tional disturbance in oestrogen-level. It would be necessary, therefore, to trace the effective dose throughout pregnancy in order to determine whether or not oestrogens, in doses small enough to have a specific action, are capable of interrupting pregnancy.

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Surface Tension of the Blood and Atherogenesis

'Triton WR 1339' is known to cause a marked rise of the lipæmia and cholesterolaemia when injected into experimental animals¹. It has been suggested that the mechanism responsible for the enhancement of the cholesterol-level of the blood is an increased synthesis of cholesterol, chiefly in the liver², combined with an alteration in the exchange of cholesterol between the blood and the different organs. This results in a high cholesterolaemia, with normal or even lowered cholesterol-levels in the organs³.

In order to investigate possible mechanisms to explain the rise in lipæmia, we have measured the alterations of surface tension of the blood in rabbits injected with 'Triton'. The surface tension of 5 ml. of citrated blood was measured by the platinum ring method with a du Noüy apparatus. In normal rabbits, the surface tension was found to have a constant value, the average surface tension in 140 rabbits being 57.4 dyne/cm. (standard deviation ± 0.83 ; standard deviation of the mean ± 0.07).

After a single injection of 400 mgm. 'Triton' per kgm. body-weight, an immediate fall of surface tension is observed; it is lowest 5 min. after the injection, and reverts gradually to normal values 14–21 days later. Cholesterol-levels reach a maximum after three days and become normal at about the same time as surface tension (Table 1). Smaller doses of 'Triton' have a similar but less pronounced effect on both surface tension and cholesterolaemia.

While the immediate change in surface tension can easily be explained by the influence of 'Triton' itself, the large amount of cholesterol and lipids present in the blood three days after the injection had to be examined as a possible cause of lowered surface tension. For this purpose, rabbits were given a diet consisting of pellets to which 1 per cent cholesterol and 3 per cent peanut-oil was added. Blood samples taken after 4 weeks showed a cholesterolaemia of 257.2 mgm. per cent and a surface tension of 53.9 dynes/cm. After 12 weeks the cholesterolaemia

Table 1. AVERAGE VALUES OF SURFACE TENSION OF BLOOD AND CHOLESTEROLAEMIA OF SIX RABBITS BEFORE AND AFTER INJECTION OF 400 MG. 'TRITON' PER KG. BODY-WEIGHT

	Surface tension (dyne/cm.)	Cholesterolaemia (mgm. per cent)
Before	57.0	46.5
After 5 min.	45.9	68.0
" 3 days	47.0	349.8
" 7 "	48.9	277.3
" 14 "	52.2	162.5
" 21 "	57.3	52.8

Fig. 1. Influence of surface-active agents on the heparin-clearing process *in vitro*. 1.2 ml. plasma of a rabbit injected intravenously with heparin is added to a mixture of 0.3 ml. of 1 per cent 'Ediol' and 1.5 ml. of 3 per cent albumin. Optical transmittance is measured immediately after mixing the ingredients and every 10 min. thereafter. 0.2 ml. of a solution containing 1.5 mgm./ml. of each surface-active agent to be tested was added, this bringing the final concentration to 0.1 mgm./ml. As a control the same volume of saline is used.

rose to 1,247 mgm. per cent, and surface tension was reduced to 51.0 dynes/cm.

After 12 weeks these rabbits were killed and anatomopathological examination of their aortas showed severe lipid deposits in the intima.

Another series of experiments demonstrated the inhibitory effect of various surface-active agents on the heparin-clearing mechanism *in vitro* (Fig. 1). In this blocking of the heparin-clearing mechanism, the enhanced lipæmia following injection of 'Triton' could find its explanation.

It is also of interest to note that plasma of rabbits injected with heparin failed to clear the highly lipæmic sera of rabbits injected with 'Triton', and of those that were fed the 1 per cent cholesterol diet for 12 weeks.

Other workers have found lowered surface tensions in known atherosclerotics and in a number of normal young adults⁴. In our laboratory a preliminary experiment on 10 young adults showed a definite lowering of surface tension of the blood 3 hr. after a meal chiefly consisting of saturated fats.

At this stage of investigation the exact significance of the surface tension of blood cannot be assessed. But the striking correlation between cholesterol and 'Triton' as surface-active agents and clearing inhibitors on one hand, and as atherogenous substances on the other, merits further investigation of the possible relation between lowered surface tension of the blood due to any cause, and atherogenesis.

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