 gms., globulin 4.1 gms. Stool examination revealed ova of Clonorchis sinensis. X-ray showed gross enlargement of the right lobe of the liver and multiple tumor metastases in the left lung. A calcified lesion was also noted in the right apex. The patient's condition deteriorated gradually and he died 1 month after hospitalization. At *autopsy* the liver was enlarged and its right upper lobe was largely replaced with a tumor growth having an irregular, poorly defined outline and a muddy-yellow cut surface. The central portion of the neoplasm was necrotic. Clonorchis sinensis flukes filled every bile duct and were also numerous in the common bile duct. There were widespread tumor metastases to the regional lymph nodes, cerebellum, cerebrum, dura, and skin over the temporal region

1366—Syphilitic Aortitis

This 48 year old Chinese woman gave a history of illness for four months, the predominating symptom being cough. At *autopsy* the heart was flabby and there was moderate atheromatous plaquing in the aorta and coronary arteries. The intima of the ascending aorta and the arch of the aorta showed irregular wrinkling. The orifice of the left coronary artery was narrowed and that of the right was completely occluded. The liver, spleen and kidneys showed passive congestion.

A further, more complete but similar history is as follows:—

A 63 year old bartender stated that for 6 months he had noticed swelling of his abdomen, edema of the feet, anorexia and progressive weight loss. In addition to an enormously distended abdomen and 3 plus edema of feet, there were wheezing moist rales throughout both lung fields. The heart was normal in size. B.P. 132/78, but a diffuse precordial systolic murmur was present. The liver was moderately enlarged. The Wasserman test was strongly positive and the Kahn test 4, 3 and 2 plus on three occasions. Blood chemical studies, including liver and kidney function tests were essentially negative. Plasma proteins were 5.91 gms. (alb. 3.23, glob. 2.68), RBC's numbered 3.7 million. Abdominal paracentesis yielded 21 liters of fluid and 2 weeks later an additional 14 liters. This plus diuretics, effected considerable improvement and the patient was discharged, but

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returned to O.PD more and more frequently for paracentesis (up to 18 liters). He was given rather intensive anti-leutic therapy (Bi & KI) but began to have frequent periods of mental confusion, occasional vomiting and became progressively weaker. As a last resort it was decided to produce, surgically, an Eck fistula. He expired 3 days after the operation. At *autopsy* the heart was found to weigh 480 gms. The aortic ring was dilated (9 cms.) and there was slight separation of the commissures of the cusps. The aortic arch was diffusely dilated (12 cms. circumference). The entire thoracic aorta presented a typical "tree bark" wrinkling and there was considerable atheromatous change. The liver weighed 1,550 gms. and was finely nodular.

1386—Adenocarcinoma, *Cervix Uteri*

A 45 year old Chinese woman had vaginal bleeding for 2 months. Physical examination revealed a large cauliflower-like growth of the cervix uteri. Following a biopsy which demonstrated this to be an adenocarcinoma, a Wertheim hysterectomy was performed. The *surgical specimen* consisting of the uterus was remarkable only for the firm nodular growth, measuring about 27 mm. in diameter which largely replaced the cervix.

Adenocarcinoma is far less common than epidermoid carcinoma in the cervix but is probably more malignant as a rule than the latter. Like epidermoid cancer, it may arise either within the cervical canal or in the region of the external os. It may present as a papillary or ulcerative lesion at the external os, or, in some instances of origin within the canal, the cervical os may appear entirely normal externally, but when the canal is dilated and curetted, large crumbling masses of cancer tissue are dislodged by the instrument so that only a shell of cervical tissue may be left. In most cases one cannot be sure of the type until microscopical examination is made (Novak).

1595—Tuberculosis of the Urinary Tract

A British woman of unstated age was hospitalized with a finding of a non-functioning right kidney. This finding was confirmed by X-ray, and nephrectomy performed. The kidney weighed 270 gms. The capsule was 2 mms. thick. On section the calyces nearly all proved to be filled with caseous material. The renal cortex was largely destroyed by caseation. The ureter was 6 mms. in diameter, had thickened walls and its lumen was not grossly evident.

The following history is appended to illustrate further symptoms and findings in a similar case:—

A 28 year old engineer had developed burning on urination 3 years prior to his first hospitalization He was treated for prostatitis with sulfonamides and prostatic massage without relief. A tuberculin test at that time gave him a severe systemic reaction, although X-rays of the chest were negative. One month before

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his first admission he developed a low grade fever, began to lose weight and have a slight non-productive cough. Physical examination showed a pulse of 102, temperature 99.5° F., normal chest, a swollen, tender left knee, tender and moderately enlarged prostate. The urinary sediment contained 30 pus cells/hpf. A pyelogram suggested a possible tumour of the upper pole of the left kidney. An exploratory operation revealed a tuberculous abscess in the left kidney. The kidney was removed and the patient made a satisfactory recovery. Six months later he complained of a low grade remittent fever ever since operation, a pain in the small of the back for 2 months, weakness and anorexia for 6 weeks, severe frontal and occipital headaches for 8 days, vomiting and diplopia for 2 days. At this, his second admission, 10 days prior to death, there was a positive Babinski sign on the left with increased reflexes on that side, bilateral papilledema and C.S.F. pressure of 200 mms The spinal fluid contained 156 WBC, all lymphocytes, and 46 RBC/cmm. The chloride content was 119 mms/L. The Pandy test was 1+. He developed a bilateral rectus weakness and a positive Kernig's sign and 8 days later became confused and disoriented. Unconsciousness followed and he expired quietly. At *autopsy* there was found a diffuse tuberculous meningitis, miliary tuberculosis of the spleen, liver, right kidney, lungs, bone marrow, seminal vesicles and prostate. A 6 mm. active caseocalcarious tubercle was present in the lower lobe of the right lung.

1629—Epidermoid Carcinoma, *Esophagus*

A Chinese patient, male, 50 years old, complained of difficulty in swallowing (dysphagia) for 4 months. Gastrostomy was performed in Central America. There was moderate loss of body weight. He was admitted to Queen Mary Hospital and an esophageal resection was performed. The esophageal lumen was narrowed by a firm tumor growth having an ulcerated center and firm raised margins. The wall of the esophagus, measuring 15 mm. in thickness, was infiltrated by the neoplasm.

1668—Congenital Syphilis, *Spirochaete stain*

The body of this new born male infant weighed 1,500 grams. Its abdomen was distended and the placenta was still attached. The skin was edematous, as were also the scrotum and penis. The skin was not macerated and there was no external sign of injury. The abdomen contained about 100 ml. of blood-stained fluid and the liver was greatly enlarged. The spleen was also enlarged and adherent to surrounding tissues. Its capsul was thick and roughened. The placenta was friable and nodular.

1691—Malignant Melanoma, *Nasopharynx*

This 55 year old Chinese male had recurrent episodes of epistaxis from the right nostril for 8 months. On examination a tumor was found in the right nasal cavity, and when it was

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excised it was found to measure 4.5 × 3 × 2.5 cms. It was firm and black. The cut surfaces were uniformly pigmented black.

A further illustrative history may be borrowed from Smith & Gault.

The patient was a Negress of 43 years, admitted to the hospital with pneumonia and pleurisy-like pains on the left side of her chest of two weeks' duration. A year before admission, a pigmented nodule had appeared on her left great toe which had required amputation. Physical examination showed rapid shallow respiration, dullness over the left base, and an inconstant friction rub in the left axilla. The great toe of the left foot was absent. WBC count was 38,400 with 84 per cent polynuclears. The pneumonic process spread to the other lung in spite of treatment, and she died one week after admission. *Pathologic Findings*: The autopsy findings revealed an absent toe. The pericardial cavity showed serous effusion. The heart was moderately enlarged. On section it showed several polypoid, soft, greyish-white tumor masses springing from the upper wall of the left ventricle, from the apex and from the posterior surface. The valves were normal. The right ventricle likewise showed a few sharply circumscribed metastatic tumor nodules. The pleural cavities each contained a considerable amount of dark, bloody fluid with many adhesions. Both lungs showed many necrotic tumor nodules, one of them in the left lower lobe being "as large as a lemon." Accompanying this was a secondary pneumonia. Actual invasion of the blood vessels of the lung by the tumor tissue could be demonstrated grossly. The liver, curiously, showed no tumor nodules. The spleen and the kidneys showed several tumor masses. Microscopically the heart muscle was infiltrated by a rapidly growing spindle-cell type of sarcoma. This was difficult to identify under low power at first because of the relative absence of pigment. Most of the cells were spindle in outline with elongated, irregular nuclei and a considerable amount of interstitial connective-tissue stroma. The nuclei, furthermore showed considerable hyperchromatism and some pleomorphism. There were a moderate number of mitotic figures, most of which were typical in appearance, although some typical ones were found. The tumor as a whole was practically non-pigmented. Only by careful search here and there were a few tumor cells found which contained pigment.

1744—Active, Caseo-Calcarious Tubercle, *Lymph node*

This biopsy was taken from the neck of a 32 year old Chinese woman teacher who gave a history of enlarged cervical lymph nodes of 8 years duration. The lymph node measured 10 × 10 × 5 mms. Its surface was firm and nodular. The cut surface was caseous.

