can be seen, therefore, that this simple substance has an activity approaching that of the naturally occurring hormone, œstrone. It is also interesting to note that the benzoylated compound is active. (The benzoate of *p*-hydroxy propenyl benzene crystallizes from alcohol in plates, m.p. 124° C. and gave on analysis C = 80·4 per cent, H = 6·0 per cent; $C_{16}H_{14}O_2$ requires C = 80·6 per cent, H = 5·9 per cent.)

It is as yet too early to discuss the theoretical importance or therapeutic application of these observations, but the fact that the potency is so high brings a new importance to the investigation of synthetic œstrogenic agents.

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Cyclical Fluctuations in Œstrin Threshold

CYCLICAL changes in the accessory reproductive organs of female mammals have been ascribed entirely to cyclical fluctuations in the secretion and interaction of the ovarian hormones. Fluctuations in the latter are controlled by the anterior lobe of the pituitary.

Experiments in which œstrogenic hormone has been injected into the same female rhesus monkeys over a period of two years show that a new factor must be taken into account in the explanation of rhythmical changes in the accessory organs. It appears that the threshold of a monkey to œstrogenic stimulation varies cyclically. The least constant daily dose of œstrogenic hormone that is required to influence the uterus sufficiently for the cessation of injections to be followed by a phase of uterine bleeding, or that is necessary to maintain the uterus in a phase of growth, is not necessarily the same on different occasions. In one experiment, phases of uterine bleeding occurred at regular intervals of from five to seven weeks in a spayed immature monkey that was injected daily with 100 I.U. of œstrone for a period of a year. The rhythmical rise in the œstrone-threshold must be due either to the cyclical liberation into the blood stream of a substance (possibly from the pituitary) which in some way neutralized œstrone, or to an inherent cycle in the threshold of the tissues. It is of interest that these fluctuations were revealed not only by mature animals, but also by one that had not reached puberty at the time its ovaries were removed.

The pronounced mid-cycle fall in the degree of œstrogenic stimulation in the menstrual cycle is correlated with the removal of water from both the uterus[1] and the sexual skin[2] (a considerable amount of water may be removed from the sexual skin). The further dehydration of the uterus at the time of menstruation[1] is not improbably related to a further, but relative, fall in the degree of œstrogenic stimulation occasioned by a rise in the œstrone-threshold of the kind described above.

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Nicotinic Acid and the Growth of *Staph. aureus*

FURTHER chemical work towards the isolation of the so-called 'staphylococcus growth-factor', previously described[1], suggested that at least part of the biological activity of the high-vacuum distillate derived from yeast extract might be due to nicotinic acid and/or the corresponding amide.

The gelatin-hydrolysate basal medium already described[1] was used. *Staph. aureus* will not grow (ærobically) on this medium alone. It has now been found that addition of nicotinic acid, or its amide, will permit growth when added to this basal medium, as a substitute for the concentrated preparation from yeast (high-vacuum distillate) ordinarily used as source of the growth-factor. This distillate and nicotinic acid have the same order of activity.

The same potency is shown by different samples of nicotinic acid, namely: (*a*) nicotinic acid prepared by nitric acid oxidation of nicotine; (*b*) nicotinic acid prepared by acid hydrolysis of pyridine-3-nitrile (prepared from pyridine); (*c*) a three-times recrystallized specimen from a fractional crystallization of technical nicotinic acid (the least- and most-soluble fractions were somewhat less active).

The fact that the pyridine-3-nitrile was inactive before hydrolysis is the best evidence that it is nicotinic acid itself and not an associated impurity which is biologically active.

Nicotinic amide is more active than nicotinic acid; 0·05 γ of amide per 10 ml. of medium will permit a just visible growth.

Using the amino-acid basal medium recently described[2], nicotinic acid and the amide are inactive, whereas the high-vacuum distillate is active. This indicated therefore that the 'staphylococcus growth-factor' is complex, and that only one component of it can be replaced by nicotinic acid or its more active amide. The other component (or components) is present in limited amount in the gelatin-hydrolysate, and in the high-vacuum distillate.

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Visible Mesomorphic Fibres of Tobacco Mosaic Virus in Juice from Diseased Plants

IN NATURE of December 19 last there appeared an interesting letter by Bawden, Pirie, Bernal and Fankuchen under the heading "Liquid Crystalline Substances from Virus-infected Plants". I have arrived at conclusions similar to some of those recorded in the above letter, and the following, to some extent complementary, observations may be of interest.

Fig. 1 (*a*) is a photomicrograph of what I consider to be fibres of tobacco mosaic virus. This conclusion is based on the following facts. The fibres developed in a sample of the expressed juice of mosaic-diseased tobacco plants which had been clarified by centrifuging and afterwards stored at about 1° C. for several months. The bulk of the juice was then found to be clear, and a dense, creamy-white, fibrous sediment of protein, which took up less than one-fifth of the total volume but which contained 97 per