packed with oxidized cellulose gauze, the uterus sutured, and the incision closed. Subsequently the contents of the opposite uterine horn were emptied by normal processes, live puppies were born, and lactation became established. Ten days after the Cesarean section an exploratory operation was performed, and no gauze was found. The uterus on the packed side contained a small amount of slightly sanguineous fluid. Biopsies obtained from the operated and opposite horns revealed an indentically normal *post partum* histological appearance.

We conclude that oxidized cellulose may safely be used as a hemostatic uterine surgical packing.

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Trophoblast Elements in Cancer

In confirmation of the findings of Roffo (*Bol. Inst. med. exp. Estud. Cancer,* 1944, **21**, 419–588) that, when injected into immature white rats, an extract of the blood or urine of cancer patients causes enlargement of the uterus and the formation of corpora lutea in the female animals, we have obtained from cancer patients of both sexes, by urinary extraction, preparations having pronounced estrogenic as well as gonadotropic properties. Nonmalignant, nonpregnant controls were negative.

It is our conclusion, on the basis of studies now in progress (*Science,* 1946, **103**, 25), that the estrogenic factor (termed "steroid E" by Roffo) arising from the definitive malignant elements is identical with the steroids produced by the syncytial trophoblast of pregnancy (Jones, Gey, and Gey. *Johns Hopk. Hosp. Bull.,* 1943, 72, 23–38). The only so-called false positives observed by Roffo were those in which pregnancy urine was used. Moreover, 20 days after implanting human trophoblast into the eye of a virgin doe, we found uterine and ovarian changes which duplicated those reported above for the immature rat recipients of cancer urine (*J. clin. Endocrinol.,* in press).

It is well known that chorionepitheliomas, genital as well as primary extragenital in both sexes; many ovarian and most testicular cancers; the chorionic (trophoblastic) or malignant phase of many teratomata; and even some cases of carcinoma simplex are responsible for the presence of chorionic (cytotrophoblastic) prolan in sufficient quantities in the blood or urine to produce a positive Aschheim-Zondek reaction. In these tumors the prolan titer tends to vary directly with the concentration of cytotrophoblast (Langhans cells), being almost beyond detection in the absence of overt trophoblast.

Using rodents as indicators, it is impossible to distinguish accurately between anterior pituitary and chorionic prolans. In pregnancy and in the malignant tumors cited, the chorionic prolan is present in such excess of pituitary prolan that diagnosis becomes a matter of quantitation. In the past, attempts to recover chorionic prolan from the blood or urine of all cancer cases showing no *overt* trophoblast have been thwarted by cross-reactions with pituitary prolan. Employing the technics of chromatographic adsorption (Katzman, Godfrid, Kain, and Doisy. *J. biol. Chem.,* 1943, **148**, 501–507) and the use of the African clawed toad (*Xenopus laevis*) as a specific indicator of chorionic prolan, these obstacles are overcome. Employing a combination of such technics, we have obtained egg extrusion in *Xenopus laevis* through the injection of 1 cc. of the concentrate of as little as 800 cc. of urine from nongenital cancer in the human male. Controls of the same age were negative.

Although sufficient determinations have not yet been made to warrant the conclusion that specific steroids and/or cytotrophoblastic prolans are present in all cases of cancer, our preliminary results would suggest this.

In conclusion, it would appear significant that many of the most malignant exhibitions of cancer are known to yield a readily detectable quantity of gonadotropin, duplicated only by that produced by the trophoblast cell; that now tumors of lesser malignancy are found to yield this same gonadotropin; and, finally, that the only cell never observed in the benign state in the male or, aside from the canalization of pregnancy, in the female is the trophoblast cell. Parallel to this is the finding in cancer of a steroid duplicated only by the syncytial trophoblast. These data would seem further to substantiate the unitarian nature of all exhibitions of cancer and to suggest the trophoblast elements (however masked morphologically) as the constant malignant component.

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Japanese Scientists and the POW's

I read with interest the article on "The war and biological sciences in Japan" (*Science,* 1946, **103**, 755–758). Lt. Gressitt states that it is his belief that the majority of the Japanese were ignorant of the actual facts of the war and resentful of the militarists. Let me present the picture from a different point of view. I was there during the war as a prisoner, having been captured on Bataan and taken to Japan in November 1942. From that time until the end of the war I was in three camps scattered from Shikoku Island on the south, to Osaka in the central portion, to the foothills of the alps near Fukui.

Of all the classes of Japanese people that we prisoners encountered, the scientists, and especially the physicians, were the most haughty, resentful, hateful, and cruel. Physical conditions of the prisoners meant nothing to the Japanese doctors. The Japanese Army Medical Corps fought a good war on the Prisoner Front, succeeding as they did, in killing off many allied prisoners. Presentation of scientific evidence of malnutrition, in addition to loss of weight, was laughed at. Men with 101° fever were sent out to backbreaking labor, as were those unfortunates quaking with malarial chill.

