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Latin square. Since no effect attributable to order of administration was evident, this was equivalent to a two-way ANOVA with subjects as blocks and drugs as the second factor. When statistically significant drug effects were seen, a posteriori comparisons were made with the Newman-Keuls method.

Three criteria were evaluated: the time required to achieve a maximum plasma level; and the areas under the plasma curve from base line to one hour and from base line to three hours, both estimated by the trapezoid rule. For each of the criteria three statistically significantly different ($p < 0.05$) groupings were demonstrated. The addition of sodium bicarbonate resulted in significantly earlier and higher plasma levels than were seen with naproxen alone or naproxen combined with magnesium carbonate. Magnesium oxide and aluminum hydroxide, on the other hand, delayed absorption and decreased the resultant plasma levels. In a similar study in which naproxen was administered alone or concurrently with 15 or 60 ml of commercial magnesium and aluminum hydroxides (Maalox), addition of the antacid tended to decrease the time required to achieve peak plasma levels and increased slightly the total area under the plasma level curve.

Our studies were designed to evaluate antacid effects on the rate of absorption. Sampling was not continued long enough to determine effects on total bioavailability, and it is possible that equilibrium levels after long-term administration would not be affected. Nonetheless, striking differences in absorption rate were demonstrated, dissimilar for various antacids. Such effects might have real clinical implications for drugs with narrow therapeutic ratios. More systematic evaluation of antacid effects on bioavailability is overdue.

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STUDIES OF PARENTS FOR CLUES TO THE ORIGINS OF CANCER IN THEIR OFFSPRING

To the Editor: By coincidence two recent reports in the *Journal*^{1,2} and a third published elsewhere³ have a thread in common: new understanding of the origins of cancer was gleaned by study of the parents of the patients.

Meadows et al.¹ observed a sibship in which three children had Wilms's tumor and a fourth had duplication of the left renal collecting system. The mother limped, and was eventually noted to have congenital hemihypertrophy. This anomaly occurs in a syndrome with Wilms's tumor or genitourinary abnormalities, or both.⁴ In this case the elements of the syndrome were distributed among close relatives instead of being concentrated in one family member. From the family's experience it appears either that hemihypertrophy predisposes to Wilms's tumor and genitourinary abnormalities, or that the three disorders are different responses to the same cause (e.g., genetic pleiotropism).

A similar situation applies to a family in which three children had clinical neuroblastoma and a fourth had neuroblastoma in situ. A mediastinal tumor of at least 16 years' duration has just been recognized in the mother.² Until a year ago she had elevated urinary catecholamines, but no clinical disease. The lineal transmission of the neoplasm in the family is now apparent.

By special staining techniques it is now possible in some cases of chronic myelogenous leukemia to identify markers that indicate if the Philadelphia (Ph¹) chromosome is derived from the maternal or the paternal line. Gahrton et al.³ used the quinacrine mustard fluorescence technic to study chromosomes in the bone marrow and peripheral blood of eight patients and their parents. Weak fluorescence was observed in a satellite of the Ph¹ chromosome in the cells of one patient and the mother, and in another patient and the father. The other six patients had no such detectable marker. In the two cases with satellites, finding the marker in several metaphases was in accord with the thesis that Ph¹-positive chronic myelogenous leukemia is of clonal origin. One wonders whether a Philadelphia-like chromosome would be induced if the parent's satellited chromosomes were

subjected in vitro to x-rays, which are known both to break chromosomes and to cause chronic myelogenous leukemia.

The study of chronic myelogenous leukemia depended on the development of a new technic that was then applied to parent and child. The findings pertaining to Wilms's tumor and neuroblastoma were made by alert clinicians whose opportunities for contributing to etiologic knowledge were enhanced because the cancers involved were familial.

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2. Gerson JM, Chatten J, Eisman S: Familial neuroblastoma -- a follow-up. *N Engl J Med* 290:1487, 1974
3. Gahrton G, Lindsten J, Zech L: Clonal origin of the Philadelphia chromosome from either the paternal or the maternal chromosome number 22. *Blood* 43:837-840, 1974
4. Miller RW: Environmental agents in cancer. *Yale J Biol Med* 37:487-501, 1965

The above letter was referred to the authors of one of the letters in question, one of whom offers the following reply:

To the Editor: Studying parents for clues about the origins of cancer in their offspring is indeed valuable. Historical information and clinical clues may be available, if sought out by the concerned physician. However, in most cases the physician is preoccupied with the problems of treatment and complications, and has little time to devote to possible etiologic clues. Perhaps a standardized information sheet that can be filled in by the patient or his or her family with the assistance of a paramedical person would be of value. Family histories should be available for cancer, paraneoplastic conditions, ectodermal dysplasias, possible immunodeficiencies, and congenital abnormalities such as aniridia and hemi-hypertrophy. In neoplastic conditions in which known biochemical aberrations can be measured, such as neuroblastoma, parents and siblings should also be evaluated. Routine karyotypic analyses, immunoelectrophoreses and evaluation of cellular immunity would also be of interest.