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1923—NEUROFIBROMA

This 49 year old Chinese man noted many, slow-growing, firm, globular nodules arising over the right knee, the anterior portion of the right leg and in the sacral region over a period of 3 years. These nodules had an average diameter of 3 cm. and each was covered by a thin capsule. Their cut surfaces were pearly-white and presented many scattered petechiae.

2057—LEPROMATOUS LEPROSY, *Skin*

This 25 year old merchant gave a history of having had leprosy for six years, without treatment. Infiltrations first appeared on the face. At the time of biopsy he had diffuse lepromatous infiltration of the face, nodular infiltration of the ear lobes, thickening of the right ulnar nerve, paralysis of both hands with bilateral 4th and 5th finger contractures and atrophy of the hand muscles. Smears from the ears revealed great numbers of acid fast bacilli and globi. Biopsy was taken from the lobe of the left ear.

2129—NEVUS, *Skin*

No history is available. These tumors are usually only of cosmetic significance unless they are so located as to be subject to trauma. An extremely small proportion may become malignant.

An illustrative history may be borrowed as follows from Smith & Gault, "Essentials of Pathology".

The patient was a white woman of 52 years who came to the hospital, following an attack of influenza, for a routine check-up. Her physical examination was essentially negative except for the presence of a somewhat elevated large, pigmented nevus on the abdominal wall which measured 3 cm. in its greatest diameter. The patient asked to have this nevus removed because she had heard that a certain number of them became cancerous. Because the nevus was of the elevated, deeply pigmented type which might undergo such change, this was done. *Pathologic Findings*: Grossly the tumor was a soft, sessile, deeply pigmented nevus measuring 3 cm. in length by 1.5 cm. in breadth, and elevated nearly 1 cm. above the skin level. Microscopically, the superficial epithelial layer was thinned, and the rete pegs for the most part were absent. Here and there some attempt on the part of the epithelium to undergo hyperplasia with superficial keratinization was noted. Beneath the superficial epithelium were found nests of typical small ovoid or polyhedral nevus cells. By special silver-staining technique these could be demonstrated to occur around terminal nerve filaments. Many showed intense pigmentation. In others, the cytoplasm showed no pigment. There was some deposition of pigment in the interstial tissues. This was accompanied by moderate fibrosis and chronic inflammatory mononuclear cellular infiltration. The lesion was sharply demarcated from the underlying corium by rather dense, hyalinized collagen.

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2307—Caseo-Nodular Tubercles with Slight Fibrosis, *Lymph node*

A Chinese male student, aged 23, gave a history of enlargement of the left cervical lymph nodes over a period of 6 months, accompanied by an irregular low grade fever A lymph node measuring 20 × 10 × 12 mms. was removed for study. On cut surface it was firm and showed two yellowish areas, each 10 mms. in diameter and surrounded by translucent greyish-white fibres.

2330—Rectal Polyp

The patient, a 27 year old European woman, stated that she noticed rectal bleeding, occasionally associated with pain, for many months. Two small polypi, having diameters of about 0.5 cm. were removed from the rectum.

2447—Tuberculoid Leprosy, *Skin*

This 43 year old farmer developed a macule on his forehead one year before he was first seen in a leprosy clinic. Subsequently further lesions appeared on both arms and on the left buttock. Smears for leprosy bacilli were all negative. The biopsy was taken from the macule on the right upper arm. The macule measuring 5 × 5 cm. was red, raised and circumscribed.

2502—Tuberculous Meningitis

History and autopsy findings are not available. The following suggestive history is appended:—

About 6 weeks before his death a 7 year old boy, who was convalescing from bilateral otitis media of 9 months duration, began to run a low grade fever. After having headaches for a week he began to vomit frequently and developed neck rigidity. When admitted to the hospital he had a positive Kernig's sign, McEwen's sign and tuberculin test (1:1000). Shortly thereafter he developed a convergent squint and began to complain of diplopia. Weakness of the right arm and leg, bilateral lid ptosis and 6th nerve paralysis were found. A lumbar puncture showed increased CSF pressure. The spinal fluid, which formed a pellicle on standing, contained 250 lymphocytes/cmm. and acid-fast bacilli. The Pandy test was positive. X-ray revealed a "suggestive" lesion in the right lung. He was treated with bromin, intravenous fluids and glucose, but became comatose and died. *Autopsy* disclosed a tuberculous meningitis characterized by a copious creamy exudate about the optic chiasm and infundibulum. There was a moderate cerebellar pressure groove. Innumerable minute nodules were seen in the leptomeninges. The right lung contained 2 large (1.5 cm.) caseonodular tubercles surrounded by numerous small tubercles. The enlarged tracheobronchial lymph nodes contained conglomerate miliary tubercles. A small tuberculous ulcer was present in the terminal ileum. Occasional miliary tubercles were found in the liver, spleen and kidneys.

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2514—Active, Fibro-Caseous Tuberculosis, *Lymph node*

This Chinese girl, a 17 year old student, gave a history of having had a mass in the left cervical region for 5 years. The entire mass was removed. It weighed 75 gms. and measured 12 × 5 × 2 cms. The lymph nodes comprising the mass were enlarged and on cut surface most of them showed yellowish areas. One of the nodes presented a dry, pale, yellowish surface suggesting early calcification.

2598—Congenital Syphilis, *Liver*

The mother had a weakly positive Wassermann test at the birth of this male infant. The child had difficulty in respiration and died 12 hours after birth. It weighed 5 lbs. 6 oz. and was 47 cms. long. The skin was cyanotic. The lungs sank in water. There were numerous petechial hemorrhages on the pleurae. The lungs were purplish and firm and there was no crepitus. On section they appeared solid. The liver weighed 17 gms. It was purplish-red and flabby. The cut surfaces were homogeneously purplish-red. The spleen weighed 7 gms. It was firm and purplish-red.

2665—Congenital Syphilis, *Lung*

This was the second pregnancy of the mother of this stillborn, macerated female foetus. She had a positive Kahn test. The foetus weighed 5 lbs. 9 oz. and was 43 cms. long. The skin was macerated. There was a depression at the base of the nose. The lungs were airless. The epiphyseal lines of the femurs were irregular and thickened.

2755—Miliary, Confluent Miliary, & Caseo-Nodular Tubercles, *Lymph node*

No history is available for this 3 year old Chinese boy. *Autopsy* revealed a diphtherial pseudo-membrane covering both tonsils, the epiglottis and larynx. There was a firm tuberculous nodule, 10 × 7 mms. on the lateral surface of the right lower lobe and numerous minute, greyish-white tubercles were present on the cut surfaces of both lungs. The hilar lymph nodes were enlarged, their cut surfaces showing greyish-white nodules. Two tuberculous ulcers were found in the lower portion of the ileum. The mesenteric lymph nodes were enlarged and caseous and there was a "cold abscess" measuring 5 × 4 cms. in the region of the 5th and 6th thoracic vertebrae. The bodies of these vertebrae were eroded.

The following history is appended as being representative of childhood type tuberculosis:—

A 24 month old male infant had been in intimate contact with his tuberculous mother during the first eight months of his life. Approximately 16 months before death chest films had been reported negative. Fourteen months before death there was

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demonstrated a questionable enlargement of the hilar lymph nodes. At this time a tuberculin test was "slightly positive". The child began to run a low grade fever and developed a persistent cough. Shortly before admission to the hospital he began to vomit. At admission 3½ months before death he was malnourished; his cervical lymph nodes were enlarged. He had a slight anemia and a leukocytosis of 29,000 with 70% polys. Stomach washings were positive for tubercle bacilli upon guinea pig inoculation. X-rays failed to show any pulmonary lesion. The patient became listless, anorexic and quite irritable. He complained of pain over the left upper humerus and refused to move his arm. X-ray demonstrated a small focus of osteomyelitis. Two weeks before death the child developed a stiff neck. Cerebrospinal fluid was found to be under slightly increased pressure and contained 36 WBC/cmm. He became apathetic and lapsed into coma before his death. *Autopsy* showed a typical tuberculous meningitis. The pia-arachnoid overlying the base of the brain was thickened and slightly greenish. A few miliary tubercles were seen here. There was diffuse miliary tuberculosis of lungs and spleen. A large caseonodular tubercle was present on the pleura of the lower lobe of the left lung. The hilar lymph nodes were markedly enlarged and filled with soft caseous matter.

2818—Miliary, Caseo-Nodular Tubercles & Tuberculous Pneumonia, *Lung*

No history is available for this 2 year old Chinese boy. At *autopsy* the posterior portion of the right lower pulmonary lobe was firm, and the cut surface showed areas that were firm, greyish-white and finely granular. The cut surfaces of the other pulmonary lobes contained extensive miliary tuberculosis. The hilar lymph nodes and the para-tracheal lymph nodes were enlarged and adherent to each other, the largest measuring 25 × 20 mms. Their cut surfaces were caseous. Miliary tubercles were found also in the myocardium, liver, spleen and kidneys.

2866—Congenital Syphilis, *Osteochondritis*

This was the fourth pregnancy of a 25 year old woman who had 2 plus Kahn test. The stillborn, macerated female foetus weighed 4 lbs. 10 oz. and was 43 cms. long. The lungs were airless. All organs showed marked post-mortem changes. The epiphyseal line of the lower end of the femur was thickened and very irregular.

