

A similar result was obtained with *Staphylococcus pyogenes aureus*.

Solution.	3 min.
HgCl ₂ 64 litres.	0 col.
Hg(CN) ₂ 16 litres.	6700 col.

Mercuric cyanide stands alone among the simple salts of mercury owing to its feeble denociation.

In the case of silver, the salts and mixtures also range themselves, according to the concentration of the silver ions in the solution.

Bacillus Anth. (Spores).	Comparison HgCl ₂ 16 litres.		3 min. 32 col.
Solution.	15 min.	60 min.	525 min.
1. AgNO ₃	28 col.	0 col.	0 col.
2. AgClO ₃	39 "	0 "	0 "
3. AgClO ₄	438	4	0
4. Ag ₂ SiF ₆	840	194	0
5. C ₆ H ₅ SO ₃ OAg	1187	450	0
6. C ₆ H ₄ OH.SO ₃ OAg	1783	383	0
7. AgNO ₃ + 2.5 NH ₃	∞	852	0
8. AgNO ₃ + 10.0 NH ₃	∞	18.	0
9. AgNO ₃ + 1.5 Na ₂ S ₂ O ₃	∞	4565	3627
10. AgNO ₃ + 2.0 KCN	∞	4395	3637
11. Argentamin	∞	4200

In reviewing this table it will be seen that the nitrate stands at the head of the list as an antiseptic, closely followed by the chlorate. As the anions become more complex the toxicity of the salt decreases. This is particularly the case with the silver ethylsulphate and silver hydroxy phenylsulphate.

It will be noticed that the toxicity suddenly falls on the addition of substances such as ammonia, sodium thiosulphate, and potassium cyanide to a solution of silver which previously has had full antiseptic power. It must also be remembered that all these reagents give a solution containing silver, and that the metal has not been removed from the solution as a precipitate.

Reasoning from the standpoint of physical chemistry, one would expect that this fall was due to the disappearance of ions of silver in the solution. Measurements of the electrical conductivity and other physical data show undoubtedly that on the addition of these salts to solutions of silver, complex salts are formed which are either dissociated with difficulty or that the silver dissociates in combination with something else, and is therefore not present as a free silver ion. A similar state of things with a somewhat different explanation is found in the case of mercuric chloride.

It is usual in order to increase the solubility of this salt to add a soluble chloride such as sodium or potassium chloride. Accordingly in such a solution there will be sodium chloride, mercuric chloride, sodium ions, mercury ions, and chlorine ions. It will be seen that for a given number of mercury ions previously in solution with an equiva-