No. 98. Great Britain, Dyffryn, North Wales, March 25, 1921.

No. 129. Norway, two miles from land at the Böhle-Walstation, Sorö, Westfinmark, July 16, 1921.

The places referred to are shown in the accompanying chart, figure 1.

Considerable information as to the course and rate of flow of the North Atlantic Wind Drift or Gulf Stream during the winter of 1919-20 and the summer of 1920 is to be obtained from the finding of these bottles. The distances which they must have been carried, measured along the shortest courses which they could have taken, are approximately 2000, 2800, 2900 and 3800 geographical miles. The corresponding lengths of time which the bottles were "out" are 12, 17, 19, 23 months respectively. This close correspondence between the distances traveled and the times the bottles were "out" indicates that the bottles were picked up relatively soon after they reached the coast. If this assumption is justified the average rates at which the bottles moved across the North Atlantic were 5.8, 5.4, 5.1, and 5.5 geographical miles per day.

The success of this experiment carried out on a comparatively small scale—only four hundred bottles were used and they were all set out within thirty miles of the shore—indicates that important and far reaching results in the investigation of ocean currents are to be obtained from the use of drift bottles. Such experiments can be carried out at small expense. Since the bottles can be set out from any vessel while under way, practically the total cost of an experiment is that of the bottles and the rewards offered to those who find them.

JAMES W. MAVOR.

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SCIENTIFIC EVENTS

THE PREPARATION OF STAINING SOLUTIONS

IN the text-books dealing with microscopy and with bacteriology, as well as in the journal literature dealing with these subjects, there are two general types of stain formulæ. In one type of formula so much dry stain in weight per given volume of solution is called for, in the other type so many cubic centimeters of a saturated solution of the stain. It will be readily seen that the same staining formula could be prepared by both methods provided the solubility of the dry stain and its actual dye content were known. If all batches of dry stain contained the same amount of actual dye either sort of formula would be perfectly satisfactory.

Unfortunately, however, different lots of any stain vary greatly in the amount of inert material they contain. This is true even in regard to different batches of Grübler stains and it is especially true now when there are so many different brands of stains on the market. An investigation of certain methylen blues, for example, showed a Grübler sample examined to contain 57 per cent. of actual dye, a Merck sample 55 per cent., while five different American samples varied from 69 per cent. to 88 per cent. It seems in general desirable that the color strength should be as high as reasonably possible, and it must be particularly pointed out that the sample containing 88 per cent. dye proved one of the two very best in a long series of methylen blues examined. It is obvious, however, that a staining formula calling for so many grams of Grübler methylen blue will be more concentrated if made up with one of these American stains. Considering how these stains vary in actual dye strength, much more nearly constant formulæ can be obtained provided they are prepared on the basis of a definite volume of a saturated solution. Although there are undoubtedly some differences in the amount of actual dye and goes into solution in the case of different brands of stains, nevertheless the results are much more constant in this case than when the formulæ are prepared on the basis of weight of dry dye. For this reason biologists publishing stain formulæ are urged to cooperate with the committee in putting the formulæ on the basis of so many cubic centimeters of saturated solution. The saturated solution may be either aqueous or alcoholic, according to the needs of the individual case. Objections are sometimes made to this type of formula in that it is difficult to prepare without waste when the solubility of a stain is not known. This is not a valid objection, however, because a saturated solution of any stain can

always be kept on hand with an excess of undissolved material at the bottom of the bottle, adding more water or alcohol from time to time as more stock solution is needed in preparing staining solutions. This type of formula, therefore, has so many advantages without serious disadvantages that its use is recommended in all possible cases.

H. J. CONN,
Chairman, Commission on the Standardization of Biological Stains

SYMPOSIUM ON MATERIALS OF CHEMICAL EQUIPMENT CONSTRUCTION

MANY prominent chemists have suggested from time to time that a symposium should be held upon the subject relating to materials as applied to construction and equipment in the industry. Therefore, at the spring meeting of the American Chemical Society, it has been decided to hold a symposium entitled "Materials of Chemical Equipment Construction."

The literature upon this subject is so widely scattered and published in many journals inaccessible to the average chemist that in many cases much time must be spent in duplicating work which has already been done. The symposium will tend to bring together such matter for which chemists are constantly in search.

The officers of the Industrial Division have been particularly fortunate in securing Mr. Philip A. Singer, of the Singer-Perlstein Company, Chicago, Ill., to act as chairman of this symposium. Mr. Singer was graduated from Bradley Technical Institute in 1899 and then he pursued graduate work at the University of Heidelberg, Germany. He then returned to this country as chemist for the Glucose Sugar Refining Company, now the Corn Products Company, and became their plant manager and superintendent. Later he became manager of the Standard Alcohol Company, of Fullerton, La. A few years later he became superintendent of the Piel Brothers Starch Works at Indianapolis. While in the last two positions he was also employed in a consulting capacity by the Chicago Starch Works and the Industrial Chemical Institute of Milwaukee. For the last seven years he has been a consulting engineer on the subject of starches, dextrin, glucose and allied subjects. Mr. Singer not only does the engineering work, that is, designs the complete plant, but also superintends the construction and actually operates the plant until it has been put on a practical operating basis.

The subject matter of the symposium will cover woods, metals, vitreous materials, coatings, rubber fabrics, etc. All of these headings will deal with the resisting properties of acids and alkalies, their resistance to temperature, oxidation characteristics, cost, chemical composition, etc.

It is hoped that industrial chemists and university professors will cooperate in every possible way with Mr. Singer by writing to him directly, stating on what phase of the subject they would be glad to present papers at the New Haven meeting.

ERLE M. BILLINGS,
Secretary Industrial Division

TEN-YEAR PROGRAM OF THE NEW YORK AGRICULTURAL EXPERIMENT STATION

IN order that the New York Agricultural Experiment Station may serve satisfactorily the agricultural interests of the state and nation, Dr. R. W. Thatcher, director of the station, and his associates have formulated a program for the development of the work at Geneva for the next ten years. The program has been endorsed by all the organized agricultural agencies of the state and is to be presented to Governor-elect Smith and the new legislature for their consideration. It is believed that only with the aid of a definite program can funds be intelligently appropriated for the work of the station and the affairs of the institution satisfactorily administered. The program provides for the further development of present lines of research and for the inauguration of several new lines of work not now receiving attention.

Activities which the station authorities are anxious to develop further or to undertake as new projects are the breeding and testing of new varieties of small fruits and vegetables, particularly for canning; investigations into the manufacture and preservation of fruit juices, drying of fruits and vegetables, and the utilization of cull fruits and vegetables for