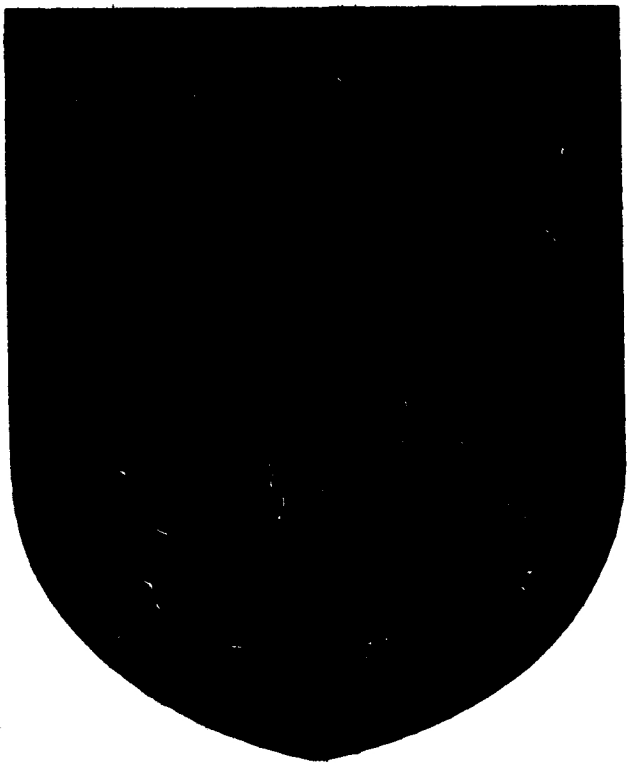
ST. BARTHOLOMEW'S HOSPITAL JOURNAL



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IS SEX INFECTIOUS ?

by C. H. ANDREWES, M.D., F.R.C.P., F.R.S.

I am asked by the editor of this journal to do an article for its Coronation number. He is also asking a lot of other old Bart.'s men to do articles, but the others are all extremely high-toned characters like dukes, and even surgeons. Now I am not in this class at all, being only a slightly prominent back-room boy, and the way I figure it is he wants me to write something very learned and obscure so that he can crack up his journal as being high-browed as well as high-toned.

The other day I am forgetting all about this request and am reading a thing in the current number of the Journal of General Microbiology* by Doc Hayes entitled "Observations on a transmissible agent determining sexual differentiation in *Bacterium coli*". This guy says that an infectious agent like a bacteriophage infects simple-minded *B. coli* and endows them with sexual appetites and potency. Now this guy Hayes is an Irishman so you might figure it was all a leg-pull, but in the same journal is an article by an Italian and two Americans, called Cavalli, Lederberg and Lederberg and they pitch just the same yarn. And since Italians and U.S. citizens are agreed by one and all to be very reputable characters indeed, I suppose this is all right. However, the articles in question

*J. gen. Microbiol., 1953, vol. 8, p. 72, in case you don't believe me.

make fairly heavy going, even though I am extremely interested in the question "Is sex infectious?", and I am presently reaching out for something lighter to read and I find a story by a guy called Damon Runyon. This is all about Broadway and guys and dolls and rods and snatching and scratching and this and that and one thing and another. But after a while I get too sleepy to read even this, so I doze off and the dreams I dream seem to have Damon Runyon and the Journal of General Microbiology a bit mixed up together.

Once upon a time (my dream goes) ever so long ago there is an Autotrophic Microorganism called Plato the Pure living in a primeval slime. And since he only propagates by binary fission all his progeny of the same clone (or clan as the Scots say) carry the same name. He propagates by binary fission because he's taught to do so and all his thoughts are pure and the idea of kissing a doll bang on the smush on a dark night never enters his noggin, partly because he has no noggin and there are no dolls, though there are plenty of dark nights at that, and all being wasted. Now Plato is very happy wrapping himself around the primeval slime whenever hungry, except for some very unpleasant guys called bacteriophages. These are very unpleasant characters indeed who do not honestly scratch for themselves but shoot their way through an autotrophic microorganism's cell wall and make merry hell in the cytoplasmic contents thereof and finally bust it all up completely. Now Plato the Pure and his friends finally devise means to thwart these bacteriophages, either by bullet-proofing their outer walls or by learning how to take away a phage's rod when he gets inside so as to demote him to a pro-phage. Pro-phages can be tolerated as long as they keep out of the way and you don't trip over their tails when engaged in the ticklish business of binary fission. Still, not even the most harmless phages are really welcomed.

