of Mendelism. The basic facts of cytology were originally treated in the second chapter but now follow the fundamental facts of Mendelism and prepare the way for an interpretation of the "Architecture of the Germ Plasm" according to recent researches.

To reduce mathematical formulæ to a minimum is a decided advantage to the lay reader to whom these are confusing; but it is perhaps disadvantageous for the college student, whom we seem to be shielding from even moderate mental effort by continually simplifying subject matter. Underlying all distributions of characters in assortative matings are certain elementary principles based on probabilities and the theory of simple sampling. When the student looks upon a Mendelian population in these terms, he has the advantage of a general fundamental law rather than the knowledge of an individual case. The general lack of this element in approaching genetic problems is perhaps more keenly felt than any other one thing. For example, the standard deviation is not used "since for mathematical reasons it is more accurate" (p. 27); but it is more convenient, and preferable to the average deviation because of its relation to probable error. Again, the sum of a set of observed frequencies should equal the sum of the calculated frequencies in any given series of observations, but they fail to do so in the table on p. 157. In discussing the practical applications the author states (p. 119) that "when ten differing characters are combined in the parental generation there would result over a million kinds of possible offspring among the hybrids of the second filial generation, $(3+1)^{10} = 1{,}048{,}576$." While such a hybrid would produce 2^{10} kinds of gametes which might combine in $2^{20} = 1{,}048{,}576$ ways, so many duplications of type appear that it is misleading to consider each combination as a separate "possible kind"; and in reality there would be only $2^{10} = 1{,}084$ different visible classes (phenotypes) and $3^{10} = 59{,}049$ classes differing in germinal constitution (genotypes). At some points, there seems to be confusion as to an exact definition of genotype. On p. 109, the author states that "There are then . . . nine different genotypes in any dihybrid cross," *i. e.*, 3^n where n = number of allelomorphic pairs. This definition agrees with the current usage, but is hardly consistent with the usage on p. 153 and p. 159. A number of minor errors which always occur in the most carefully prepared texts will without doubt be corrected in subsequent editions.

The revised edition maintains the same attractive and readable style of the original. The volume as a whole has a broad usefulness in the related fields of sociology, psychology, education and medicine. Many excellent new diagrams, remarkable for their lucidness and pedagogic value, help the reader to visualize complex groups af fact quickly. Even the experienced teacher of genetics will find the volume most suggestive and refreshing.

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SPECIAL ARTICLES

THE EMERGENCY FUNCTION OF THE ADRENAL

WE have recently obtained evidence of an emergency function of the adrenal. In some of this work we have confirmed Cannon[1] and his co-workers, who suggested an emergency function for the adrenal. Our method is a modification of Meltzer's[2] denervated eye reaction. The iris is made sensitive to epinephrin by removal of the superior cervical ganglion. Several days later, in order to eliminate central nervous influence, the ciliary ganglion is removed. We have made a study of sixteen cats by this method.

In most animals prepared in this way, stimulation of the moist pinna by rapidly repeated induction shocks will cause a good dilatation of the denervated pupil. Asphyxia for forty seconds will cause almost maximal dilatation. Exposure to cold (immersion in cold water) will usually cause a very decided dilatation after a few minutes, the rectal temperature decreasing meanwhile. As an illustration, a cat whose rectal temperature was 39.0° C. at the start and whose pupil was 0.13 in. in diameter showed the following changes:

[1] Cannon, W. B.: "Bodily Changes in Pain, Hunger, Fear and Rage." 1915, D. Appleton and Co., New York.

[2] Meltzer, S. J.: *Am. J. Physiol,* 1904, II, 37.

Time.....	1 min.	3 min.	8 min.	10 min.
Temperature	39.25	38.20	34.30	33.0° C.
Dia. pupil.....	0.13	0.17	0.34	0.425 in.

After removal of the adrenals and before adrenal insufficiency had time to develop, induction shocks, asphyxia and cold produced little or no effect in the same animals which had previously given good responses with the same stimulation.

Our evidence points conclusively to an emergency function of the adrenal.

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SEALING QUARTZ TO GLASS WITH SILVER CHLORIDE

ALTHOUGH silver chloride has long been used as a cement, the possibility of employing it as a cement for vacuum purposes has perhaps not been thoroughly appreciated. Recent tests have demonstrated that the substance possesses certain qualities desirable in a cement, namely, it melts at 455° C, a relatively high temperature, it adheres to glass and quartz surfaces and forms a joint that does not leak, it does not give off gas in any quantity, and does not decompose readily with time. By means of the silver chloride quartz windows were sealed to glass mercury vapor lamps and gas discharge tubes for use as sources of ultra-violet light.

The silver chloride was prepared by precipitation from an aqueous solution of silver nitrate with sodium chloride. The precipitate was thoroughly washed, dried, and ground to a powder. To fasten a plate of quartz or other material to a glass tube the following simple manipulation was found workable. The end of the glass tube was ground evenly, warmed above 500°C in a bunsen flame and dipped quickly into the silver chloride powder. This adhered to the glass and upon further heating in the flame melted evenly around the end of the tube. The tube was then clamped in an upright position and the plate laid on the top of it. The bunsen flame was carefully played over the tube and the plate until the silver chloride again melted and crawled into optical contact with the plate. Little difficulty was experienced in sealing fused quartz plates to glass tubes, but with plates cut from crystal quartz considerable care was necessary to heat them to the required temperature without fracture. Slow even heating by a furnace would have been better than the bunsen flame. It was found that if the glass tube was either too thin or too thick it was liable to crack near the seal upon cooling. Glass tubing of medium thickness stood the strain well. Of course in such a seal strains exist because of the different heat expansions of quartz and glass, but the fused silver chloride, being tough and not brittle, no doubt yields somewhat and eases the strain.

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THE NORTH CAROLINA ACADEMY OF SCIENCE

THE North Carolina Academy of Science met at the University of North Carolina at Chapel Hill May 5 and 6. Thirty-five new members were added, making a total of 163. The North Carolina Section of the American Chemical Society and the North Carolina Physics Teachers' Association met at the same time and place. The following officers were elected: (Academy) *President,* Dr. A. Henderson, University; *vice-president,* Dr. H. B. Arbuckle, Davidson College; *secretary-treasurer,* Dr. Bert Cunningham, Trinity College; *executive committee,* Dr. H. N. Gould, Wake Forest College, Professor J. P. Givler, North Carolina College for Women, Dr. B. W. Wells, State College. (Chemists) *President,* Dr. A. S. Wheeler, University; *secretary,* Mr. L. B. Rhodes, Raleigh. (Physics Association) *President,* Dr. A. H. Patterson, University; *vice-president,* W. T. Wright, North Carolina College for Women; *secretary-treasurer,* Professor A. L. Hook, Elon College; *executive committee,* Professors C. W. Edwards, J. B. Derieux and A. F. Roller.

In addition to the address of welcome by President Chase of the university and the presidential address, "The search for the ultimate atom," by Professor J. L. Lake of Wake Forest, the following papers were presented:

The variation of the photoelectric current with thickness of metal: OTTO STUHLMAN, JR.