

The tumour was removed leaving both the tubes and ovaries. A 3½ to 4 months' foetus was found in the gestation-sac the walls of which were thick and muscular. Convalescence was normal.

**Commentary.**—Cases of pregnancy in a rudimentary horn are one of the rarest varieties of ectopic pregnancy, since the sperm has to travel across the uterine cavity to the ovary and tube of the opposite side as in this case. Cases have however been reported, when the corpus luteum was found on the side opposite to that of the pregnant horn. Here it is presumed that the fertilized ovum has made its way across the abdominal cavity to enter the tube of the opposite side.

The diagnosis is not usually made before operation chiefly because the condition is so rare that the possibility of its presence is seldom seriously considered.

The usual course of pregnancy in such a situation is rupture about the fourth month, extremely few cases ever reaching full term. The treatment is therefore removal of the gravid horn as soon as it is diagnosed.

In this case, the marked separation of the insertions of the tube, round ligament and ovarian ligament into the gestation sac show that the ovum must have got embedded at that part of the Mullerian duct where the tube joins the uterine cornua, i.e. the usual site of the rare interstitial variety of tubal pregnancy.

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## DISCOLOURED CHOLESTEROL AND WASSERMANN ANTIGEN

### DECREASED FORTIFYING EFFECT RESTORED BY RECRYSTALLIZATION AND WASHING IN ALCOHOL

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A SAMPLE of cholesterol (Merck) 5 years old was found to have turned yellow. The general crystalline character, under the microscope, was unchanged, except that the edges of some of the solid rectangles were yellow and in the debris were found yellow cylinders much smaller than the rectangles. The smell was suggestive of bile salts.

The fortifying effect of the sample on the alcoholic heart extract, in the Wassermann reaction, was appreciably reduced.

For the removal of the colour and smell the sample was submitted to four processes : (i) one gramme was subjected to negative pressure in a desiccator—the smell was removed but the colour remained; (ii) one gramme was left in contact with 10 c.cm. of water at room temperature, with frequent shaking—the smell was removed but the colour remained; (iii) one gramme was recrystallized by dissolving in 10 c.cm. of hot alcohol, and the crystals washed on filter-paper in cold alcohol running free of colour, before drying—both smell and colour disappeared; and (iv) one gramme was left in contact with 10 c.cm. of cold alcohol overnight, removed by filtration and washed in cold alcohol running free of colour, before drying—both smell and colour disappeared.

The products of the four processes and two samples from new stocks of cholesterol were left in a desiccator for twenty-four hours for a comparative chemical test and estimation of fortification value with a constant and standardized Wassermann antigen (Greval, Chandra and Das, 1939).

Chemical tests differentiated between the products of (i) and (ii), and the rest. With the former, Salkowski's reaction following Plimmer (Plimmer, 1933) yielded a deep potassium permanganate colour, resembling partly reduced permanganate solution (brown) on the top, and un-reduced solution at the bottom; the yellow and green colour did not develop with sulphuric acid. The Liebermann reaction, following the same authority, again yielded a deep permanganate colour with the former. The latter reacted typically.

The fortifying effect on the alcoholic human heart extract of the Wassermann antigen was studied by means of titrated positive controls of syphilitic serum (Greval, Das and Sen Gupta, 1938; Greval, 1943). The controls were 1 in 75 and 1 in 150 dilutions of pooled +++ sera (sera fixing complement with *uncholesterolized* antigen). The stronger dilution was expected to fix 3 MHD of complement completely (+) and 5 MHD incompletely ( $\pm$  or T, trace of lysis). The weaker dilution was expected to fix the same doses to a less degree. The reactions of fixation are given in the attached table. The simplest process of washing in cold alcohol gave the best results. New sample No. 2 gave a slightly higher fixation although this fact is not noted by additional signs in the table.

Other differences of serological importance were also noticed : (i) suspensions in saline from the alcoholic solutions of the discoloured samples were less turbid ; (ii) suspensions in saline of the Wassermann antigens made with them were also less turbid; and (iii) the anti-complementary titre of the antigens made with them was slightly higher. These differences disappeared with the removal of the colour.

