ture will be about 500 feet long and four or five stories high, with a frontage on Oxford Street opposite the Mallinckrodt Chemical Laboratory, outside the Yard. This building eventually will house all of the branches of applied physics, geophysics, geology, mathematics, and undergraduate instruction in astronomy, among other groups.

President Conant said:

> Construction of this large new science building will complete a science center embracing most of Harvard's scientific activities outside the area of medicine.
>
> We have already located within a convenient radius a varied and well-equipped group of buildings for the fundamental study of the phenomena of physics, chemistry, and biology and their application to astronomy, the earth sciences, and engineering.
>
> The first section of the new science building will be devoted to laboratories required for the new Department of Engineering Sciences and Applied Physics, which has been organized under the Faculty of Arts and Sciences.
>
> Harvard University's contribution to both pure and applied science is in the process of being made commensurate with challenges of the postwar world. The erection of the Computation Laboratory and the Nuclear Physics Laboratories is a first step in this direction.
>
> The new science building, when completed, can be considered as the focus of the integration of our varied activities in natural science. I trust that funds for the construction and endowment of the entire structure may be forthcoming in the not too distant future from a group of interested donors.

Specifically assigned to the central science structure will be the Department of Engineering Sciences and Applied Physics. Frederick V. Hunt, chairman of this Department, is also chairman of the new building planning committee working with the architects.

Other departments with similar assignment are the Department of Mathematics, now scattered around the University; the undergraduate astronomy center, now occupying an inadequate wooden house on Jarvis Street; and large parts of the Division of Geological Sciences, including its branch of geophysics.

Pierce Hall, home of the Graduate School of Engineering, adjacent to the site on which the Science Center Building will rise, is to be joined to the new structure, as will the Cruft, Jefferson, and Research Laboratory of Physics buildings, already under one roof and now devoted to teaching and research in pure and applied physics. The Computation Laboratory, a new building housing the Automatic Calculator, is located close to the northwestern end of Pierce Hall. This building will be ready for occupancy shortly after 1 January 1947. The calculator has been moved from the basement of Cruft Laboratory to the new structure and is being reassembled.

Two cyclotron buildings, now being constructed under joint U. S. Navy and Harvard auspices off the upper end of Oxford Street beyond the University Museum (which is also an integral part of the science center project), will also house a new 700-ton instrument.

The transfer of various University branches and equipment to the new Science Center Building and to new structures will provide increased space for expansion of scientific research and teaching in existing structures now overcrowded.

In the Laboratory

A Color Reaction Given by Streptomycin

John V. Scudi,[1] George E. Boxer, and Viola C. Jelinek

Research Laboratories, Merck & Company, Inc. Rahway, New Jersey

We have observed that streptomycin gives a color test somewhat similar to the Elson-Morgan test (*1*) for glucosamine. The color reaction does not proceed to a noticeable extent if it is carried out with sodium carbonate as proposed by Elson and Morgan for glucosamine. But in the presence of sodium hydroxide the test becomes positive with as little as 50 units of streptomycin. This can be carried out in the following manner: To 2 cc. of an aqueous solution of streptomycin are added 1 cc. of a 2-per cent solution of acetylacetone in water and 1 cc. of 1 normal sodium hydroxide. The mixture is heated for 10 minutes in a boiling water bath and then cooled. A pink color is developed on addition of 2 cc. of a solution of Ehrlich's aldehyde (*1*). The volume is made up to 10 cc., and the light transmission is measured in a photoelectric colorimeter using a filter #540.

Tests carried out on the split products of streptomycin showed that the amino sugar moiety of the streptomycin molecule (*2*), *i.e.* N-methyl-l-glucosamine, is responsible for the color formation. This methylated amino sugar gives the reaction under the

[1] Present address: Department of Pharmacology, College of Physicians and Surgeons, Columbia University.

conditions of the Elson-Morgan test, but a considerably more intense color is obtained if sodium hydroxide is used in place of sodium carbonate. Glucosamine, on the other hand, fails to give any test if sodium hydroxide is used.

This test was used in the analysis of clinical preparations of streptomycin. Samples of high purity gave reasonably good results, but as the purity of the samples decreased, the results became high and in some instances were as much as 200–400 per cent higher than those expected from the microbiological assay (see Table 1). It is therefore apparent that interfering substances are present in clinical preparations of low potency.