A further illustrative history is as follows:—

The mother of a 3 month old infant had 4 preceding normal pregnancies. Several years before the birth of this infant the father acquired syphilis. The mother was not aware of the infection until this infant was found to be syphilitic. The infant appeared normal at birth, but at the age of 2 months was brought to the hospital because of the recent development of sores in the

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mouth, constipation and fever. The child was dehydrated, emaciated and apathetic. There were syphilitic rhagades about the mouth and a severe thrush (Monilia) infection of the oral mucous membrane. X-rays showed a syphilitic osteochondritis of several of the long bones. The Wassermann test was 4 plus. Under intense antiluetic therapy the rhagades healed, but a bilateral otitis media developed, complicated by bronchopneumonia. Terminally there was redness and swelling of various joints. At *autopsy* the spleen and liver were enlarged. Changes definitely related to syphilis were difficult to ascertain, presumably because of the intensive anti-luetic therapy. Although there was a purulent pneumococcal arthritis, syphilitic osteochondritis could be demonstrated.

2880—Miliary & Confluent Miliary Tuberculosis, *Caecum*

A 25 year old Chinese leather worker was admitted to the hospital with a history of paroxysmal attacks of pain in the right iliac fossa for two years. He had no fever and no history of cough or hemoptysis. X-ray of the chest revealed healed tuberculous lesions. He had a freely movable mass in the right iliac fossa. The caecum was resected and was found to contain a firm irregular mass measuring 10 × 6 × 5 cms. with larger and smaller nodules seen on the serosal surface. The wall of the lower 4 cms. of the ileum and the caecum measured 12 mms. and 20 mms. in thickness respectively. The lumen of the caecum was about 3 mms. in diameter. The regional lymph nodes were all enlarged, the largest measuring 2.5 cms. in diameter and presenting a caseous surface when sectioned

2934—Confluent Miliary & Caseo-Nodular Tubercles, *Lymph node*

A Chinese boy, aged 8 years, was hospitalized with a history of a mass in the abdomen for 3 months. His cervical and inguinal lymph nodes were enlarged, freely movable and not attached to the overlying skin. One of the left cervical lymph nodes was removed for biopsy. It had a greatest diameter of 15 mms , was firm, and on cut surface was greyish-white.

3095—Pulmonary Tuberculosis

No history is available for this 40 year old Chinese man. At *autopsy* the right lung weighed 1,532 gms and the left lung 908 gms. The left upper lobe was firmly adherent to the parietal pleura and the left lower lobe was covered with fibrino-purulent exudate. Three cavities were found in the upper lobe and the rest of the lobe showed extensive fibrosis scattered throughout in which there were numerous irregular, small areas of caseation. The cut surface of the right lung displayed numerous miliary tubercles and near its apex there was a cavity having a diameter of 4 cms. The free margin of the epiglottis had a 17 × 15 mms. area of ulceration and the surrounding tissue was very edematous.

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The lymph nodes about the trachea were enlarged, the largest having a greatest diameter of 2 cms. and had anthracotic pigmentation but no evidence of caseation. The pericardial fat was gelatinous.

3104—Endometrial Polyp

This was an incidental finding at the autopsy of a 42 year old Chinese woman who died of heart failure. A soft tissue mass protruded from the external os of the cervix uteri, and on opening the uterus this was found to be part of a soft polypoid mass which projected from the endometrium to a length of 3 cm. and which was 2-15 mm. in its other dimensions.

3177—Syphilitic Aortitis & Pulmonary Gumma

No history or autopsy findings available. The following history can be considered representative:—

Twenty-three years before hospital admission, a 53 year old tramcar conductor, who occasionally held coins in his mouth, developed an ulcer on the tongue, followed by soreness of the mouth. A physician told him that he had a tongue chancre; later a blood Wassermann test was reported negative. No history of treatment was elicited. Ten months before hospital admission he had a "chest cold" which left him with a dry cough. For 7 months he had slight difficulty in deglutition of solid food, and for 5 months had noted increasing dyspnea with occasional nocturnal attacks, and a feeling of substernal pressure. Physical examination revealed an enlarged heart (100% by X-ray), with a blowing systolic murmur and a diastolic murmur more pronounced at the base. The B.P. was 110/40; there was a water-hammer pulse of 100, and capillary pulsations were seen in the nail-beds. Blood Wassermann and Kahn tests were both 4+. The patient showed little improvement under treatment (bed rest, KI). The B.P. later was 162/20 in the left arm, 152/30 in the right arm. He was rehospitalized with increased substernal pain, nausea, anorexia, abdominal distension, orthopnea, and increase in rusty-black sputum. There was now a pulsation in the suprasternal notch and a tracheal tug. Duroziez's sign was present. The patient developed bronchopneumonia and expired. *Necropsy* revealed a subacute syphilitic aortitis involving the entire thoracic aorta, with a fusiform aneurysm of the ascending aorta. There was generalized cardiac hypertrophy (600 gms.) maximum in the left ventricle, hydropericardium, chronic passive congestion of the lungs. The aortic valve was incompetent to the water test; the cusps were shortened. The wall of the ascending aorta showed some "tree-bark" wrinkling and many shallow depressions, along with atheromatous change. The aorta 2 cms. above the aortic ring was 14 cms. in circumference.

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3245—Rokitansky-Aschoff Sinuses, *Gall Bladder*

A 67 year old Chinese woman had intermittent pain in the right hypochondrium. Cholecystogram revealed the presence of granular material in the gall bladder and a cholecystectomy was performed, the clinical diagnosis being cholelithiasis. The *surgical specimen* of the gall bladder measured 6 × 2 5 × 2 cms. It contained a few ccs. of thick bile and a few small, irregular, dark-colored concretions, the largest of which had a diameter of 6 mms. One of these stones, having a diameter of 3 mms., was lodged in the cystic duct The wall of the gall bladder was thickened to 4 mms. On its mucous membrane there were two friable, irregular, greenish nodules measuring 6—8 mms. in diameter.

Rokitansky-Aschoff sinuses consist of microscopic outpouchings of the gall bladder mucosa which extend along blood vessels for varying distances toward the serosa. They are usually seen in instances of chronic cholecystitis where there often is hypertrophy of the muscular coats. These sinuses are of no great apparent medical significance though to the uninitiated they may be suggestive of malignant growth and lead to a mistaken diagnosis They are here presented for comparison with the characteristics of malignant growths.

3427—Active Pulmonary Tuberculosis

No history is available for this 46 year old Chinese male, whose post-mortem examination was performed in a public mortuary. At *autopsy* the right vocal cord was ulcerated. The right lung weighed 500 gms. was collapsed and covered with a 2 cm. thick fibrous layer. The lung was not crepitant. On section the cut surfaces were anthracotic and in the upper lobe there was a small cavity measuring 18 × 8 mms. About it were fairly well circumscribed yellowish areas. Scattered over the cut surfaces of the whole right lung were grayish-white patches. The right hilar lymph nodes were enlarged, the largest measuring 20 × 6 mms. Their cut surfaces were pinkish and contained no tubercles. The left lung was voluminous and weighed 860 gms Its apex was covered with fibrous tissue and was nodular. The cut surface of the upper lobe was hyperemic and had numerous grayish-white nodules scattered over its surface. Seven centimeters below the apex there was a well-circumscribed, dry, yellowish nodule with a diameter of 2 mms. The cut surface of the lower lobe was also hyperemic and near the upper border there was a group of miliary tubercles.

3744—Blastomycosis (*Blastomycosis dermatitides*), *Lung*

The following is a illustrative history: A 35 year old negro female entered a hospital 4½ months before her death because of chills and pleuritic pain. Except for an upper respiratory infection, no cause was found for her chills and fever, (100-103° F).

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Her WBC count was 11,650 with a normal differential count. Five weeks after admission to the hospital she was discharged, still running a low grade fever One month before her death she returned to the hospital because of pains in the right breast for 6 weeks and dyspnea and palpitation for 4 weeks. Her temperature was 99° F. Smears from a draining sinus in the right breast revealed no organisms. Moist rales were heard over both lung bases and there was a friction rub on the left side. Her heart was slightly enlarged. There was slight pitting edema of the feet. She developed a persistent cough and a mucopurulent discharge. She became gradually worse and developed what was considered to be a terminal bronchopneumonia. At *autopsy* there were miliary blastomycotic abscesses in the lungs, kidneys, thyroid and myocardium. The pericardial sac was completely obliterated and there were numerous abscesses between the adhesions. Multiple abscesses in the lungs measured up to 6 mms. in diameter. They were firm and varied in colour from a light yellowish-gray to a reddish-purple.

3745—Actinomycosis, *Liver* (U.C. 6621)

The following is a representative history: A 50 year old man died after an illness of 10 weeks' duration, characterized by abdominal pain, chills and fever, anorexia, loss of weight and leukocytosis (24,000) Because of the diagnosis of sub-diaphragmatic abscess complicating empyema of the gall bladder, a laparotomy was performed discharging multiple peritoneal abscesses which were drained. The suppurative process progressed upward through the diaphragm into the pleural cavity and the resulting empyema was drained through the chest wall. Bacterial culture showed a mixed infection. The patient died in an exhausted and septic state passing large amounts of blood per rectum. *Post-mortem examination* disclosed peritoneal abscesses containing thick, creamy pus, a spontaneous cholecystoduodenostomy and and bilateral empyema. Death was due to fatal hemorrhage into the gastro-intestinal tract from an artery at the site of the cholecystoduodenostomy. Microscopically all of these lesions were actinomycotic. Although the portal of entry was not identified it was presumably in the bowel.

