They took two types of bacteria- one was motile and another was non-motile. The motility determine maleness and femaleness. The motile bacterium behaves like male while the non-motile behaves like female. The motile bacterium comes in contact with non-motile thus physical contact is form. For this pross pili plays important role.

With the help of enzyme the contact wall is dissolved and a thin cytoplasmic tube like structure is formed, known as conjugation tube.

Through the conjugation tube the materials passes from one to another bacterium. With the help of certain enzyme some part of DNA of motile bacteria breaks and passes away through the conjugation tube

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extract of capsulated strain III was, some of the cells of are II variety got transformed to capsulated structure and became virulent means deadly poisenous

✓ Explanation by Griffith :-

He made his experiment as-

i) S type has mucous coating on the surface.
ii) R type is rough due to rough surface.
iii) Griffith injected S type into mice pneumonia disease appeared and mice died.
iv) When R type was injected into mice the mice didn't get the disease hence survived.
v) Griffith again injected heat killed S type into mice the mice didn't get the disease and remained alive due to heating they become ineffective.
vi) After this he injected a mixture of heat killed S type along with live R type.

a)
b)
c)
d)

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The mice suffered from pneumonia and died.
He identified live S bacteria from the dead mice thus it can be said that -

a) live S type + mice → mice died

b) live R type + mice → mice alive.

c) Heat Killed S + mice → mice survived

d) Heat Killed S + live R → mice died (blood of the dead mice showed the presence of live S bacteria)

Thus Griffith conculed that there was some factor known as transforming principle in heat killed 'S' cells that was transferred and it again transformed R cells into the live S cells.

It enabled are R strain to synthesise in smoth polysaccharid coat and become virulent

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The R cells that were transformed into S cells continued producing S cells only.

~~Transjunction~~

3.) Transduction :-

The process of transduction was discovered by 'lederberg and Tatum'. They made their experiment on food poisening bacteria named as bascillus. salmonella.