

improvement, \$25,000; for a new art building, \$125,000; for a new organ in Finney Memorial Chapel, \$25,000; subscriptions toward the new athletic field, \$14,300. A large number of gifts, mostly anonymous, go to make up the \$125,000 for the new art building.

DR. BEVERLY THOMAS GALLOWAY, assistant secretary of the Department of Agriculture and previously chief of the Bureau of Plant Industry, has been appointed by the trustees of Cornell University to be director of the New York State College of Agriculture. Dr. Galloway takes the place which was vacated by the resignation of Professor L. H. Bailey and which has been filled this year by Professor W. A. Stocking as acting director.

At the University of Missouri, Dr. I. F. Lewis, of the University of Wisconsin, has been appointed professor of botany, and Professor E. J. McCaustland, of the University of Washington, dean of the engineering faculty and director of the engineering experiment station.

WALTER COLLINS O'KANE has been elected professor of zoology and entomology at the Ohio State University. He graduated from the university in the class of 1897 and has been connected with the New Hampshire station for the past four years.

At Cornell University, George A. Works has been elected professor of rural education in the college of agriculture, and David Lumsden assistant professor of floriculture.

DR. GERTRUDE KAM, demonstrator in psychology at Bryn Mawr College, has been made an associate.

DR. DOUGLAS MCINTOSH, associate professor in McGill University, has been appointed associate professor of chemistry and acting head of the department in the newly established University of British Columbia.

#### DISCUSSION AND CORRESPONDENCE

##### A NOTE ON THE ACCESSORY CHROMOSOMES OF MAN

IN two recent publications in which Montgomery's and my own observations on the accessory chromosomes in man (negro) have

been mentioned, the phraseology of the authors would lead any one who had not read the original papers to the conclusion that there was a decided discrepancy in our results, whereas just the reverse is true. Thus Morgan in his book, "Heredity and Sex," after remarking on my account of the accessories says (p. 245):

Montgomery has also studied the same problem, but his account while confirming the number, is in disagreement in regard to the accessory.

And again Kornhauser, in his "A Comparative Study of the Chromosomes in the Spermatogenesis of *Euchenopa Binotata*, etc.," *Arch. f. Zellforsch.*, Bd. XII., No. 2, speaking of cases in which "the  $x$ -element is in the form of two chromosomes in the male" as found by Wilson in *Syromastes*, continues (p. 280):

Guyer ('10) has reported a similar condition in the spermatogenesis of man. This case, however, would seem to need confirmation, for both Guthertz ('12) and Montgomery ('12) have, in the main, been unable to support Guyer's contention.

This last is certainly a surprising statement for any one to make who has read Montgomery's paper, as the following excerpts from his "Human Spermatogenesis, Spermatocytes and Spermiogenesis, A Study in Inheritance," *Jour. Acad. Nat. Sci. Phila.*, Vol. XV., 2d Series, 1912, well attests. Speaking of the chromosomes of the primary spermatocytes he says (p. 8):

I can confirm Guyer's conclusion that there are 12, of which 10 are bivalent gemini, each dividing in both maturation mitoses, and 2 univalent allosomes (accessory chromosomes) which divide only once in the two maturation mitoses. Guyer's view is therefore probably correct that the number in the spermatogonia must be 22 and not 24 as reasoned by Duesberg.

There is a slight discrepancy in Montgomery's and my account of the subsequent behavior of the accessories but even here we agree in the main, for speaking of the ordinary behavior of the accessories Montgomery continues (p. 9):

This is the usual condition and the one discovered by Guyer.

As a matter of fact, the discrepancy lies in the fact that, in addition to this usual behavior, Montgomery records certain atypical cases as follows: five cases in which the members of the double accessory go to opposite poles; ten cases in which the smaller member of the pair divides, one half going with its customary associate to one pole, the other half going alone to the opposite pole; five cases in which the larger member divides; three cases in which both accessories divide. On looking over my material again since the appearance of this and other papers on human spermatogenesis, and also after the examination of some new negro material received in the meantime, I still feel convinced that conditions for the male negro are essentially as I originally described them.

The most decided differences in accounts of human spermatogenesis are those which obtain between the findings of Montgomery and myself on the one hand and von Winiwarter on the other. The latter finds 47 ordinary and one accessory in the male. It must be borne in mind, however, that Montgomery and I worked on the tissues of negroes and von Winiwarter on those of a white man. I am at present engaged in a study of material from two different white men and although not yet ready to make a detailed statement I can say with assurance that the number of chromosomes is considerably in excess of those found in my negro material.

MICHAEL F. GUYER

THE UNIVERSITY OF WISCONSIN,

April 3, 1914

#### MORAL AND RELIGIOUS TRAINING IN A STATE UNIVERSITY

TO THE EDITOR OF SCIENCE: Chancellor Frank Strong's paper in SCIENCE of November 21, on "Some Educational Problems in Kansas," mentions as one of the great problems confronting education in that state "moral and religious training," saying:

If any were misled years ago into the belief that intellectual training provided sufficient safeguards and moral standards, certainly our experience the last decade must have disillusioned him.

The "if" is a saving word in that state-

ment, to any who might be disposed to disagree with the chancellor, but it still seems a fair question to ask, How otherwise than through the intellect is education of any kind to be conveyed? Also, it would seem to be not altogether out of place to inquire as to exactly what is meant by the terms "moral" and "religious," not to obtrude a discussion of religion in a publication devoted to a quite different purpose, but to make clear the intentions and plans of those, like Dr. Strong, who insist that education is incomplete and dangerous without the application of certain remedies which they have to offer. A few are interested in religion, but all of us in education.

If the meaning of the terms refers to acts of worship, which in their nature are emotional and suggestive rather than instructive, such as prayers, the reading of scriptures and singing of hymns, it is a popular understanding that it is the function of the church to attend to such things, not the high schools, colleges and universities, for in such institutions Jews, Catholics, Greeks, Turks, Chinese, Japanese, Mormons and agnostics often mingle, all with such divergent beliefs touching religion that creedal or sectarian teaching and forms would be wholly out of place. Such students place themselves under instruction to learn the truths of science and history and to study art, literature and languages, not to be proselytized. Like the purchaser of a commodity in trade, they come to buy what they think they need, not what some one else wants to force on them, and if they are forced, in order to get the instruction needed, to take other kinds which are repugnant to their religious convictions, it becomes tyranny.

As to morals, there is no dispute among civilized peoples generally in all parts of the world. Honesty, truthfulness, mercy, forgiveness, unselfishness, restraint of passions, honoring parents—"these and a few others," as Buckle truly said, "have been known for thousands of years, and not one jot or tittle has been added to them by all the sermons, homilies and text-books which moralists and theologians have been able to produce." There could be no objection, of course, to their being taught in the schools if it seemed necessary—