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Letters to the Editor should be typed double-spaced (including references) with conventional margins. The length of the text is limited to 1½ manuscript pages.

CONJUGAL MALIGNANT MESOTHELIOMA

To the Editor: The relation between asbestos exposure and the development of malignant mesothelioma is now well established. In addition to industrial exposures, 23 patients with mesothelioma have been described, almost all female, whose exposure to asbestos was domestic, apparently resulting from residence in the same house as an asbestos worker.¹⁻⁶ We report on a case in which a malignant mesothelioma of the right pleural space developed in a man and his wife. His exposure to asbestos was industrial, and his wife's exposure was from washing his dusty clothes.

A 49-year-old man was seen in September, 1970, with a complaint of increasing pain in the right side of the chest for a year. He had had considerable industrial exposure to asbestos from 1941 to 1949. A large pleural effusion was present, and biopsies (needle and open surgical) of the pleura established a diagnosis of malignant mesothelioma. Radiation therapy and chemotherapy had little beneficial effect, and he died in October, 1971.

His wife, 52 years of age, was seen in May, 1972, with complaints of dyspnea and pain in the right side of the chest for the preceding month. A large pleural effusion was present on the right, and needle biopsy of the pleura obtained tissue that was diagnosed as malignant mesothelioma. Slow progression occurred, and in July, 1973, there

was clinical and radiologic evidence of mediastinal invasion with esophageal compression. An enlarged right-axillary lymph node was shown on biopsy to be infiltrated with malignant mesothelioma tissue. She died in December, 1973, and autopsy confirmed the diagnosis.

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R.W. JAMPLIS, M.D.
J.R. DIFFERDING, M.D.
Palo Alto Medical Clinic

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1. McDonald AD, McDonald JC: Epidemiologic surveillance of mesothelioma in Canada. *Can Med Assoc J* 109:359-362, 1973
2. Newhouse ML, Thompson H: Mesothelioma of the pleura and peritoneum following exposure to asbestos in the London area. *Br J Ind Med* 22:261-269, 1965
3. Lieben J, Pistawka H: Mesothelioma and asbestos exposure. *Arch Environ Health* 14:559-563, 1967
4. Ashcroft T, Heppleston AG: Mesothelioma and asbestos on Tyneside, Pneumoconiosis: Proceedings of the International Conference, Johannesburg, 1969. Edited by HA Shapiro. Capetown, Oxford University Press, 1970, pp 177-179
5. Rubino GF, Scansetti G, Donna A, et al: Epidemiology of pleural mesothelioma in North-Western Italy (Piedmont). *Br J Ind Med* 29:436-442, 1972
6. Milne JL: Fifteen cases of pleural mesothelioma, associated with occupational exposure to asbestos in Victoria. *Med J Aust* 56:669-673, 1969

PARASITES THAT AVOID PULMONARY PASSAGE

To the Editor: In the weekly clinicopathological exercise that appeared in the July 4 issue of the *Journal*, some fundamental errors in the discussion by Dr. George A. Jacoby, Jr., mar his otherwise excellent presentation. In his reference to Loeffler's syndrome, caused by parasites, he makes this statement: "The parasites usually pass through the lungs as part of their life cycle in man." He then lists, among others, *Trichuris trichiura*, *Enterobius vermicularis*, *Angiostrongylus braziliense*, *Taenia saginata*, and *Fasciola hepatica*. In fact, none of these parasites pass through the human lung in their life cycles. *T. trichiura* and *E. vermicularis* hatch from the swallowed eggs in the gut and mature there. *A. braziliense* causes "creeping eruption" and remains in the skin. *T. saginata*, ingested as an encysted scolex, attaches to the wall of the small intestine and begins to grow proglottids. *F. hepatica* larvae penetrate the small intestine and enter the biliary tract to take up residence in the liver. Finally, the dog tapeworm mentioned in a later paragraph of Dr. Jacoby's discussion is named *Echinococcus granulosus*, not *E. granulosa*.

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The above letter was referred to the discussor of the CPC in question, who offers the following reply:

To the Editor: Dr. Katz is correct, and his clarification is welcome for those misled by "usually" in the phrase quoted since, as he points out, only a majority of the 13 parasites listed thereafter traverse the lungs as part of their life cycles in man.

