

twisting, welding, upsetting, hardening, tempering, annealing and brazing.

Sheet-Metal Work—Processes, with and without heat. Surface fusion—Soft soldering with copper bit, blow pipe, bunsen burner, silver soldering.

4. Theory and Practice of Manual Training.

5. Thesis.

**Correlated Course for Nature Study Students.**—This course includes wood-working, the making of such objects as are useful in connection with Nature Study and School Gardening—plant labels, flower sticks, garden reel and stake, germinating box, spread board, bird's nest-box, bee hive, sundial, insect cages, etc. Much of the primary constructive work and the art of the regular Manual Training Course is also embodied.

During these short courses we endeavor to make the course as practical as possible so as to lead the students to see and to realize the close relation between the hand and the head, doing and knowing, and that this kind of work secures most valuable results in many directions, as it furnishes a new field for perception, for when the child represents with pencil or brush or by construction, he learns to observe closely and to discriminate values which are involved in correct observation; it trains his hand and eye to co-operate with judgment and learns to observe, to test values in symbols; and trains his eyes and interpreting judgment to co-operate with hand and will in obedience. Form making of cardboard requires the projecting of plan, a judgment in use of material, laying out of work, cutting it, fitting it, and putting it together. This work involves the exercise or application of arithmetic. It is the handmaid of geography, of history, of literature. In them lie the satisfying activities for the child. These exercises give the utmost pleasure and prevent exhaustion by creating energy in accomplishing a result, getting the thing done. The

child's interest is not restricted to the work of the objects, by means of which he makes his start in feeling, knowing and doing, but he has perhaps a greater interest in institutions of the social world, of which he forms a part. The start in knowing and doing is made here, as in the object world, by contact with experience in participating and interest in the forms or parts whose construction satisfies him, gives him pleasure, and whose purposes affect him. The adjustment of a block of wood to a specific place for a specific purpose is training definite and valuable. The folding, creasing and cutting of a piece of paper, making a definite form of a definite size for a definite end, is Manual Training as valuable as the making of a pattern for a piece of machinery.

Probably the greatest and most varied development that has taken place is along the lines of Optional Courses for the students attending the Domestic Science Department and others—plain carpentry, woodcarving, art metal work, basketry, and color work. The aim of this instruction is to give the student a training, an appreciation of the beauty that lies in simplicity and soundness of construction. Use and beauty are closely related, and it is not possible to have either in its highest degree without the other. In making useful things as well as possible, the pupils acquire a sense and a taste for the beautiful. Make a thing useful, and the useful will be beautiful in order to do it. The application of taste to home surroundings and every-day affairs; an inculcation of the harmony of colors and their happy combination in the home will do much to beautify the life and to dissipate the common idea that beauty of furnishing consists in profusion of decoration and color; that a tastefully-furnished and decorated home must be like a crowded furniture store and a blaze of glaring colors.

John Evans.