vealed very little redistribution of the contained isotope, and a resolution to the area of a single cell was easily obtained. Fig. 2 shows areas of deposition of plutonium in cortical and trabecular bone by the α-track localization in underlying NTA emulsion.

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A Simple Method for Extirpating an Experimental Tumor

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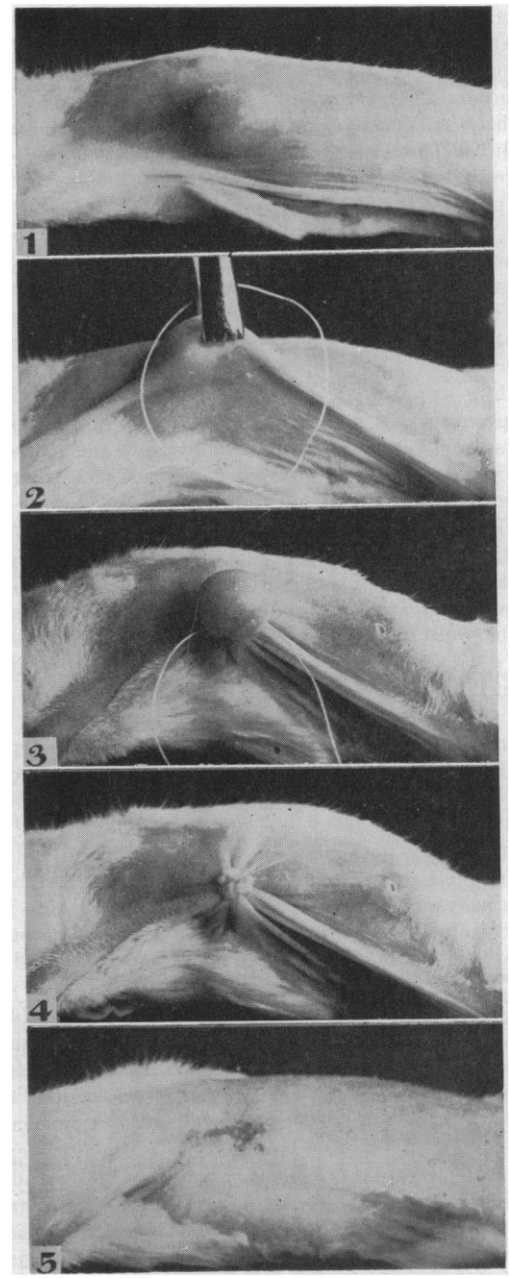
In cancer research on small mammals it is often desirable to observe physiological variables within the body before, during, and after the growth of a non-metastasizing tumor. Thus Greenstein and Andervont (*1*) studied the catalase content of liver at these stages by implanting a tumor into the tail of a mouse, and achieved complete tumor extirpation at the desired time merely by excising the tail above the position of the growing implant. Lumsden (*2*), in studies of tumor immunity, employed local vascular occlusion for inducing regression of tumors implanted into the paws of rats. A disadvantage in these methods for general use, however, is that tumors implanted in such remote and confined locations do not grow or infiltrate in a manner comparable to those implanted in the more usual axillary position.

To avoid this disadvantage, the author (*3*), while studying certain systemic effects of hemorrhage in tumors, used a surgical technique for removing a subcutaneous growth of mouse sarcoma 180 implanted 7 days previously in the axillary position. This operation was not simple: it required careful ligating of involved blood vessels, a relatively large skin incision, and many stitches. The traumatic effects on the mouse of such an operation were considerable, and not all the mice recovered.

Recently a far simpler technique for removing a tumor implanted in the axillary region of the mouse has been used by us. It requires no asepsis, no incision, is extremely rapid, and is followed by uncomplicated recovery of virtually all the mice.

Tumor-bearing mice with sodium sulfide–epilated abdomens are anesthetized with parenterally injected Nembutal. During such anesthesia the abdominal skin becomes relaxed and very elastic (Figs. 1, 2). The tumor is lifted *in situ* by means of a toothed forceps; a loop of heavy cotton thread is thrown around the base of the tumor mass and tied securely (Fig. 3).

[1] Grateful acknowledgment is made of technical assistance rendered by Andrew Nowak.



Figs. 1–5. Series showing stages in tumor-extirpation procedure.