3785—Myogenic Sarcoma, *Uterus*

The patient, a 54 year old Chinese woman, who had passed the menopause 4 years previously, had vaginal bleeding for 10 months. On physical examination the uterus was found to be enlarged. Pan-hysterectomy was done and a tumor mass was found within the uterine cavity, partially attached to the uterine wall. This tumor mass measured 12 × 7 × 7 cm., was soft and friable, hemorrhagic and necrotic.

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3799—Lymphangioma, (*Hygroma colli*)

This 3 months old Chinese male infant had a subcutaneous cystic tumor on the left side of his neck from birth. Surgically removed, the tumor weighed 283 grams. It was irregular in shape, soft and cystic. The cut surface was greyish-white and composed of a fine, pale, greyish-white network, inclosing irregular small cystic spaces the contents of which were a colorless jelly-like material.

3916—Miliary Tuberculosis, *Liver*

No history is available for this 3 year old girl. At *autopsy* the cut surface of the lower four-fifths of the left lower pulmonary lobe was firm and yellow. Numerous miliary tubercles were seen in the lungs. The hilar lymph nodes were all enlarged and showed caseation. The liver weighed 312 gms. and was flabby. Numerous greyish-white nodules projected from its surface, some of them being confluent, the largest having a diameter of 4 mms. Miliary tubercles were found also in the spleen and kidneys. The meninges over the base of the brain was cloudy and covered by a thick layer of yellowish, fibrinous exudates.

3945—Papillary Cystadenoma Lymphomatosum (*Warthin's Tumor*)

A 52 year old Chinese man had a small firm, movable nodule under the skin of the left side of his neck for about 2 years. The nodule was painless but gradually enlarged. There was no lesion in the oral cavity and no sign of nasal obstruction. His health was excellent. Clinically it was suspected that the lesion might represent a metastatic neoplasm in a lymph node and the nodule was removed. It was found to be well encapsulated, moderately firm and fairly uniformly pink on cut surface.

4027—Filariasis, *Scrotum*

The section is a biopsy from markedly thickened, "tree-bark-like" scrotal skin of a 33 year old male who had had swelling of the scrotum for 6 years.

4149—Lepromatous Leprosy, *Lymph node*

No history or autopsy findings are available. This lymph node and several others were enlarged and on cut surface revealed yellowish caseous like areas without actual caseous breakdown.

4170—Active Pulmonary Tuberculosis with Ulcerative Laryngitis

No history is available for this 63 year old Chinese man whose necropsy was performed in a public mortuary. At *post-mortem examination* the trachea and bronchi contained a large amount of blood. On the anterior wall of the larynx there were two superficial ulcers having granular, pink bases. The lymph

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nodes at the tracheal bifurcation were enlarged, and their anthracotic cut surfaces showed a few grayish-white spots. The posterior portion of the right lung was firmly adherent to the chest wall. The pleura over this aspect was thickened to 3 mms. All lobes of this lung were adherent to each other. The cut surfaces of the two upper lobes were focally firm and small whitish nodules were scattered throughout. The lower lobe contained a cavity measuring 6 × 3 × 2.5 cms. which contained dark red blood clots. A bronchus communicated with this cavity and it was lined by dirty, yellowish, friable material. About the cavity there were varying sized caseous areas with diameters up to 15 mms. The left lung was voluminous having smooth anthracotic pleural surfaces. It was slightly nodular to palpation and its edematous and slightly hyperemic cut surfaces displayed a few grayish nodules.

4179—Lepromatous Leprosy, *Testis*

No history or gross findings are available. The testes are not infrequently involved in lepromatous leprosy. There is diffuse infiltration by bacilli and leprae cells with eventual extensive fibrosis and destruction of seminiferous tubules and interstitial cells. Not infrequently gynecomastia is seen in association with such lesions.

4360—Amebiasis, *Colon*

No history is available for this 46 year old woman. At *autopsy* she was found to have primary carcinoma of the uterus with widespread metastases. The caecum was studded with ulcers for an area of 15 cms. Some of the ulcers were surrounded by a hemorrhagic zone and were superficial. The ulcer bases were slightly elevated above the mucosal surface and were covered by granular necrotic material. The colonic mucosa was edematous.

An illustrative history may be abridged as follows from Smith & Gault, "Essentials of Pathology".

A 50 year old Italian farmer presented a six month history of dry cough, malaise, easy fatigability, anorexia and asthenia. These symptoms increased and were accompanied by a weight loss totalling 40 pounds at the time of admission. His cough became productive of as much as a litre per day of blood-streaked, white, mucoid, granular sputum which was not foul smelling. He also had progressive and severe substernal pain. During this period he noted a mild diarrhea. Hospital examination was at first centered about the lungs and both tuberculosis and pulmonary neoplasia were ruled out and the impression developed that the pathology was pleural and parenchymal rather than bronchial. During his stay in the hospital the patient continued to have a mild catarrhal type of diarrhea with three or four bowel movements per day. X-ray studies revealed a marked degree of irritability of the terminal small bowel and the colon. Some

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evidence of ulceration was noted in the sigmoid and transverse colon. Repeated stool examinations were negative for parasites and bacteria which could be held responsible for the condition. In view of the chronic diarrhea, the enlarged liver and the right lower lobe involvement, the question of amebiasis was raised. Sigmoidoscopic examination revealed several deep ulcerated areas and scrapings from these yielded a few motile amebae of the endameba histolytica variety. Three weeks after admission the patient developed hemiplegia, and an exploratory craniotomy was done on the assumption that there was a brain abscess present, as suggested by X-ray. The abscess was exposed nad drained and amebae were recovered from the contents of this abscess. The patient went progressively downhill and died about one month after admission. *Pathologic Findings*: At autopsy a chronic amebic dysentery with metastasic abscesses of the liver, lung and brain were found. The entire colon showed multiple ulcers measuring about 0.5 cm. in diameter. The ulcers had a ragged outline, and there was undermining at the edges. The lumen of the bowel was filled with blood. The abscess in the right lower lobe of the liver measured about 3 cm. in diameter and was filled with tenacious green pus. It had eroded through the diaphragm and caused multiple abscess formations in the lower lobe of the right lung. Occupying most of the left parietal lobe of the brain was an abscess measuring about 5 cm. in diameter. It was filled with thick creamy pus. Motile amebae were recovered from the ulcers in the colon and microscopic sections revealed occasional typical vegetative endameba histolytica in the semi-viable areas of the wall of the brain abscess.

4447—Carcinoma of the Pancreas, (*Duct cell type*)

This 52 year old Chinese housewife was admitted to the hospital with intense jaundice and dyspnea, and was markedly emaciated. She had marked pitting edema of the lower extremities as well as ascites. The history dated back 4 months when one day her daughter had noticed that the patient had a mild yellow color which subsided spontaneously a few days later. The jaundice recurred frequently at shortened intervals and was accompanied by intense itching in the last two months. Pain in the back and epigastrium developed during the final month as a dull aching. Anorexia became progressively worse and ascites and edema of the lower extremities became apparent in the last two weeks, together with dyspnea. X-ray examination revealed multiple tumor masses in the liver and lungs. A diagnosis of primary carcinoma of the liver was made. She deteriorated rapidly and died 5 days after hospitalization. *Necropsy* disclosed varying sized, well-circumscribed, grayish-pink tumor nodules in the liver, predominantly in the right lobe. The gall bladder also presented numerous small metastases and it was distended with dark green bile. The common bile duct was enclosed in a large tumor mass growing in the head of the pancreas. This

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neoplasm had a greyish-yellow cut surface and was poorly demarcated from the surrounding parenchyma. Well-circumscribed metastases were found also in the lungs, adrenal glands and portohepatic lymph nodes. The lungs were congested and edematous. The abdominal cavity contained 3,000 cc. of blood-stained serous fluid.

4540—Umbilical Polyp

Ever since birth this three year old Chinese boy had a small reddish nodule in the navel. The nodule measured 0.5 cm. in diameter and on excision was found to be composed of moderately firm, greyish-white tissue.

The embryonic yolk stalk, which in early fetal life is attached to the simple tube representing the intestine, usually detaches from the intestine when the embryo attains a length of 5 to 9 mms. Sometimes this connection persists for varying periods as the omphalomesenteric duct which may then later be obliterated. Yet more infrequently, this omphalomesenteric duct may fail to disappear entirely though it may be closed in as far as its lumen is concerned. There may then appear in the neighborhood of the umbilicus a polyp. Such a polyp may be covered with intestinal or gastric mucosa. The polyps are red and secrete a mucous substance. A more marked abnormality may present a persisting opening in the remnants of the omphalomesenteric duct, and since this is then in communication with the intestine, there may be fecal discharge from the persisting orifice. It should be remembered that the occurrence of Meckel's diverticulum is often associated with these abnormalities.

The umbilical polyp is thus a congenital anomaly and not a neoplasm.

4863—Fibroleiomyoma, *Uterus*

The patient, a 52 year old Chinese woman who had had two normal pregnancies and who had passed her menopause 8 (?) years previously, stated that she had had an odorless, reddish vaginal discharge for three months. There had been no associated abdominal pain. A total hysterectomy was performed. In the uterus a 6 × 3½ × 2½ cms. firm tumor protruded into the uterine cavity from the fundus. The tip of the tumor was hemorrhagic and 1½ cms. of it protruded through the external cervical os. The cut surface of the tumor presented a whorling arrangement of greyish-white fibres and was clearly demarcated from the adjacent uterine tissue.