Construction by the writer of a handmade biophotometer to run some eye tests and subsequent discovery of this by the Japanese doctor at the camp resulted not in scientific curiosity but only in a good beating. From camp to camp the same was true. The better-educated Japanese, although they would not admit it, realized

that their war effort was futile and that Japan was doomed. As a result, all of us were hated and treated poorly. Those who had been educated in the United States realized our love for books or relaxation in a game of bridge and tried all the more to deny these to us. At a hospital in Osaka, near Umeda Railroad Station, where we were occasionally taken for treatment about one and one-half years before the B-29's began raiding Japan, the civilian doctors, biochemists, and bacteriologists on the staff laughed at us, sneered, and only reluctantly gave very poor treatment. Their optometrist, with facilities available, for spite refused to correct for astigmatism in prescriptions for glasses. Thus it went on in this and other hospitals throughout Japan.

This is the picture of Japanese intellectuals taken from inside Japan. Of course, when the end of the war came, they did a complete about-face. This is undoubtedly what Lt. Gressitt found when he went to Japan.

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Two Kinds of Neutrons?

The present concept of the structure of the neutron is generally given as a negative electron in close association with a proton. Among many others, Harkins (*Science*, 1946, **103**, 298) has indicated that the neutron is converted into a proton with the emission of a β-particle,

$$n^1_0 \rightarrow p_{+1}{}^1 + e_{-1}{}^0$$

causing an increase of one unit in the atomic number of the nucleus of the atom in which this process takes place. The neutron has been predicted by Wang (*Nature, Lond.*, 1945, **155**, 574) to be β-radioactive, with a half-life of about three hours.

With increasing emphasis on the existence of the negative proton, especially in connection with cosmic ray studies, theory apparently requires a second kind of neutron. Employing the designation An^1_0 for the usual neutron, the second kind can be distinguished as follows:

$$Bn^1_0 \rightarrow p_{-1}{}^1 + e_{+1}{}^0.$$

The new neutron would be comprised of a positive electron or positron in association with a negative proton and would likewise be radioactive, assuming the validity of Wang's study.

The possible existence of a second kind of neutron, having the same mass and lack of charge as the usual variety, gives rise to a number of interesting concepts for nuclear physics. For example, Harkins (*ibid.*) states that a positron is given off when a proton changes into a neutron (An^1_0):

$$p_{+1}{}^1 \rightarrow An^1_0 + e_{+1}{}^0.$$

Or, interpreted in terms of the Bn^1_0,

$$p_{-1}{}^1 \rightarrow Bn^1_0 + e_{-1}{}^0,$$

this would mean that a negative proton may change into a Bn^1_0 when a negative electron is released. Other interesting features of this concept will be evident to those in the field.

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Quantification of Micronutrients

Quantities of vitamins in rations have been reported in a variety of ways, such as International Units, micrograms per gram, milligrams per 100 grams, or milligrams per cent.

Some of the authors who use metric units in their reports in biological journals are also writing for trade journals and reporting the vitamin contents of the rations in milligrams per pound—a mixture of the metric and the English system of weights and, in our opinion, a very unhandy system. In the same trade journals the quantities of trace minerals in rations are frequently reported in "parts per million" (ppm). An article in one journal reports some of the ingredients of a ration in per cent of ration, other ingredients in parts per million, and still others in milligrams per pound.

Would it not be much simpler if the micronutrients (vitamins and trace minerals) were reported in the scientific journals in micrograms per gram? These data could be translated directly into trade journals as "parts per million," because the number of micrograms per gram is also the number of parts per million. The advantage of doing this in the trade journals (such as *Feedstuffs*) is that both the minerals and the vitamins would be reported in the same units (ppm), and the reference in the technical journals, reporting in micrograms per gram, would require no recalculations.

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Complement Fixation in Rats' Blood Sera

The purpose of this letter is to report that we have found that blood sera from rats captured at Nuevo Laredo, Mexico, fixed the complement only with Rickettsia antigens from classic typhus.

The titers of these sera were up to 1:40, and weak crossed fixation appeared in two of them at 1:10—with Rickettsia antigens of murine typhus. H. Plotz has informed us that he has recently obtained the same data with sera of rats from Manila.

The results of our examinations of blood sera from rats captured in Nuevo Laredo were: positive murines, 49 per cent; positive classics, 5 per cent.

Complement fixation with classic antigen in rats' blood sera leads us to believe in natural infection of these rodents with this variety of typhus.

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A Relativistic Misconception

It is evident, from many recent writings on the atomic bomb, that a serious misconception still persists, not only in the popular press but also in the minds of some scientists. The idea that matter and energy are interconvertible is due to a misunderstanding of Einstein's equation, $E = mc^2$. This equation does not state that a mass, *m*,