UNIVERSITY AND EDUCATIONAL NOTES

IT is reported that three new Italian universities located in the cities of Milan, Florence and Bari were inaugurated with the new year.

THE Michigan College of Mines is arranging to add courses to its curriculum in the lines of electrometallurgy and metallography, and will develop comprehensive divisions in these branches. The new courses will be started during the coming year, as soon as the metallurgical building now being erected is completed and equipment installed.

TWO new buildings to be started during the coming year will mark the beginning of a 50-year building program for Wooster College, Ohio, which will include construction of several additional buildings and the abandonment of two now in use.

AT Princeton University, Dr. Luther Eisenhart, professor of mathematics, has been elected dean of the faculty in the place of Professor W. F. Magie, who has resigned.

DR. L. W. DURRELL, who was formerly the assistant chief in plant pathology at Iowa State Agricultural Experiment Station, has recently been appointed head of the department of botany and plant pathology at the Colorado State Agricultural College.

LANCASTER D. BURLING, formerly of the Smithsonian Institution and of the Canadian Geological Survey, is teaching geology in Vassar College.

DR. CHINGSON Y. LING, who is now at the University of Pennsylvania Graduate School of Medicine, Philadelphia, will return to China this winter to become the head of a department of bacteriology and pathology in the medical college at Shanghai, China.

DR. J. REILLY, assistant state chemist to the Irish Free State, has been appointed professor of chemistry in University College, Cork (National University of Ireland), in succession to Professor A. E. Dixon.

PROFESSOR GERLACH, of Frankfort, has been invited to occupy the chair of physics at the University of Tübingen in succession to Professor F. Paschen, who was recently appointed president of the Physikalisch Technische Reichsanstalt in Berlin.

DISCUSSION AND CORRESPONDENCE

THE REACTION OF THE COTTON PLANT

Two papers have recently appeared in SCIENCE under the title "Alkaline reaction of the cotton plant."[1] While it is clear from the text of these two notes that they refer primarily to dew collected from the leaves of the plant, as studied by Smith,[2] and to volatile constituents which might be dissolved in the dew, as studied by Power and Chesnut (*loc. cit.*), the titles of the two notes might be misleading in suggesting that the tissue fluids themselves are alkaline in reaction. Furthermore, it seems difficult to understand how the reaction of surface moisture can be considered entirely without reference to the hydrogen-ion concentration of the tissue fluids themselves.

During the past four years we have made many hundreds of determinations of the hydrogen-ion concentration of the tissue fluids expressed[3] from mature leaves of Egyptian and Upland varieties of cotton as grown under irrigation in experiments conducted for the Office of Alkali and Drought Resistant Plant Investigations of the Bureau of Plant Industry at the Cooperative Testing Station in the Gila River Valley at Sacaton, Arizona. These have, practically without exception, indicated a hydrogen-ion concentration well on the acid side of neutrality. The average values[4] for the series of Pima Egyptian cotton grown in 1921 range from pH 5.25 to 5.41, whereas for the series of Upland cotton grown under similar conditions they range from pH 5.35 to 5.46. In general the hydrogen-ion concentration of the tissue fluids of the Egyptian type of cotton is higher than that of the Upland type. The hydrogen-ion concentration of the tissue fluids of the F_1 hybrid is intermediate between that of the Egyptian and Upland types, being on the average lower than the Egyptian and higher than the Upland parent.

The fact that the tissue fluids of the cotton plant are acid rather than alkaline is, therefore, in agreement with the great majority of wild and cultivated plants as studied by Atkins, Haas, Hoagland, Truog and others, and as found in large series of unpublished observations by ourselves. In our experience only the tissue fluids of *Mentzelia* of the Loasaceae and all representatives of the Cucurbitaceae so far studied have a neutral or significantly alkaline reaction.

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[1] Mills, J. E., SCIENCE, n. s., 60: 268, 1924; Power, F. B., and Chesnut, V. K., SCIENCE, n. s., 60: 405, 1924.

[2] Smith, C. M., *Jour. Agr. Res.*, 26: 191–194.

[3] Mills (*loc. cit.*) noted no evidence of an alkaline reaction to phenolphthalein when young stems and leaves of cotton were crushed in water.

[4] Harris, J. Arthur, Lawrence, Z. W., Hoffman, W. F., Lawrence, J. V., and Valentine, A. T., *Jour. Agr. Res.*, 27: 295–298, 305–308, 1924. These results have been confirmed by large series of determinations as yet unpublished.