4936—Carcinoma of the Parcreas, (*Undifferentiated cell type*).

This Chinese woman, aged 40, complained of having had epigastric discomfort for 4 months. At first this was accompanied by loss of appetite and in the last month there had been severe anorexia and occasional loose bowel movements. There was

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marked loss of weight and increasing weakness. The patient died two days after hospitalization. At *Necropsy* there was found a primary carcinoma in the head of the pancreas which was adherent to the liver and duodenum. The neoplasm had infiltrated the first portion of the duodenum and formed a firm-based ulcer. There was no ascites or jaundice but the patient was dehydrated.

5223—KALA-AZAR, *Liver*

This 28 year old farmer gave a history of abdominal distension of 5 months' duration and of diarrhea for one month. He had progressive hepato- and splenomegaley. There had been a weight loss of 15 lbs. On admission to the hospital a needle biopsy of the liver revealed mostly normal liver cells and no inflammatory cell infiltration. In the cytoplasm of the Kupffer cells many Leishman-Donovan bodies were demonstrated.

5336—FILARIASIS (*Wuchereria bancrofti*)

No history or post-mortem findings are available on this 68 year old male who is known to have had a two week history of dysuria and an enlarged prostate.

The following is an illustrative abridged history borrowed from Smith and Gault, "Essentials of Pathology".

The patient was a male, 40 years of age, who had resided in the Philippines most of his life. He gave a history of having had a number of attacks of "elephantoid fever" over a period of ten years. During the paroxysms the inguinal lymph nodes were greatly enlarged and painful; the spermatic cord was enlarged and tender, with gradual increase in the size of the scrotum. The paroxysms lasted for several days accompanied by headache, occasional vomiting, irregular fever, and finally profuse sweating, after which the patient quickly recovered. During the last two years the scrotal enlargement persisted and increased till it measured about 30 cms. Lately, the attacks became more frequent; the patient noted fullness in the abdomen and also a milkiness of the urine. Microfilaria were found nocturnally in the blood in a previous hospital admission. It is interesting to note that while the patient sojourned in cold climates such as Canada and the Northern United States, the paroxysms did not occur. The patient was admitted to the hospital for observation and subsequently developed a pulmonary complication with evidence of a patchy consolidation, apparently bronchopneumonia. He did not respond to treatment and died. *Pathologic Findings*: At autopsy, the heart showed parenchymatous degeneration of the myocardium. There was bronchopneumonia with pulmonary edema. Spleen showed acute congestion: liver, parenchymatous degeneration; and the kidneys toxic nephrosis with moderate bilateral hydronephrosis. The peritoneum showed chylous ascites; the bladder, chyluria; and the scrotum, elephantiasis. There was chronic lymphangitis with thrombosis of numerous branches

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of the lymph vessels of the scrotum, bladder, and abdominal lymphatics. There was thickening of the thoracic duct. Adult filaria were demonstrated in some of the lymph vessels.

5454—Basal Cell Carcinoma, *Skin*

This biopsy was taken from the cervical region of a 55 year old Norwegian ex-marine engineer. Fourteen years previously he had a growth on the neck which was excised and followed by two courses of radium treatment. The present growth developed at the same site 3 months prior to hospitalization. The specimen revealed a dark brown translucent tumor growth attached to a section of normal skin.

5604—Dipylidium Caninum, *Dog's intestine*

Dipylidium caninum is a tapeworm infestation of dogs in which the worm passes part of its life cycle in the dog flea. It is a relatively small worm, being only a few inches in length as compared to a length of several feet attained in other tapeworms common to man. Children may be infested by this worm through contamination of fingers by the faeces of dog fleas containing the larval stage or through some other manner of conveying the larvae to the mouth. Usually such infestation is not massive and since the worm is small and tends to die out in the human, the infestation as a rule is not greatly significant.

This section is included for study since the worm illustrates the general manner of tapeworm attachment to the intestinal wall. Since the worm is small, infestation in dogs may be heavy and it is relatively easy to obtain sections displaying several scoleces.

5675—Schistosomiasis, *Liver*

This 28 year old Chinese woman gave a history of attacks of "malaria" for more than two years. She had amenorrhoea for 5 years. Both the liver and spleen were enlarged to palpation and a needle biopsy of the liver was performed. This section is from the biopsy.

6125—Blastomycosis (*Blastomycosis dermatitides*) *Skin*

This 8 year old Chinese girl, who had lived in Hongkong all her life, first developed some small round papules about ½ cm. in diameter on her left buttock 8 months before she was seen in the dermatology clinic. These papules gradually grew larger, some fusing together to form a patch. Clear yellow, sometimes blood-stained, fluid oozed from them. She was admitted to Queen Mary Hospital and the lesions cauterized. One month before presenting herself in the dermatologic clinic, the same condition recurred in the same parts of the body; this time the lesions being more severe. The nodules fused together involving the whole of the left buttock, the inner aspect of the upper left thigh and the

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left labium major. There were also nodules in the right buttock. The lesion was not tender, but itchy. When seen in the clinic these lesions had this same distribution. The surface of the skin was elevated and verrucous. They were wet, firm to touch, but fragile. Nontender. In some areas there were crusts. The surrounding skin was reddened and excoriated. WBC was 12,150 with P. 58 L. 39, and E. 3 on differential count. A biopsy was performed and from this a definite diagnosis of cutaneous blastomycosis was established. (The present demonstration slide in your collection is cut from this biopsy). The patient was subsequently treated for a period of about 3 months with potassium iodide, gentian violet and ½% silver nitrate wet dressing locally, and with streptomycin. Under this treatment the lesions became cleaner and the warty lesions less exuberant, but they did not subside completely. She was then discharged from the hospital and attended the X-ray department for X-ray treatment to the lesion area. After receiving a total of 1,500 v the lesions subsided and she is at present clear of infection save for a few small questionable areas. The lesions subsided with no significant scar formation.

6160—Schistosomiasis, *Liver*

This 25 year old Chinese male mechanic's apprentice first noted a small mass in the epigastrium 7 months prior to hospitalization. The mass gradually increased in size and came to be associated with a dull, localized, non-radiating pain. Some time after the appearance of this mass the patient noticed that his skin had a yellowish hue. His appetite remained good but he lost 10 catties in weight. He had been a farmer all his life and had only recently come to Hong Kong. On physical examination his skin had a slight icteric tinge. The inguinal lymph nodes only were palpable. The abdomen was full and rounded and there were visible veins running upwards from the groin to the axillae. The spleen extended about 3½ inches below the costal margin in the midclavicular line and reached almost to the midline. It was firm and not tender. The liver was not palpable. The provisional diagnosis was cirrhosis of the liver and schistosomiasis. He was hospitalized for investigation. An esophagoscopy was performed. Subsequently he developed an exfoliative dermatitis, thought to be a drug reaction, and chest signs indicative of bronchopneumonia. He died soon afterwards. At *autopsy* there was found bilateral, purulent bronchopneumonia, most marked in the lower lobes. In the abdomen there were numerous venous anastomotic collateral circulatory channels between the portal and systemic systems. The liver weighed 1,192 gms., was firm and rubbery. The capsular surface was covered by yellowish-white fibrous adhesions. On cut surface the lobular architecture was indistinct. Most of the bile ducts were filled with clonorchii. A few schistosomal worms were found in the blood vessels. The extra-hepatic bile ducts were unobstructed

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The esophagus presented marked varices throughout its length. The spleen weighed 851 gms. and was adherent to all surrounding structures. Its pulp was relatively firm and scraping of its surface did not detach much substance. The splenic vein was dilated and tortuous.

6555—Desmoid Tumor, *Abdominal wall*

The patient, a 35 year old Chinese man, gave a history of a slow-growing tumor in the abdominal wall for 1.5 years. The clinical diagnosis was fibro-sarcoma and the tumor was excised. The surgical specimen consisted of two 6 cm. firm tumor nodules together with overlying skin and underlying fibrous and adipose tissue. The two tumor nodules were adherent to each other, one being homogeneously yellowish-pink while the other was pink with irregular strands of fibrous tissue contained in it. The cut surfaces were moist and smooth, moderately firm and friable. One of the nodules was attached to the overlying skin and at this point the skin was ulcerated revealing a tumor base to the ulceration.