TABLE 1

COMPARISON OF VALUES OBTAINED ON CLINICAL SAMPLES OF STREPTOMYCIN BY MICROBIOLOGICAL ASSAY (*3*) AND BY THE USE OF THE MODIFIED ELSON-MORGAN TEST

Bio-assay (units/mg.)	Colorimetric assay (units/mg.)	Bio-assay (units/mg.)	Colorimetric assay (units/mg.)
700	750	600	748
705	745	500	700
800	850	390	710
720	725	300	560
750	730	230	900
705	720	115	250
615	600		
770	795		
840	775		

Efforts to remove the interfering substances by selective adsorption methods were made without success. It was observed, however, that the ability of pure streptomycin to give the color test was rapidly lost upon pretreatment with alkaline borate buffer of pH 12 at 100° C. (15.26 grams of $Na_2B_4O_7 \cdot 10H_2O$ and 120 cc. of 1 *N* NaOH diluted to 1 l. with distilled water). The color test of pure streptomycin decreased 90 per cent after 5 minutes, and the destruction was essentially complete after 10 minutes of heating. If a clinical sample of streptomycin of intermediate potency (200–600 units/mg.) is treated under these conditions, destruction proceeds first at a rapid rate approximating that found for pure streptomycin; but after 10 minutes heating, at which time the sample was shown to be devoid of streptomycin activity microbiologically, a second and much slower rate became apparent.

Extrapolation of the rate of destruction of this impurity to zero time permitted estimation of the impurity. The difference of this value and the total value obtained before alkali treatment was expected to correspond to the true streptomycin content of the sample. Values corresponding to the microbiological assay could be obtained on a number of low-potency samples. However, on some samples the values remained high, indicating the presence of other impurities behaving like streptomycin.

The use of the modified Elson-Morgan reaction will give useful results on highly purified streptomycin samples and can be used as a sensitive method for the estimation of N-methyl-l-glucosamine. The differential procedure improved the analytical data obtained with some low-potency samples, but with other samples high analytical values were still obtained.

References

1. ELSON, L. A., and MORGAN, W. T. *J. Biochem.*, 1933, 27, 1825.
2. KUEHL, F. A., JR., FLYNN, E. H., HOLLY, F. W., MOZINGO, R., and FOLKERS, K. *J. Amer. chem. Soc.*, 1946, **68**, 536.
3. LOO, Y. H., SKELL, P. S., THORNBERRY, H. H., EHRLICH, J., MCGUIRE, J. M., SAVAGE, G. M., and SYLVESTER, J. C. *J. Bact.*, 1945, **50**, 701.

Relation of Vapor-Pressure Deficit to Evaporation From a Spherical Atmometer in an Air-conditioned Room

BURTON E. LIVINGSTON

The Johns Hopkins University, Baltimore, Maryland

and J. D. WILSON

Ohio Agricultural Experiment Station, Wooster

Ecologists, hygienists, and others interested in the direct measurement of evaporativity by means of the 5-cm. porous-porcelain atmometer sphere are frequently confronted with questions concerning the relation of measured evaporation intensities in calm and shade to air temperature and air humidity, or to vapor-pressure deficit. Of the many different forms of atmometers proposed from time to time under various names and by various writers (*2*), the 5-cm. hollow white porous-porcelain sphere with standardization coefficient of about 0.78 is generally most satisfactory in the absence of frost (*3*). Its moist, spherical surface, without any superficial film of water, gives constant and uniform exposure in all directions excepting below, where the narrow cylindrical neck connects with the supply tube, through which distilled water rises by suction from a reservoir at a convenient lower level. Black spheres are useful when sunshine or other intense radiation requires special consideration.

To care for slight variations in the size of these spheres, each reading is multiplied by the standardization coefficient of the sphere used. When a sphere becomes soiled by dust or other contamination through use, its coefficient generally increases, but it may sometimes decrease, and restandardization is in order whenever considerable soilage is suspected. Soiled spheres may be reconditioned by cleaning; if they are reground, the new coefficient should be slightly greater than the original one.