wounds is 97·5 per cent, while without 'Polyanthin' the primary healing of wounds is only about 66·5 per cent.

Further investigations for the extension of the clinical applicability of 'Polyanthin' (for example, tuberculosis, surgery, general medicine) are in progress.

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Nature of Colicine Receptors

Colicines are unique among antibiotics in being specifically adsorbed on to the surface of bacteria in a manner analogous to antibodies and bacteriophages. Besides being removed from solution by adsorption on sensitive bacteria[1], they can be inactivated by extracts of sensitive, but not of resistant, organisms[2]. The nature of colicine receptors on the bacterial surface has not so far been elucidated. This communication describes some preliminary observations on the subject.

Absorption experiments were undertaken, using two of Fredericq's strains, namely *Shigella sonne P*9, producing colicine *S*3, and the colicine-sensitive *Escherichia coli C*6. When colicine was mixed with preparations of the sensitive *E. coli*, each killed by a different procedure, then centrifuged and the residual colicine assayed, a number of properties of the receptor sites were demonstrated. They were unaffected when the organisms were killed by heat at 65° C. for 30 min., by exposure to 0·3 per cent formalin or 2 per cent phenol, but were destroyed by heating at 100° C. for 1 hr. or exposure to 80 per cent ethanol.

The residual colicine was titrated by the agar diffusion technique developed by E. van Horn (personal communication). By this technique small differences in colicine titre can be detected, and results may also be obtained with a more than hundred-fold dilution of the original colicine. Partial absorption of colicine could thus be detected but, in fact, in the absorption experiments described here either all or none of the colicine was removed from the solution.

The results obtained with the absorption experiments were corroborated by assaying the colicine on agar plates inoculated with a mixture of viable and killed organisms. The inoculum consisted of 5–10 × 10^6/ml. viable organisms of the sensitive *E. coli*, mixed with a suspension of 5–10 × 10^8/ml. organisms of the same *E. coli* killed by the methods used in the absorption experiments. The killed suspensions in which the receptor site had been destroyed did not materially alter the size of the inhibition zones; those in which the receptor sites were intact adsorbed colicine and hence the inhibition zones were significantly reduced in size. The amount of reduction was comparable with that obtained by an inoculum of viable cells, substituted for the killed organisms[3].

From these observations it appears that the receptor, at least for this particular colicine, resembles most closely a flagellar or, to a lesser extent, a fimbrial antigen. *E. coli C*6 is non-motile, which lends particular interest to the finding of a receptor substance on its surface having the properties of a flagellar antigen.

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MISCELLANEOUS

A Simple Flattener for holding Filter Papers on Planchettes for Radioactive Counting

The use of a 'Millipore' chimney and filter paper provides a convenient means of collecting radioactive material for measurement of its activity. A major disadvantage of this system arises from the curling of these papers by the precipitated materials and the allied difficulties of fitting them in the planchette. The use of doubly gummed 'Scotch' tape provides only a partial solution to this problem, and if the material on the filter paper is to be analysed chemically afterwards, the tape adhesive may interfere. The use of liquid adhesives and, in the case of 'Millipore' filters, of solvents also does not solve this problem. The amount of collected material is limited by the point at which the precipitate will flake and not hold to the paper. Recently we devised a simple spring mechanism to hold the paper in the carriers.

The precipitates are collected on the surface of hardened small-pore filter paper (for example, Whatman No. 42) or modified cellulose papers ('Millipore' filters) and dried in a desiccator. The flatness of the resulting material is a function of the amount of precipitated material collected. The diameters of the papers are slightly smaller than the inside diameter of the planchettes used (Nuclear-Chicago sample pan 1¼-in. in diameter). The papers are fixed inside the planchette by use of a 330° arc of stainless steel spring wire No. 24 gauge, so made that the arc has a diameter ¼ in. greater than the planchette (Fig. 1). The wire is placed within the planchette and on the paper by compressing it with the thumb and forefinger and placing the closed end against the wall of the planchette. The spring is then permitted to expand slowly below the level of the planchette side wall, and final adjustment is made with a pair of forceps.

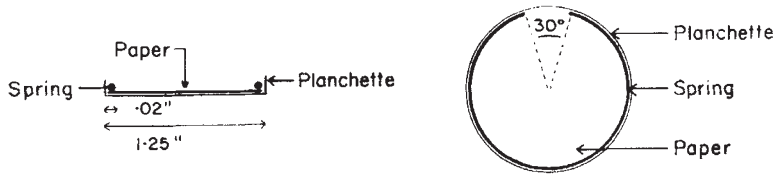

Fig. 1. Details of arrangement of the spring flattener