One day a particularly nasty phage called Percy the Pimp gets together with his friends and concocts a plan to make themselves more acceptable to the bacterial cell. This involves disguising themselves in genes.

I guess I'll have to explain what these genes are. When an organism like Plato the Pure wishes to binary fiss, he sorts out his component parts into pairs (called pairs of genes), so that each half of himself will have a complete set; and all bacteria take great pride in their genes. When a phage decks out his nether limbs in a pair of genes, especially blue genes, he looks more than somewhat attractive and any bacterium, so Percy the Pimp reckons, will be glad to welcome him inside his cellular wall. And so it happens and Percy the Pimp's plan is all the rage with one and all. For when Plato the Pure finds a strange gene inside him he feels most peculiar and gets all excited because it really is a most agreeable feeling indeed.

After a bit he and his friends begin to think why bother about Percy the Pimp? Every so often a bacterium hauls off and dies and after it autolyses odd genes are left lying untidily about in the primordial ooze. So Plato starts quickly snatching these odd genes when no one is looking and he gets just as big a kick as when Percy introduces them, bringing his own unwelcome company through the cell wall at the same time. Later on, Plato and a blonde bacillus get to giving each other birthday presents of genes they don't especially need for themselves. And very soon Plato the Pure doesn't do a lot to deserve his epithet and people begin calling him plain Plato. But this gene swapping racket turns out most excellently for one and all, for quite apart from getting kicks out of it, it gives bacterial evolution one whale of a boost and the humblest microorganisms get to going places and turning into protozoa and higher fungi and one thing and another.

Finally a big moment comes when two of them are close together in a corner, swapping genes, when, lo, there is a solution of continuity of their adjacent cell walls and what happens next I can't tell you because of the Lord Chamberlain. What's more the other germs soon get the idea. Such things can't take place without comment and remark and before long a watch committee is formed of 2 matrons, 3 bishops, 4 borough councillors

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Christopher Howard Andrewes

M.D. (Lond.), F.R.C.P., F.R.S. Born June 7, 1896 *(L.O.A.)*, son of the late Sir Frederick Andrewes. Educated at Highgate School and Bart.'s. President of Abernethian Society, 1921. H.P. to J. H. Drysdale; Chief Assistant Medical Unit, 1922-23 and 1925-26. On staff of National Institute of Medical Research since 1927 and now its Deputy Director. In charge of World Influenza Centre (W.H.O.), and of Common Cold Research Unit at Salisbury. Has indulged in life-long pursuit of viruses to earn his living, and of flies and other insects for relaxation. Author of "Is Sex Infectious?" and other scientific papers.

and a night sister and they begin plugging the slogan "Back to binary fission!" They have some ideas of stopping the whole thing with antibiotics but of course that cuts no ice: sex is here to stay.

The watch committee does, however, get the thing regulated. There happens about that time to be a craze for American square dancing and people are rather easily persuaded that when they want to exchange genes they shall organise these in a sort of ritual dance. The Virginia reel is favoured at first, but soon a very pretty new dance is invented. It goes to a song with the refrain "Don't tread on my toeses" and the dance gets the name Mitosis and one and all are dancing it ever since. And so it goes on and on. The ritual gets a good deal more complicated in the last few thousand years and now one is supposed to have things like parsons and rings, and even champagne and bridesmaids. Many people enjoy all this; but no one thinks of putting up a statue to Percy the Pimp who started it all.

I tell of this dream because it contains a lot of valuable information which may be of use to students taking examinations: it may help them to pass and become doctors or slightly prominent back-room boys or dukes or even surgeons.