The importance of saving a chemical not easy to obtain is obvious.

*A table giving reactions on seven samples of cholesterol*

The Wassermann antigen made with:— Fixation of complement with titrated positive controls:—

	Control I, with 3 MHD	Control II, with 5 MHD	II, 1, 1 in 75 dil.	II, 2, 1 in 150 dil.
1. New stock, Merck	+	T	+	±
2. New stock, B.D.H.	+	T	+	±
3. Recrystallized (process <i>iii</i> ).	+	±	+	—
4. Washed in alcohol (process <i>iv</i> ).	+	T	+	±
5. Deodorized under pump.	T	±	T	—
6. Washed in water	T	±	T	±
7. Untreated yellow and odorous.	T	±	T	—

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## BACTERICIDAL AND FUNGICIDAL ACTION OF ORGANIC MERCURIALS

## WITH SPECIAL REFERENCE TO THE DERMATOMYCOSES

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IT has been stated recently (Hunter, 1943) that the ideal antiseptic should possess high germicidal and inhibitory properties over the widest possible range of the commoner pathogenic organisms, a low tissue toxicity, efficiency in the presence of organic matter, power to penetrate, stability, and moderate cost.

In this country the commoner pathogenic organisms include a great number of mycotic agents, these latter being especially common in moist, humid regions and during the monsoon period. It is therefore considered that the ideal antiseptic should possess a well-marked fungicidal as well as a bactericidal effect. This report intends to show that certain organic mercurial drugs possess the above-mentioned properties in the highest degree, and it is felt that, in the latest spate of literature concerning modern antiseptics, this remarkable series of compounds has been greatly neglected.

Before describing the uses and method of application of the above-mentioned drugs, it would be well to explain the rationale governing the use of antiseptics and bactericidal substances whose active agent is a phenol radicle or Hg cation.

As long ago as 1881, Koch drew attention to the toxic action of mercury on bacteria, and Paul and Prall (1907) showed that this effect depends on the free concentration of Hg ions in solution.

That this Hg cation was the most effective of the heavy metal cations was proved by Woodruff and Bunzel (1909) and later by Winslow and Hotchkiss (1922). This toxic action on bacteria was well manifested *in vitro*, but it has been shown that *in vivo* its bactericidal action is greatly diminished, especially in the presence of organic matter. Chick and Martin (1908) consider that this was due to the fact that these cations combine with protein to form an insoluble albuminate; hence the concentration of free ions is greatly diminished. Clark (1940) reported that when a 3 per cent suspension of dried human faeces is added to a solution of an Hg salt effective *in vitro*, its activity is reduced by 80 to 85 per cent. The activity of certain organic mercurial salts under these conditions is reduced by only 15 to 20 per cent, and that of phenol is reduced by only 10 per cent. It follows, therefore, that in the presence of organic matter, these organic mercurial salts possess a far greater bactericidal effect than those of the inorganic series, while at the same time the phenol co-efficient in the former is far greater than that of the latter. The advantage of using these organic mercurials in tissue lesions due to infection is thus clearly indicated, for it appears that the formation of an insoluble albuminate does not obtain to any marked degree in the use of drugs of this group.

It is proposed to show that the type of organic mercurial employed exerts an influence on the results, on account of varying chemical constitution. The simple aliphatic compounds of Hg have proved extremely toxic in their effect on the human organism. These compounds are represented by the series Hg (R) 2 where R represents one of the lower hydrocarbon radicles. Mercury dimethyl  $Hg(CH_3)_2$  and mercury diethyl  $Hg(C_2H_5)_2$ , the most elementary compounds in the series, have a special affinity for the central nervous system, causing rapid degenerative lesions in cerebral and cerebellar areas. The latter compound is, indeed, one of the most interesting in human toxicology, for there is a latent symptomless period of about 16 days between its application or ingestion and the development of signs and symptoms in the central nervous system.

The higher compounds of the series of organic mercurials (aromatic aryl or tolyl compounds), mainly phenyl mercuric acetate, phenyl mercuric chloride and phenyl mercuric nitrate, have been investigated chiefly in the U.S., but Biskind (1935) gave a detailed account of their action