The tightened loop instantly stops all vascular interchange between the tumor mass and the body. For safety, several additional loops may be applied over the first. The tumor may be excised immediately above the ligature (Fig. 4), or it may be left intact. In the latter case it will wither and slough off within 24 hr, leaving a bunch of skin tissue tightly held in the ligature. Within a few additional days the ligature will drop off, leaving a small and rapidly healing scab area (Fig. 5).

When the operation is performed on mice bearing

7-day-old axillary implants, we have never seen regrowth of tumor tissue at the site of extirpation or in remote sites, although care must be exercised in making the original implant so that no tumor tissue fragments are deposited along the route of trocar entry. Implants of mouse sarcoma 180 older than 7 days become progressively more difficult to remove by this or any other known method, for such growths have usually undergone an irretrievable infiltration into the body wall.

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Tubal Malignancy—A Method for Collecting Specimens for Cytologic Study

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Exfoliative cytology of the female genital tract, since Papanicolaou's monumental work, has become one of the most popular and probably the most important diagnostic procedure for the early detection of cancer. As the diagnostic criteria for the malignant cell become better defined, the percentage of positive diagnoses increases, missed diagnoses become rarer, and false positive diagnoses are almost completely eliminated. The ready accessibility of the cervical canal through which exfoliative cells from the uterine cavity pass (and in some cases from the appendages) renders cytologic investigation a relatively simple procedure.

Unfortunately, however, in cases of tubal malignancy, fewer cells are expected to reach the cervical canal, and consequently their detection becomes difficult and impractical, unless a way is found to collect and concentrate the material over a certain period of time, without added difficulties and without discomfort to the patient. This has been done as follows:

After cleansing the vaginal tract, a plastic cervical cap[1] of proper size is fitted over the cervix. The cap is removed 24 hr later and slides are prepared from the collected material. If the volume of secretion is excessive, the material may be concentrated by centrifuging or by permitting it to settle. Longer periods were tried—e.g., 48, 60, and 72 hr—and after such intervals a larger amount of secretion was collected, as anticipated. Because of autolysis, however, the stain characteristics and clarity of the detailed cellular structure were impaired, making the slides unsuitable for proper interpretation. In some cases the patient complained of physical discomfort and offensive odors if the cap was left longer than 24 hr. It is therefore recommended that the cap be removed in 24 hr, and slides prepared and processed immediately.

[1] Manufactured by the Ortho Pharmaceutical Corporation for use as a contraceptive.

The use of the cap has made possible a positive diagnosis of tubal carcinoma in a clinically unsuspected case in which there was no palpable mass. The diagnosis was subsequently confirmed by operation.[2] The procedure is now in routine use in the writer's practice. Results will be reported later.

[2] The case will be reported in detail later.

Action of Genes Affecting Secondary Sex Ratio in Man

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C. Gini in Italy and, later, E. Slater in England, have shown conclusively that the tendency in a family to produce offspring of one sex only or primarily one sex, is hereditary. On a large set of American families this author has shown also that there is a decided excess of sibships of only sons or only daughters. Since all these findings point so strongly toward genetic control of the sex ratio, a study was made as to how these genes act. Statistical and experimental investigation led us to advance a theory that the "sex ratio genes" act through the endocrine system, especially the sex hormones. Fathers suffering from endocrine disturbances such as gout, Graves' disease, etc., have more than the average number of female offspring. Bald men were found to have 40% more male offspring than men with full hair or with receding hairline that had not developed into full baldness. Male sex hormones play a role in the development of baldness.

Has the degree of maleness of the father an effect on the sex ratio of the children? We believe that men engaged in aggressive, extrovert occupations, in which few or no women have become outstanding, are more masculine than men engaged in introvert, retiring occupations. In families where the fathers are members of the armed forces, business executives, politicians, lawyers, farmers, abstract scientists like astronomers, mathematicians, etc., the sex ratio of 5,400 children was found to be 120 boys for every 100 girls. However, in families where the fathers were in professions in which many famous women were engaged —i.e., actors, social workers, child educators, fiction writers, and all kinds of artists—the sex ratio for 1,800 children was found to be 85 boys for every 100 girls born. An intermediate group was formed by the families in which the father was engaged in a religious profession, was a research worker, or an applied scientist such as a chemist, biologist, etc.

The author believes that the genes controlling the sex ratio in mammals are identical with, or act through, the genes controlling the male-female sex hormone balance. The *X*-bearing sperms, because of their ♀ chromosomal balance (1A : 1S), form a foreign entity in the male reproductive organs, and are destroyed in smaller or larger number inside the male, depending

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