6664—Leishmaniasis (Kala-Azar), *Liver*

This 25 year old Chinese soldier-farmer had been in army service for five years and during that time had travelled extensively over North-east, North-west and West China. During the year prior to his hospitalization he had an insiduous onset of general malaise, irregular fever and anorexia associated with loss of weight and marked weakness. During this time he also noted a L.U.Q. abdominal mass which steadily increased in size till it reached the lower abdomen. His skin gradually darkened and during the last four months he had a cough productive of mucoid sputum. He was constipated and during the last month had edema of the legs. On physical examination he was markedly emaciated and appeared very ill. His skin showed dusky pigmentation throughout, most marked over the face. There was no lymph node enlargement. His legs showed pitting edema. The spleen was enlarged to a point 6 cms. below the umbilicus. It was hard and smooth but not tender. The liver margin was 5 cms. below the costal border. It also was firm and not tender. There was no demonstrable ascites. Rales were heard in the lower portions of both lungs. The heart appeared normal. The temperature was 102° F., pulse 90, B.P. 100/70, RBC 2.1 million, Hb. 40%, WBC 3,600 with 25% polymorphonuclears, 75% lymphocytes, E.S.R. 125 mm./hr. On sternal puncture many intracellular and extracellular L-D bodies were found in the marrow smear. While in the hospital the patient's condition deteriorated rapidly and despite specific treatment with stibogluconate and general supportive measures, he died one week after admission. At *post-mortem examination* the markedly emaciated body weighed 88 lbs. and measured 180 cms. in length. The skin of the face, forearms and lower extremities was deeply pigmented. The skin was dehydrated but there was no evidence of jaundice.

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There were numerous petechiae scattered over the anterior chest. The liver margin lay 6 cms. below the costal border in the mid-clavicular line and the spleen margin lay 12 cms. below the costal border in the left mid-clavicular line. The pleural cavities each contained a small amount of fluid. The liver weighed 2,440 gms., and measured 29.5 × 19.5 × 11 cms. Its capsular surface was smooth and dark brown while the cut surfaces were a light brownish-red. The lobular architecture was distinct. No clonorchii were found. The spleen weighed 1,760 gms. and measured 30 × 15 × 7.5 cms. The cut surface was dark purplish-red and the pulp could easily be scraped off. The Malpighian corpuscles were indistinct.

6990—Epidermoid Papilloma, *Scalp*

This tumor grew slowly on the scalp of a 62 year old Chinese woman for a period of one and a half years before it was excised. Grossly the tumor was nodular, firm but friable and measured 2 × 3 × 3 cms. It was purplish-brown and the surface presented slightly elevated, greyish granules. The stalk by which it was attached to the scalp measured 1 × 1½ cm. The cut surface displayed many small cystic areas and greyish-yellow patches set against a light brown main substance.

7337—Malaria

This man, aged about 35, was found unconscious and died on the way to the hospital. At *autopsy* he was found to be slightly jaundiced. The liver and spleen were congested, the liver weighing 1,760 gms. and the spleen 454 gms. The spleen was moderately firm and friable, with a dark purplish surface. Malpighian bodies were not evident grossly. The brain presented a purplish-brown surface with congested blood vessels. On section, the cortex was brownish and the medulla greyish-white.

7677—Sweat Gland Adenoma

This European baby boy had a non-tender growth between the scapulae. The surgical specimen measured 10 × 15 mm. and was located just beneath and adherent to the epidermis. It was moderately firm and yellowish-white.

8280—Intraductile Adenocarcinoma of Breast

This 40 year old Chinese boatwoman complained of having had a discharging opening in the right nipple for 6 weeks. During the last two weeks the discharge had become blood-stained. On examination a tumor mass was palpable under the skin of the breast. The nipple was not retracted and the overlying skin was fairly movable. A radical mastectomy was performed. The cut surface of the tumor mass was greyish-pink with minute translucent cystic areas. The mass was poorly outline from the surrounding tissue.

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8533—Undifferentiated Carcinoma of the Breast

A 43 year old Chinese housewife had an enlarging nodule in the right breast for 1½ years before a mastectomy (simple?) was performed. The amputated breast presented a soft, nodular tumor mass measuring 2 cms. in diameter and lying 6 cms. from the nipple. There was no clear demarcation between the tumor and the surrounding adipose tissue. Grayish-yellow mushy material escaped from the cut surface. The tumor nodule did not infiltrate the skin. In addition to this neoplastic nodule about 10 firm, smaller nodules measuring from 5—15 mms. in diameter were found embedded in the fatty tissues.

A further illustrative history is as follows. A woman of 69 years came to the orthopedic clinic of a general hospital because of increasingly severe pain in the dorsal spine following a minor automobile accident 6 months earlier. Two months after this accident a physician had diagnosed a compression fracture of D4, and applied a brace, with no relief. Recently another physician had given her morphine for pain. It is not known whether they had examined her carefully or whether they were misled by the patient's statement that the left breast had "always" been smaller than the right, its nipple somewhat retracted. At the clinics she told of first observing a mass in this breast 2 months earlier and such a mass was now noted on physical examination. The overlying skin was adherent and nodules were felt in the left axilla. X-rays demonstrated many osteolytic lesions, and several collapsed vertebrae. The patient returned home, and a few days later was brought back. She died suddenly 15 minutes after being admitted. At *necropsy* the expected pulmonary embolus was found. A firm, flat 7 × 8 cm. tumor was found beneath the nipple area of the left breast. It extended along the pectoral muscles and the left axillary and supraclavicular nodes were involved. It penetrated the chest wall, directly invading the left ribs. Besides the destructive lesions in the ribs, there were osteolytic metastases in all vertebrae examined and in the pelvic bones. Other metastases were found in the lungs, mediastinal lymph nodes, diaphragm and peritoneum, pancreas and one adrenal gland.

9455—Tuberculous Meningitis

This nine month old male infant gradually lost weight for one month and for the last ten days had been vomiting after feedings. For two days he had convulsions and stiffness of the neck. Mycobacteriae tuberculosis were demonstrated in the cerebro-spinal fluid, CSF also showed sugar 10 mg./100 ml., chlorides 820 mg./100 ml., and albumin 125 mg./100 ml. The diagnosis was tuberculous meningitis. At *post-mortem examination* the right pulmonary lobes were all adherent to each other by fibrous and fibrinous adhesions and the lower lobe was completely covered with a thick layer of fibrinous exudate. The cut surface of the upper lobe was studded with a number of minute, well-

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demarcated tubercles. The lower lobe contained a cavity measuring 2 × 1.6 cms., having a firm, pink wall that was 2 to 5 mms. thick. The cavity was filled with caseous matter. Other portions of this lobe contained numerous confluent tubercles. The right bronchus and lower portion of the trachea were filled with caseous matter. The left lung showed grossly only a few tubercles on its cut surfaces. The pale mucosa of the trachea was studded with small tubercles. The lymph nodes at the tracheal bifurcation together measured 1.8 × 1 cms., the smallest node having a diameter of 5 mms. Their cut surfaces were caseous. The lymph nodes at the hilum of the left lung were not remarkable. Examination of the brain revealed widespread minute grayish-white tubercles in the lining of the lateral ventricles, in the choroid plexus and in the third and fourth ventricles. The lateral ventricles were dilated to 4 × 9 cms. The basal meninges were cloudy but contained no detectable tubercles. Minute tubercles were, however, noted over the lateral aspects of the cerebral hemispheres as well as over their lower surfaces. No tuberculoma was found.

10026—Secondary Syphiloderma

This 24 year old Chinese soldier gave a 10 day history of skin eruption following a minor injury to the knee. The left knee presented a granulomatous infiltration studded with crusts which on removal left deep punched-out ulcers. Similar but smaller and less infiltrated lesions were present on the trunk and limbs. The Kahn test was doubtful. Clinical impression was of late secondary syphilis. A biopsy was taken.

11588—Leprous Neuritis, *Ulnar nerve*

This 16 year old male hawker had weakness of the right foot for three years. The right hand was clawed and there was atrophy of interosseous, thenar and hypotenar muscles. The digits of the left hand were partially contracted and there was hypothenar atrophy. There was a right drop-foot but the extremity was not deformed. He had some well-circumscribed tuberculoid macules on the face and extremities as well as on his body. Under treatment with diamino-diphenyl-sulfone he developed a marked tuberculoid leprous reaction necessitating discontinuance of specific therapy. In an attempt to relieve this reaction he was given injections of stibophen and pentostam, both drugs being antimony containing compounds. He had no unusual complaints save for those related to his leprous reaction and was ambulatory. One day, soon after rising in the morning he lay down on his bed again and was shortly thereafter found dead with no marks of violence. The *autopsy findings* related to his death were largely confined to the kidneys which showed degenerative changes. No chemical determinations were possible but it was thought that his death was probably due to antimony poisoning. Both the

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right ulnar and the right sciatic nerves were thickened and these nerves as well as their opposite counterparts presented inflammatory changes characteristic of leprous involvement.

11892—First Infection Tuberculosis with Tuberculous Pneumonia

At hospitalization this eighteen month old Chinese girl had a twelve day history of fever and a cough of ten days' duration. Her stools had been loose from the onset with three to four movements a day. At first she had been irritable but during more recent days she had become drowsy. On physical examination she was found to be emaciated and drowsy. Rales were heard in both lungs and there was dullness to percussion in the right lower chest. X-ray examination disclosed consolidation of the left lung and consolidation in the region of the right lower lung. The CSF pressure was 130 mm., the fluid was clear, there were 2 cells per cmm., and the Pandy test was negative. The tuberculin test was negative in both strengths employed. RBC 3.71 million, Hb. 57%, WBC 5,350 with 69% polys., 27% lymphocytes, 2% monocytes and 2% eosinophiles. At *autopsy* the markedly emaciated body weighed 6.3 kg. and measured 78 cms. in length. The lungs together weighed 240 gms. The right lung was generally soft and aerated save for an area of consolidation in the lower lobe measuring 4 × 2 cms. On cut surface a well circumscribed, 2 mm. nodule was demonstrated just below the pleura in the anterior medial aspect of the middle lobe. A few miliary tubercles were widely scattered in the upper and middle lobes. These two lobes were fused by fibrous adhesions. The upper half of the left upper lobe appeared normal, but the lower half together with the whole of the lower lobe was consolidated. The cut surfaces were uniformly grayish-yellow in the consolidated areas. The trachea and bronchi contained much caseous matter. The anterior mediastinal lymph nodes were enlarged and caseated. The paratracheal and hilar lymph nodes were hyperplastic, their cut surfaces showing a number of minute tubercles.

