size of the funnel mouth, of the relation between the volume siphoned over, cet. par., and the speed of flow of water, is explained by two combined and contrary effects—(a) without interference of water current at the edge of the funnel mouth (as *e.g.,* in the case of wide funnels) more water is siphoned over in the time taken for the water surface to break away from the glass when the maximum tension is exceeded, if the speed of flow of water is greater; (b) the stronger the water current at the edge of the funnel mouth the more prematurely does the water surface break away from the glass.

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AN IMPROVED METHOD FOR THE STUDY OF DIFFUSIBLE BACTERIAL PRODUCTS IN VIVO

CELLOIDIN capsules containing cultures of living bacteria have frequently been used by bacteriologists and pathologists in studying the action of diffusible bacterial products *in vivo*. The usual method has been to place such capsules in the abdominal cavity of laboratory animals and note subsequent pathological changes. Such a method, in which the bacteria are confined by a semipermeable membrane, has the advantage of simulating a focal infection, but, because of the fragility of the container, it has not proved to be as useful as the experimental method warrants. Home-made capsules of this type are difficult to make, and even when successfully produced they are peculiarly liable to rupture as the result of manipulation or the activity of the animal, and the results are obscured or invalidated by the sepsis which ensues.

While studying the effects of certain bacterial toxins on the leukopoietic system of the rabbit, the writer has used the above method with success, but instead of using a celloidin container, a capsule was prepared by taking two parchment dialyzing thimbles (about 1½ centimeters in diameter) of the type commonly used for purifying bacterial toxins, cutting them down to a length of 2½ centimeters, and fitting one over the other to make a capsule of the same type as the gelatin capsules used in administering powdered drugs by mouth. The two parts were rinsed out with alcohol just before fitting them together, and the capsule was then sealed with celloidin, which was hardened with water. Such capsules were filled with 5 cc of broth cultures of bacteria by means of a sterile fine gauge needle and syringe, and the needle hole sealed with celloidin. Each capsule was rinsed off in alcohol immediately before being placed, with aseptic precautions, in the abdominal cavity of a rabbit.

Only two of fifteen rabbits used in our first series were lost from sepsis, and in each case the leakage was due to the capsule being used before the celloidin cement had hardened sufficiently. If properly prepared these capsules are remarkably substantial and will withstand any amount of manipulation involved in the operation. A pure culture of virulent *Streptococcus hemolyticus* was found on opening a capsule twenty-eight days after operation, and other animals are continuing to show evidence of the viability of the cultures which they contain, after an elapse of more than two months. This method is particularly valuable in the study of diffusible bacterial products which are slow in their action, but which are capable of causing pathological changes in the host.

In our experiments we have been using Abderhalden dialyzing thimbles, but similar products which should be quite satisfactory are listed in the catalogs of a number of the American laboratory supply houses.

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THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

THE ATLANTIC CITY MEETING

THE general program of the ninety-first meeting of the association has already gone to press and will be available on Tuesday morning, December 27, at the registration offices in the Municipal Auditorium, Atlantic City. This program will be a book of 225 pages and will contain the titles of over 1,300 papers on practically all topics of scientific interest.

The program of general sessions includes lectures on a wide range of subjects—mathematics, physics, chemistry, zoology, botany, sociology, engineering and medicine. The lecturers will be Dr. Franz Boas, Dr. H. N. Russell, Dr. Harlow Shapley, Dean Dexter S. Kimball, Dr. R. C. Tolman, Dr. R. W. Wood, Dr. Russell W. Bunting, Dr. Dayton C. Miller, Dr. C. C. Speidel, Dr. Mel T. Cook, and Dr. O. H. Caldwell. For titles of these lectures see SCIENCE for November 18.

General sessions of the association will be held in the Municipal Auditorium and in Haddon Hall, which will be headquarters for the association. Sessions of the sections and of the forty-one societies, in general,