isms in the saliva carried out as in the previous experiments.

At one and a half hours, pastilles of the same base, but containing 500 units of penicillin each, were inserted and maintained for an equal period of time. The results expressed in graph *B* show that the pastille base alone produced no reduction in the total number of organisms, but substitution of the pastilles containing penicillin caused a fall in numbers comparable with the results shown in graph *A*. The possibility of the mechanical effect of salivation causing a reduction in numbers of organisms could therefore be excluded.

Consideration of the results shows that the most rapid fall in the total number of bacteria occurred in the first fifteen minutes after application of the penicillin. This rapidity of action is difficult to explain on the current hypothesis that penicillin is bacteriostatic, and would suggest that *in vivo*, when conditions of temperature, etc., are favourable, it may have a true bactericidal action.

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¹ MacGregor and Long, *Brit. Med. J.*, ii, 686 (1944).

Action of Notatin on the Rous No. 1 Sarcoma Virus

As notatin exerts its antibiotic activity by virtue of the hydrogen peroxide produced by its oxidation of glucose to gluconic acid¹, it seemed worth while to try the action of this material upon the Rous No. 1 sarcoma, the causative virus of which is readily destroyed by oxidation².

A specimen of notatin, active at 1 in 500,000,000 against *Staph. aureus* when last assayed, was generously provided by Dr. J. H. Birkinshaw. It was found that 0.2 mgm. of notatin, added with 2 mgm. glucose to 0.5 ml. of a suspension containing 1,000 minimal infective doses of Rous No. 1 sarcoma virus partially purified according to the method of Amies and Carr³, resulted in almost complete loss of activity of the virus in 1½ hours, in two separate experiments. Notatin alone caused a slight reduction in the activity of similar suspensions, while glucose alone had no effect.

In contrast to the activity of notatin *in vitro*, it was found to have no action upon the virus *in vivo*. Amounts ranging from 2 mgm. to 5 mgm. were inoculated into one tumour of six fowls bearing three or four Rous No. 1 sarcomas in various sites, but it was found that all tumours continued to grow, and the size of the treated tumour relative to the others was not decreased. Doses of 8–10 mgm. were fatal to the nine-week-old Brown Leghorns employed. Similarly, pre-treatment of fowls with notatin failed to influence the tumour-producing action of sarcoma virus injected shortly afterwards. Two groups of three birds were injected with either 2 mgm. or 5 mgm. of notatin into the left breast, and 1½ hours later each breast was inoculated with about 200 infective doses of sarcoma virus, and the legs with about 10 infective doses. No difference in size was found between the sarcomas produced in the notatin-

treated breast and those induced in the untreated side; and the small dose injected into the legs produced tumours in all birds, indicating that a systematic reduction in infectivity of all virus injected into notatin-treated birds had not occurred.

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¹ Schales, O., *Arch. Biochem.*, 2, 487 (1943).

² Gye, W. E., and Purdy, W. J., *Brit. J. Exp. Path.*, 11, 282 (1930).

³ Amies, C. R., and Carr, J. G., *J. Path. Bact.*, 49, 497 (1939).

Thromboplastic Activity of Placenta Extract

IN the course of an investigation of hormones of human placenta, we came across a substance which showed strong blood-coagulating properties. Fresh-water extracts of placenta contain this factor. Their activity diminishes when they are kept at room temperature or in a refrigerator. It is not removed from the extracts by dialysis at 0° C. On filtration through a Seitz filter, the active substance remains on the asbestos fibre. By extracting the filter with distilled water or saline, we obtained a solution possessing the properties of thromboplastin. The resulting slightly opalescent solution is more stable and can be stored for at least one month in a sealed container in a refrigerator without loss of potency. It gives a weak positive reaction with sulphosalicylic acid.

It is of interest that our preparation does not lose its thromboplastic activity when heated for five minutes on a boiling-water bath. This activity is manifested on recalcified oxalated plasma (prothrombin time test¹) as well as on fresh whole human blood. The above holds true only for tests carried out with fresh plasma. With plasma stored for some days in the refrigerator a different result is obtained. As is well known, the prothrombin time test depends on the age of the plasma, being prolonged as the plasma is stored. Our placenta extract, too, shows this phenomenon. Towards stored plasma the boiled extracts become totally inactive (see table). Thus both our unheated and heated preparations show typical differences in behaviour towards fresh and aged plasma respectively.

EFFECT OF BOILED AND UNBOILED THROMBOPLASTIN ON THE 'PROTHROMBIN TIME' OF FRESH AND STORED PLASMA.

Age of plasma	Prothrombin time	
	Unboiled thromboplastin	Boiled thromboplastin
1 hour	12 sec.	12 sec.
1 "	13 "	13 "
1 "	15 "	18 "
2 days	18 "	23 "
3 "	21 "	28 "
7 "	42 "	185 "
28 "	70 "	more than 10 min.

Prothrombin time is the clotting time of 0.1 c.c. oxalated plasma mixed with 0.1 c.c. thromboplastin and 0.1 c.c. 0.02 *M* calcium chloride at 37° C.

Extraction of ox lungs and brain has yielded a substance with similar properties, but preparation from placenta is technically easier. (Recently, Reichel² reported a thermostable blood-coagulating