12162—Adenocarcinoma of the Colon

This 50 year old Chinese male had a dull aching pain and a mass in the LLQ of the abdomen for ten months. He was often constipated and for two months had passed only small stools. On physical examination a vague mass was palpable in the LLQ and a bowel tumor was resected surgically. The *surgical specimen* of the colon was 16 cms. long and had a lumen varying from 3—5 cms. A firm neoplastic mass was found in its wall measuring 5 × 4.5 cms. This was grayish-white on cut surface. A 14 cm. long section of small intestine was also submitted and contained in its wall a 4 × 2 × 3 cm. nodule which on microscopic examination proved to be a tuberculous granuloma.

A further illustrative history is as follows. About 2 weeks before death a 51 year old Caucasian housewife suffered pain and

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tenderness in the LUQ of the abdomen of such intensity that she would not allow the area to be touched There was no diarrhea or constipation, but some weight loss and malaise. Her temperature was 102° F., B.P. 130/90 and a large mass was felt in the LUQ. Feces gave a 4+ benzidine test. X-rays revealed marked gaseous distension of the entire large bowel. An area in the middle of the discending colon did not fill well and was thought to be suggestive of a malignancy. There were frequent emeses and a Wangenstein tube was inserted. A psoas abscess was suspected. Before treatment could be begun, the patient died. *Necropsy* revealed a tremendous gaseous distension of the colon. At the lower end of the descending colon was an annular carcinomatous, stenosing growth which had narrowed the lumen to a diameter of only 1.5 cms. This growth extended along the colon for 3 cms. and had eroded through the muscularis, resulting in a large retroperitoneal fecal abscess which encroached upon the lower pole of the left kidney and extended downward into the psoas muscle. The transverse colon was bound to the descending colon by strong fibrous bands and contained a metastatic nodule. Tumor metastases were found in the regional mesenteric lymph nodes.

12186—First Infection (Childhood Type) Tuberculosis

This three year old Chinese boy was hospitalized at 3.30 a.m. one day after having been ill for two days. Two days earlier he had vomited twice and had one bowel movement consisting of formed stools Subsequently he had constant abdominal pain with some distension and firmness of the abdomen. On the morning before hospitalization he was feverish and toward midnight his temperature rose markedly and he rapidly lost consciousness. During the day he vomited and had three loose bowel movements. The stools contained some mucus but no blood. On hospitalization his temperature was 108° F. and his pulse could not be detected at the wrist. Physical examination revealed no abnormality of the chest or heart. The liver and spleen could not be palpated. All muscles were flaccid and all reflexes absent. The patient died two hours after admission. At *autopsy* the moderately emaciated body weighed 24 lbs. and measured 78 cms. in length. The lips and finger nails were cyanotic. The trachea and bronchi contained a small amount of frothy fluid and mucoid matter. The pleural surface of the right lung was smooth and shiny. Its cut surfaces were hyperemic throughout. In the middle lobe there was a firm, 6 mm. nodule having a caseous center and a grayish-pink periphery. It was located 2 mms. below the pleural surface at the inferior border of the lobe. The lymphatics of the overlying pleura were prominent. The left lung was likewise hyperemic and it was dotted with miliary tubercles. The paratracheal lymph nodes were enlarged, firm and adherent to the anterior mediastinal lymph nodes. This whole mass of lymph nodes was caseated. The loops of the intestines

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were matted together by delicate fibrous adhesions but no obstruction was demonstrated. The serosa of the distal ileum contained hemorrhagic patches and here the adhesions were densest. The brain was not grossly remarkable.

12233—Colloid Carcinoma of Stomach

For a period of one year this 62 year old Chinese man suffered epigastric discomfort and during the last two months of this period he had loss of appetite, noted a lump in the epigastrium and lost 6 to 7 pounds in weight. The clinical diagnosis was carcinoma of the stomach and a gastric resection was performed. Only a small segment of the tumor was submitted for pathologic examination and therefore no gross description of the stomach or the tumor is available.

A further illustrative history is as follows. A 62 year old Caucasian woman was acutely ill and vomiting when hospitalized. Nine months earlier she had begun to have burning sensations in the epigastrium, not relieved by pills given her by her local attending physician. Four months prior to hospitalization she became nauseated after eating a small meal and vomited 2 ounces of bright red blood. She was placed on a milk and cream diet for ulcer management, but frequently vomited "coffee-ground" material after eating. The emeses became more frequent. She lost 55 pounds in weight, became very weak and finally could not even retain water. There were no tarry stools. Physical examination revealed an extremely emaciated, dehydrated woman with sallow skin. Pulse 100; B.P. 108/68; heart grossly normal; lungs hyperresonant. In the upper abdomen 2 cms. to the left of the midline was a fixed mass, 3—4 cms. in diameter. WBC 4,800; RBC 3.25 million with 45% hemoglobin. Benzidine test: on vomitus 4+, on stools 3+. An exploratory laparotomy was performed under local anesthesia and a gastric carcinoma was found occupying the entire pyloric antrum. It had metastasized regionally and was too extensive to be removed. An anterior gastro-enterostomy and entero-enterostomy were made. The patient became progressively worse, developed rales in both lung bases and died one week after the operation. *Necropsy* revealed an annular, fungating and ulcerated adenocarcinoma of the pyloric end of the stomach with marked pyloric stenosis. There were metastases in the gastric, peripancreatic and upper periaortic abdominal lymph nodes and metastases in the celiac ganglion and neural lymphatics with nerve trunk degeneration. Minute carcinoma metastases were present in the liver. There was marginal separation of the gastroenterostomy wound, slight leakage of gastric contents and early generalized seropurulent and focal fibrinopurulent peritonitis.

12269—Cavernous Hemangioma, *Liver*

This 3 cm. hemangioma in the liver was an incidental finding at the post-mortem examination of a 43 year old Chinese woman who died of paralytic ileus.

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13036—Primary Carcinoma of the Liver

The patient, a 42 year old Chinese male, had an attack of fever and a sensation of fullness in the upper abdomen two months before hospitalization. After about one week the fever subsided but the sensation of fullness, aggravated by taking food, persisted till his death. He discovered a hard mass in the upper part of the abdomen. This mass was slightly tender and increased in size. The abdomen gradually distended and his appetite became poor. He lost weight rapidly. On physical examination the liver was palpable, having a rough, tender surface and rounded margins. The spleen likewise was palpable and there was marked ascites X-ray examination revealed numerous tumor metastases in both lungs At *necropsy* the emaciated body weighed 51.3 kg. and measured 172 cms in length. The face was cyanotic and the skin had a slight icteric tinge The peritoneal cavity contained 3,000 ml. of dark red, fluid The liver weighed 2,781 gms. and measured 30 × 25 × 11 cms Its left lobe was largely replaced by varying sized, confluent grayish-yellow tumor masses, the largest of which measured 6.5 × 2 × 2 cms. The right lobe contained a few small, well-defined tumor nodules measuring 5 to 30 mms in diameter and varying from yellow to grayish-green. The remaining liver tissue in both lobes presented a nodularity suggestive of portal cirrhosis There was no gross evidence of clonorchiasis There were multiple intra-hepatic portal vein thrombi and the portal vein was filled with a large tumor mass The diaphragm showed tumor infiltration and the omentum was adherent to the inferior border over a ruptured tumor mass The right pleural cavity contained 1,200 ml. of dark red serous fluid. The right lung weighed 681 gms and the left 624 gms. Both lungs contained yellowish-pink, well-circumscribed tumor nodules measuring 1 to 8 mms. in diameter.

13251—Adenocarcinoma of the Breast

This specimen derives from a 44 year old Chinese woman who had had a simple mastectomy for a tumor of the breast 6 years earlier. Three years later a secondary swelling was excised from near the site of the old surgical scar and two years after that a lump appeared in the left axilla On physical examination three nodules were felt in this axilla and an axillary dissection was performed, removing these nodules and adjacent tissues The *surgical specimen* consisted of lobulated adipose tissue measuring 12 × 8 × 1 cms. About one dozen varying sized lymph nodes, the largest measuring 18 × 6 × 6 mms., were found in this mass The largest node on cut surface presented a pale pink, mushroom-like growth at its center with a small amount of brownish lymphoid tissue at each end.

