Normally the number of chromosomes is reduced by one half when the embryo-sac mother cell divides. In *Alnus rugosa* there is no such reduction. The pairing of homologous chromosomes does not take place so the embryo-sac initial has the sporophytic or diploid number of chromosomes, twenty-eight.

From one to four embryo-sacs may form in one ovule from as many embryo-sac mother cells. Embryos arise in these embryo-sacs from the diploid egg, which, of course, has not been fertilized (parthenogenesis) and by budding of the nucellus. Well-developed embryos appear to have had their origin in the synergids and the antipodals. Such embryo formation would be cases of apogamy. Several very interesting preparations suggest the origin of certain embryos from the endosperm. One ovule, in particular, has an embryo from the diploid egg and another embryo forming in a massive endosperm, being completely surrounded by it and bearing a suspensor, the cells of which merge into the endosperm material. Serial sections show that this embryo is not connected with the nucellus at any point. The initial stages in embryo formation from synergids, antipodals and endosperm have not yet been observed.

One to five embryos may mature in one embryo-sac. Several embryos may mature in each of two embryo-sacs in the same ovule. Germination tests show that two embryos from the same seed can both develop to normal seedlings.

Polymorphism, irregular mioses, parthenogenesis, apogamy, nucellar budding and polyembryony all point to a hybrid origin for *Alnus rugosa* of the New England region.

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A BOMBARDING DICAELUS BEETLE

I AM writing concerning an experience that I had with a ground beetle on November 3, 1928. While the Pi Chapter of Phi Sigma was having a picnic at Stone Mountain, several of the members were collecting various specimens. I turned over a rock and picked up a species of Dicaelus, and while I was holding it between my thumb and forefinger and using the other fingers to unscrew the cap from the cyanide bottle, it gave off a very strong discharge of gas which turned to a dense smoke. This appeared to come from the anterior end of the beetle, instead of from the posterior end as in the genus Brachynus. I placed it head first into the bottle, when it gave off another discharge, which also appeared to come from the side of the head. The bottle was filled so densely with this smoke that the beetle was almost entirely hidden; when I took off the cap to show several of the party, the smoke escaped to a distance of over a foot from the bottle. I am very anxious to hear from any reader of SCIENCE that has had a similar experience with a beetle of the genus Dicaelus. I have known several Brachynus beetles to discharge the gas, which always appeared to come entirely from the posterior end of the body.

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QUOTATIONS

THE SEVENTIETH BIRTHDAY ANNIVERSARY OF THEOBALD SMITH

ANNIVERSARIES play an important part in national life as they do in one's personal experiences. They serve not only to arouse retrospect and encourage a review of what has gone before, but also to awaken an interest in the impending possibilities of the future. The experience of the past tends in no small measure to kindle new enthusiasms for what coming years may reveal, or to dampen an ardor for plans and projects that history has indicated to be futile or unlikely to be accomplished. It has become customary to select the centennial anniversary of the accomplishment of some notable purpose or the birth of a distinguished person for the celebration of achievement and the review of its significance and bearing on progress. It seems equally fitting at times to refer to significant contributions before their consequences have become so familiar that the merits of the maker are all but forgotten.

The seventieth birthday anniversary of Theobald Smith, at the time of his announced retirement from the active directorship of the Department of Animal Pathology of the Rockefeller Institute at Princeton, N. J., affords a welcomed opportunity to hail one of the eminent American contributors to the advancement of science and the development of medicine. The demonstration of the existence of insect vectors in the transmission of disease—a phenomenon that the medical student of to-day, only a generation after the epoch-making discovery, accepts without debate or hesitation—marked Smith as one of those rare pioneers who sense great opportunities, who see what others have persistently failed to observe, and who have the strength and courage to give force to their convictions.

A popular writer has remarked that it was Theobald Smith who made mankind turn a corner. "He was the first, and remains the captain of American microbe hunters," showing men an entirely new and fantastic way in which a disease may be carried—by an insect. It is fortunate as indeed it is gratifying that with the progress of popular education the significance of such a discovery may to-day be thoroughly appreci-