GEORGE A. JACOBY, JR., M.D.
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BOOK REVIEWS

Atlas of Microscopic Anatomy: A companion to histology and neuroanatomy. By Ronald A. Bergman, Ph.D.; and Adel K. Afifi, M.D., M.Sc. 426 pp., illustrated. Philadelphia: W.B. Saunders Company, 1974. \$18.50.

This attractively designed atlas of 300 plates with photomicrographs in color of histologic preparation of cells, tissues and organs is

intended primarily for the students of histology. Although it will not replace the usefulness of a good collection of histologic "class-slides," it should definitely be useful to students as a source of reference to the differential tinctorial images of the human and animal tissues and organs as they are seen under the light microscope. The authors indicate that the atlas was prepared with the material from a large collection of histologic preparations, some photomicrographs having been made from preparations 80 years old. Most of the histologic staining techniques introduced since then are represented in the atlas. It is a pleasure to see the undeservedly neglected Gerlach carmine (cochineal) method of staining chromated material.

The division of the atlas into 17 sections follows the conventional classification of cells and tissues by derivation and of organs by systems. Each such section of the atlas is preceded by a concise and excellent text summarizing essential histologic features, origin and functional attributes of different cells, tissues and organs. The color microphotographs are economically but clearly labeled on the margins of plates and provided with legends describing the source of tissue, the fixative used, the staining method and the histoarchitecture shown at specified magnifications. The color reproductions of the differential stains are somewhat uneven. Some plates are excellent. Some, however, especially hematoxylin and eosin stained preparations, give a blurred effect, and the tissue elements staining naturally red or blue have an unnatural purplish tinge.

The section on the central nervous system hardly justifies the subtitle of the atlas as a companion of "neuroanatomy." The atlas contains all the material for an excellent textbook of histology. It makes one hope that the writers will apply their scholarly competence and technical skill for such a book. The atlas will be useful to a beginner. It is regrettable that the technical and histologic information referred to in the introductory text to sections and in the five appendices to the atlas in section 18 is not provided with a more extensive reference to at least the original publications. A subject index of 12 pages concludes the book.

PAUL I. YAKOVLEV, M.D.

Growth and Development of Children. Sixth edition. By George H. Lowrey, M.D. 446 pp., illustrated. Chicago: Year Book Medical Publishers, Incorporated, 1973.

Much fascinating literature on the topics of growth and development is available from the late 1930's, the 1940's and the 1950's. A summary of this information is presented by Lowrey, presumably most of it being merely carried over from the first three editions (published in 1951, 1954 and 1958). One would have hoped that a new edition, published in 1973, would present the older data in the light of the enormous progress in growth and development that has occurred during the past decade. Little such reinterpretation is included.

In the preface the author states that "an attempt has again been made to select references of a review nature whenever possible . . . [and] to keep them up to date." I must conclude that this goal has not been attained. Of the roughly 750 to 800 references, there are perhaps 15 per cent from the period 1967 through 1973. The preface indicates that the fifth chapter has been completely rewritten. One may note that about one third of the references in that chapter are from the years 1967 through 1973. It is reasonable to ask, why were not all the chapters rewritten?

In Chapter 2 it is stated, "In the United States one study showed menarche took place at 14.5 years in 1900 but in the same area now occurs at an average age of 13 years." In checking the reference one finds that "now" is 1956. In Chapter 3 it is stated that "it is well established that maternal nutrition influences the nutrition and consequently the growth of the child." Of the three references given in support of the statement, two were published in 1943 and one in 1948. The ensuing discussion omits reference to additional data published in the past 25 years. In the fifth chapter the author refers to "A recent study of children from Scandinavia," and the reference to this "recent" study is a report published in 1952. A few pages later, in relation to survival of premature infants, the author mentions improvement in survival rate "in the past 20 years," but the table supporting the statement provides data only for the years 1945 and

1960. Many of extent of review. A chapter "Growth," presents various purposes presented in figure in agreement protein, calcium rates of requirements.

Pathologic Physiology by William A. Man, M.D., Saunders Co.

Appearing, goal of present the genesis of aim was not to with their disease — not to aim the gap between turnover in the rewriting of text in medicine and contributors.

The format subject matter (with selected "Metabolic Disorders," "Immunobiology," "Integrative Physiology," "Mechanisms of Carcinogenesis," "Rhythmias: Mechanisms and electrolyte exchange," "Pathology, Allergy and related states," "Pathology of Host Response Disorders"); Immunology (seven chapters on testis, liver, heart, endocrine ("Effects of Pathology of the Endocrine System").

There are diagrams that and highly informative is an extensive

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