13660—Tuberculous Cavitation

The patient was a 48 year old Chinese male actor who was found unconscious on the street one evening. He was brought to Queen Mary Hospital by police ambulance. No medication

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was given before hospitalization save for some local herb oil. There was no incontinence of faeces or urine. When hospitalized the patient was in a deep coma and showed an absence of response to painful stimuli and absent corneal reflexes. His pupils were dilated, equal and not reactive. The fundi were normal. There was no neck rigidity and Kernig's sign was negative. The pulse was imperceptible and the B.P. could not be obtained. The heart sounds were faint and the heart rate 140 per minute. The trachea deviated to the right and rales were heard all over the chest. The liver and spleen were not palpable. Two ccs. of coramine were given intravenously in the casualty department and a lumbar puncture was performed. The CSF pressure was 85 mm., the fluid was clear and the cell count was 4 lymphocytes per cmm. Pandy test was negative. The patient was said to have died ten minutes after admission. At *autopsy* the body was markedly emaciated, weighing 46.3 kg. and measuring 174 cms. in length. The face and lips were cyanotic and when the body was turned a small amount of dark red blood escaped from the nose and mouth. There were two cavities in the upper and middle lobes of the right lung, measuring 40 and 65 mms. in diameter respectively. Their inner surfaces were fairly smooth but showed definite trabeculations. The cavities contained a moderate amount of dark red blood and communicated directly with the bronchi. An additional cavity, having a diameter of 30 mm., was found in the left upper lobe and it contained fluid blood. The mediastinal lymph nodes were enlarged and showed extensive caseation. The paratracheal and hilar lymph nodes were anthracotic but not caseous. Adult forms of Clonorchis sinensis were found in the bile ducts.

14149—Pulmonary Tuberculosis with Tuberculous Bronchitis

The patient, a 65 year old Chinese man, had been deaf for six months and had a chronic cough for three months. His voice had been hoarse for one month and during the last three weeks he had edema of the legs. On physical examination he was well-developed and well-nourished. He was cyanotic and orthopnic. The neck veins were engorged and there was pitting edema of the legs and clubbing of the fingers. His temperature was 97° F., B.P. 96/60, pulse weak and fibrillating, apex beat faintly palpable in the 5th intercostal space half an inch outside of the mid-clavicular line. The heart sounds were masked by generalized rales and rhonchi in the chest. The liver margin was 3.5 inches below the costal border and was tender, soft and smooth with rounded edge. The spleen was not palpable. The trachea showed no deviation from the mid-line, the chest was fixed in the inspiratory phase with poor excursion and the secondary respiratory muscles were in play. RBC 5.76 million, Hb. 14 gms., WBC 6,600. Urine contained albumin, a few leucocytes and a few granular casts. Digitalization was begun and the patient was given oxygen but died the day after admission. At *autopsy*

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the markedly emaciated and dehydrated body weighed 46.8 kg. and measured 162 cms. in length. The heart showed multiple petechiae in the pericardium at its base. There was moderate left ventricular hypertrophy and the right ventricle was dilated. The right lung weighed 794 gms., the left 654 gms. and both lungs were firmly adherent to the chest wall. Both lungs contained large cavities in the upper lobes having diameters of 6 to 7 cms. In the right middle lobe there were patches of caseous bronchopneumonia. Multiple 2—8 mm. fibrocalcarious lesions were noted in the left lower lobe. The larynx was moderately edematous and the vocal cords were completely destroyed by granular ulcerations. The mediastinal lymph nodes were calcified.

14316—Adenocarcinoma of Rectum

Following a 20 year history of anal fistula, this 56 year old Chinese man developed a cauliflower-like mass which grew out from the region of the fistula. This was diagnosed as a carcinoma and an abdominal-perineal resection of the rectum and anus was performed together with a colostomy. The *surgical specimen* consisted of a 20 cm. long section of rectum and anus. In the anal area there was firm, whitish, thickened tissue projecting into the lumen and having a thickened base. The mucosa of the anal canal was denuded. The fungating tumor mass extended into the submucosal tissue and had small cystic areas containing gelatinous material.

A further illustrative history is as follows. A 55 year old Caucasian woman entered a hospital 2½ years prior to death with a history of blood streaked stools, occasional rectal pain, watery diarrhea, anorexia and weight loss. An ulcerative lesion of the rectum, diagnosed as an adenocarcinoma, was found and a combined abdominal perineal resection was performed. A stormy postoperative course followed, but she recovered and remained well until a month before her death, at which time she developed severe headache, drooling from the right corner of the mouth and difficulty in walking. Her B.P. was 156/80; the left pupil was larger than the right. She had a right facial palsy, equivocal right Babinski, incontinence and combined motor and sensory aphasia. X-rays revealed metastatic carcinoma of the skull, left cerebral hemisphere and humerus. She became unresponsive, developed an almost complete quadriplegia and died. At *autopsy* metastatic nodules were found in the left parietal cortex and along the precentral convolution. These were gray-green and 1.5 × 1 cm. in diameter. There was edema of the left hemisphere and hydrocephalus of the right lateral ventricle. Metastases were also found in the lungs, bronchial lymph nodes, liver, the skull and left humerus.

14470—Benign Prostatic Hyperplasia

For nine months this 60 year old Chinese merchant had urinary frequency and during the final two months he had reten-

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tion of urine. The prostate was removed surgically. It measured 8.5 × 4 × 3.5 cms. and was very firm. The cut surfaces displayed minute cystic areas interspersed in lobulated, firm whitish tissue.

15036—Clonorchiasis, *Liver*

No history is available for this 49 year old Chinese man who died of bacterial endocarditis. Clonorchis infestation is frequently found as an incidental finding at autopsies in the Hong Kong area. The attendant patient history is then predominantly that of his major disease.

The following history is abridged from Smith and Gault, "Essentials of Pathology." The patient was a 39 year old Chinese who lived overseas and whose last home visit was 12 years before his present illness He now complained of progressive swelling of the feet, legs, genitalia and abdomen for about four months. His physical examination showed slight jaundice of the sclerae, dullness at the base of the left lung, moderate enlargement of the liver, ascites, edema of the abdomen, genitalia and lower extremities. His laboratory findings showed a total serum protein of 6.8 gms., equally divided between the albumin and the globulin, and an icteric index of 20 units. The Van den Bergh test gave a delayed direct reaction and an indirect reaction of 1.8 mg. per cent His cholesterol was 200 mg.%, his serum calcium 9.5 mg.%, phosphorus 4.06 mg.% and phosphatase 6.86 mg.%. The Takata ara test was positive. His stool was negative for parasites and ova. He continued downhill in spite of repeated abdominal paracentesis and died about one month after admission. *Pathologic Findings*: At autopsy there was 700 cc. of faintly hemorrhagic fluid in the peritoneal cavity. The liver weighed 825 gms., and was markedly contracted, shrunken, and fibrotic, presenting a typical "hobnail" appearance. It was pale A few vascular adhesions were present between the adjacent peritoneum, the diaphragm and the capsul of the liver Careful dissection of the ducts of the liver resulted in the recovery of five adult flukes. The spleen was enlarged, firm, slatish gray and congested. Varicosities of the esophageal and gastric veins were noted. Abdominal varicosities were not demonstrated.

(*Note*: The demonstration of only five worms in a liver as markedly injured as this coupled with a history of a 12 year interval between contact with probable source of infection and death, suggests that in the intervening period many worms may have died out and that the infestation may originally have been more pronounced. In Hong Kong University autopsies it is more common to find infestation with 200—300 worms and massive infestations with more than 1,000 worms have been seen.)

15212—Adenocarcinoma of the Breast

This 33 year old Chinese woman had a painful lump in the right breast for one and a half months. On physical examination

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she was found to have also two enlarged axillary glands. At operation a necrotic mass of tissue was found and, though this was clinically thought possibly to be a pyogenic abscess, some of the tissue was submitted for pathologic evaluation. On section of the *surgical specimen* an ill-defined nodule measuring 20 × 16 × 6 mms. was found. Microscopic examination presented the diagnosis of adenocarcinoma.

A further illustrative history is as follows. A 63 year old Caucasian woman stated that she had noted a lump in her left breast three years prior to hospitalization. During the past year this breast had developed a purplish discoloration. There had been some weight loss in recent months. Examination showed the left breast to contain a very hard, irregular mass. The skin over it was purplish, indurated and dimpled. The nipple was retracted. Bilateral axillary lymphadenopathy was present. Despite X-ray therapy the patient rapidly became worse, developed pneumonia and died. *Autopsy* revealed a markedly emaciated woman with a tumor mass present in the right, as well as in the left breast; that on the left side measuring 10 × 10 cms and involving the skin as well as the underlying muscle. The right breast contained a 3 × 3 × 2 cm. tumor mass. Upon histologic study many tumor emboli were found in the lymphatics of the skin and subcutaneous tissue over the sternum so that direct extension of the tumor via lymphatics might have accounted for the cancerous involvement of the right breast. There were metastases to the left axillary and supraclavicular lymph nodes and small metastases in the lungs, pleura, suprarenals, liver, cerebellum and bones.

15791—Carcinoid, *Appendix*

This 18 year old Chinese male student had pain in the RLQ and RUQ for 16 hours together with a temperature of 100° F. Pulse 100/min. There was muscle rigidity and tenderness in the RLQ. A thickened and inflammed retrocaecal appendix was surgically removed and a few ccs. of pus drained from the peritoneal cavity. *Gross examination* of the appendix showed it to be 5 cms. long and about 17 mms. in circumference. The serosa over the distal third was congested and covered with fibrin. The lumen of the appendix in this area showed mucosal ulceration and the lumen here gave the impression of a 12 mm. cavity. There was a 5 mm. light yellow tumor nodule situated in the mucosa just central to this dilated area of the lumen. Central to the tumor nodule the mucosa appeared hyperplastic but gave no gross evidence of inflammation.