May 28 and at the clinic of Dr. Willard Bartlett at the Missouri Baptist Sanitarium May 29. Papers by local surgeons will be delivered on recent advances on thoracic and cardiac surgery, X-ray therapy and kindred subjects.

UNIVERSITY AND EDUCATIONAL NOTES

HALF a million dollars has been appropriated by the New York State legislature to start work on a new plant industries building for the College of Agriculture at Ithaca. A few years ago the state adopted a program that called for the expenditure of $3,000,000 and the college has been empowered to proceed in a building plan in accordance with this appropriation, though it may not expend more than the amount made available in any one year.

THE residue of the estate of the late George E. Hoadley, of Trinity College, is to be divided equally between Trinity College and the Connecticut Historical Society. Each institution will receive about $200,000.

PROFESSOR W. A. HAMILTON has been appointed chairman of the administrative interim committee of Beloit College, until a president of the college is appointed to succeed President M. A. Brannon, who was recently made chancellor of the University of Montana. Professor H. H. Conwell has been appointed acting head of the department of mathematics.

DR. DAVID FRIDAY, president of the Michigan Agricultural College, has presented his resignation to become effective on June 1. The State Board of Agriculture accepted the resignation over the protest of Governor Groesbeck. Dr. Friday has accepted a professorship of economics at the new school for Social Research in New York City.

DR. BRADLEY STOUGHTON, formerly of Columbia University and later secretary of the American Institute of Mining and Metallurgical Engineers, a New York consulting engineer, has been appointed professor of metallurgy at Lehigh University.

DR. HARRY A. CURTIS, government nitrate expert, has accepted an appointment as professor of chemical engineering at Yale University.

AT the University of Chicago, Dr. Andrew C. Ivy, of Loyola University, has been appointed associate professor of physiology and Ernest P. Lane, of the University of Wisconsin, assistant professor of mathematics.

DISCUSSION AND CORRESPONDENCE

DYE SOLUBILITY IN RELATION TO STAINING SOLUTIONS

IN a recent note appearing in these pages[1] attention was called to the fact that different batches of stain may contain very different amounts of actual dye; hence, staining solutions made up according to formulae calling for so many grams of dry stain may vary considerably in their actual strength. For this reason it was recommended in the note above mentioned that solutions of stain be made up by using definite quantities of saturated solution of the stain. In this way it was believed that the resulting solutions would be much more nearly the same strength than when prepared on the basis of weight of the dry stain.

There seems to be no question but that this statement is correct as far as it goes; but since the publication of the above mentioned article a certain serious criticism of the procedure recommended has been brought to our attention. It seems that the solubility of a dye varies considerably according to the amount and kind of mineral matter present in solution. It is well known in the dye industry that many of the dyes may be "salted out" of solution, that is precipitated by the addition of some mineral salt. Now the inert material present in many samples of stain is of a mineral nature and may act in the same way. There is never enough present to prevent the dye itself from going into solution, but there is often enough to lessen its solubility. For this reason two staining solutions made up from a pure and an impure dye, respectively, each containing ten per cent. of a saturated alcoholic solution may vary considerably in their actual dye content. This is not only theoretically true, but practical experience in the handling of stains has shown that it may actually be the case.

On account of this fact it is very plain that

[1] The preparation of staining solutions, SCIENCE, 67, January 5, 1923, p. 24.

preparing a stain on the basis of saturated alcoholic solution is not an ideal procedure. At the present time it is perhaps the best method possible, since many different brands of stain are available which vary greatly in their total dye strength without any indication to the purchaser as to what their actual dye content may be. Solutions made up as recommended in the previous article will certainly be more nearly constant than those prepared on the basis of dry weight under such circumstances as these; but the procedure is far from satisfactory.

The ideal to be hoped for is this: That every manufacturer of stains print on his label the actual dye content and the moisture content of the particular batch of stain on which the label is placed; and that every one publishing stain formulae prepare them on the basis of weight of *pure dye*. Such staining formulae will be very different from the ones found in the literature at present, because most of the latter were prepared on the basis of stains that were seldom more than fifty per cent. actual dye strength. Of course, it is too much to expect such a revolution in the preparation of staining formulae immediately; but the first step has already been taken in that one of the stain companies has promised to place on every label the information concerning dye strength and moisture content which is necessary. Any one writing a text book or article in which stain formulae will be given is urged to pay attention to this fact and so far as possible to cooperate with the commission in publishing stain formulae in standardized form. The commission will be very glad to cooperate with any one who wishes to adopt this new form of stain formulae and will furnish any necessary information which is available.

COMMISSION ON THE STANDARDIZATION OF BIOLOGICAL STAINS.

H. J. CONN
Chairman

"THE NEW AIR WORLD"

IN SCIENCE of March 30, Dr. William J. Humphreys, under the caption "Three of a Kind," criticizes my recent book, "The New Air World." His criticisms are so lacking in accuracy that I assume you will allow me space in which to answer some of them. It is a fact that I shall be glad to verify with documentary evidence for your inspeciton that this book has been highly commended by many scientists of high standing and that to my knowledge there is not an unfavorable criticism of it except by Humphreys and Alexander McAdie.

In 1910, through the Appleton Press, I published a college text-book called "Descriptive Meteorology." In the preface of this book it is clearly stated that I "consulted with and received valuable aid from Professor W. J. Humphreys on many technical points in the physics of the book," and it is a fact familiar to many officials of the Weather Bureau that Humphreys read every galley proof and every page proof of that book and that I made changes in my original copy as the result of his suggestions and that this book had his approval, as it was intended for the teaching of the observers and others of the bureau with whom he was expected to be in close association in the future. Now any one in comparing this book with the one that Professor Humphreys now so severely criticizes and which he says "contains scores of errors and numerous loose and inaccurate statements" will see that the second book is simply the first book stated in popular language for the lay reader and for pupils of the grammar schools, with the addition of a few entirely new chapters, and these new chapters he has not specifically attacked. Much of what he approved then he disputes now.

First, he objects to the book because it contains material "merely of the grammar-school grade," when in point of fact the author did not intend it for anything more, saying in his introduction: "an effort (is) made to tell a simple story that will awaken curiosity and lead the reader to wish to know more and more of the mysteries of the atmosphere."

Second: he quotes from page 8 of my book the statement that "The atmosphere is thus by the absorption of radiation warmed largely from the bottom upwards, which accounts for the perpetual freezing temperatures of high mountain peaks, although they are nearer the sun than are the bases from which they rise."

Then he says: "This, as any physicist knows, is a wholly inadequate explanation of the phenomenon in question." But he withholds from