THE WOMAN'S BUILDING, ATLANTA, GA.

The building represented in our illustration is by far the prettiest structure in the Cotton Exposition grounds. Classic in its design, the Woman's building is the one object that attracts the attention from any point of view taken from the terraced heights. It is unlike the larger structures in that it is divided into stories; the first or ground floor being used as an emergency hospital and kindergarten, the main floor with broad hall and stairways leading to a third floor above. The three stories or floors are subdivided into rooms, and in these are displayed the handiwork of women, in painting, etching, architectural designs, embroidery and many works requiring delicacy of touch united with skill and taste in execution.

The building is 150 feet by 128 feet and was designed by Elise Mercur of Pittsburg, Pa. Our illustration was taken from the landing of a flight of steps leading to the Plaza; statues of heroic size ornamenting the balustrades.

Science Notes.

New Process of Tanning.—In order to hasten the process of tanning, says the Revue Scientifique, Messrs. Bake and Leverett pass a current of hydrogen gas or a current of some gaseous compound of hydrogen containing a certain quantity of arsenic through the liquid in which the hides are immersed. They obtain the hydrogen either from the action of commercial sulphuric acid upon zinc or iron or from that of steam upon iron. They calculate, in fact, that in this case the hydrogen obtained will contain a sufficient quantity of arsenic. The gas, collected under pressure in a gasometer, is introduced into the bottom of the tanning vat through a pipe provided with a series of apertures. After bubbling up through the liquid it flows out through another pipe affixed to the cover of the vat. Vats of very large dimensions are employed, and the tanning proceeds very rapidly.

A New Asphalt Beton.—The Austrian Militair-Comite has been testing a new asphalt beton introduced under the name of "Lavoid beton," and recommended principally because it hardens quickly. It is an earthy brown powder, which has a slight odor of tar and consists mainly of sulphur and iron slag. The analysis made in military laboratories yielded: Sulphur, 33·53 per cent; tar, 8·21; iron slag, 57·83; and water, 0·43. The iron slag contained: Silica, 43·01 per cent; ferrous oxide, 22·42; alumina, 30 9; and lime, 4·16. The hardening is ascribed chiefly to the formation of an iron sulphide, the tar acting as a reducing agent. From this point of view, the silica, clay, and lime would be useless, though they might combine at a slower rate; the committee, however, styles them impurities simply. For the tests, plates of from 3 to 6 inches square were formed by pouring the melted lavoid over heated small granite. The material proved quite brittle and not able to resist blows, but was found to withstand high pressures.

Induced Draught.—The "induced draught" trials of the Magnificent, says the Broad Arrow, have proved beyond question the superiority of the system to that of "forced draught." Induced draught is simply this: Fans are placed in the uptakes or funnels and draw the air through the furnaces, so that the more air that gets into the engine rooms and stokeholes, the better. There is no rushing of air, no unpleasant air pressure; whereas in the forced draught system everything is battened down and air is forced into the furnaces under pressure, generally with disastrous effects, such as fused fire bars and overheated furnaces. At no time during the four hours' trial did the temperature in the engine rooms or stokeholes rise above 78°, although it was an exceptionally hot day. Mr. Penn and the Admiralty officials, who were on board, were more than satisfied with the results. The engines worked without the slightest hitch from beginning to end, making 105 revolutions and working up to 1,200 horse power. The speed obtained was 17·63 knots, or 20·25 miles per hour. By the time the four hours' trial had finished the Magnificent had passed Hastings, having skirted the coast from the Nore, passing close to Ramsgate, Margate, Walmer, and Dover. The great test having concluded, Lord Charles Beresford, who was in command, and never left the bridge until he dropped anchor again at the Nore, tried the ship's turning powers with both engines full ahead, the circle being completed with a diameter of about 340 yards. He then stopped dead, and went full speed astern, reversed engines at full speed in opposite direction and did his utmost to find a weak spot; finally this splendid ship returned to her anchorage under natural draught, making 16 knots easily.

The Present Status of Walnut.—As a fancy wood, either for furniture or house finishing, says an exchange, walnut has yielded most of its prestige to oak, and the bulk of our American walnut wood now goes abroad, the greater portion of it being taken by Germany. At least 80 per cent of it is shipped to London, Liverpool, and Hamburg. There is no reason why it should have fallen into disfavor, but the fact remains that it is unfashionable in this country and it must go. The foreign shipments run along between three and a half and four and a half million feet, and the bulk of it comes from Kentucky, Tennessee, Ohio, Indiana, Texas, Arkansas, Missouri, Iowa, Illinois, and Pennsylvania. The finest shipments of the present year have been from Texas, but, as a rule, Indiana walnut is the best. Kentucky has more than any other State, but it does not average as high as Indiana. Walnut is graded into "firsts," "seconds," "rejects," and "culls," and the price varies from $18 to $20 for culls and $35 to $40 for rejects to $70 per thousand for firsts and seconds. The best grade of walnut is forest growth, what is known as "cornfield walnut." This is hard and irregular, with more or less windshakes. Walnut trees are worth from one dollar up, according to their accessibility, and there is no rule for finding them. A tree should be at least 16 inches in diameter, while some trees go up to over 50 inches; and a log over 60 feet in length is occasionally found. As a rule, however, walnut branches low, and short logs prevail. Figured walnut is a specialty and is used for veneering. Its price varies from six cents to a dollar a foot. One man in West Virginia is said to own a figured tree that cost him a thousand dollars, for which he asks four thousand, having refused three thousand. There are over six thousand feet in it. A walnut tree is at its best at about fifty years of age, or rather it should live that long before it is cut down for the market.

Our competitors in the European markets are Italy and Circassia, the latter furnishing "Black Sea" walnut. The so-called "French burls" that are shipped to this country to some extent are not French at all, but Circassian, shipped to Marseilles and reshipped from there. The Italian walnut is small and not of as good quality as the others.

As might be suspected, New York is the leading point of consumption in America, and the largest amount is shipped abroad from there, though some goes from Baltimore and Norfolk.

Carbide of Glucinium.--Glucina, as well known, has up to the present been placed among the oxides irreducible by carbon. Now the recent labors of Mr. Moissan have considerably diminished the number of such oxides and shown that, in many cases, the reduction can be effected with the aid of a sufficiently intense source of heat. In following the same order of ideas, Mr. P. Lebeau has undertaken some researches upon glucinium and its compounds. The pure glucina that he used was obtained from the emerald, which is its principal mineral. Then, by heating in the electric furnace a mixture of oxide of glucinium and carbon, he obtained, not the metal, but a definite carbide, pure and crystallized, the preparation and properties of which he recently made known to the Academy of Sciences.

His conclusions are as follows: (1) The properties of pure, crystallized carbide of glucinium, and, more particularly, the action of water, which decomposes it cold with the disengagement of methane, make it so closely resemble carbide of aluminum, C^3Al^4, that Mr. Lebeau has been led to attribute to it the formula C^3Gl^4. (2) Under such circumstances, the atomic weight of glucinium would be, say, 14, and glucina would become a sesquioxide with the formula Gl^2O^3.

The Vanderbilt Arboretum.

All those Americans who are interested in the material welfare of their country will watch with interest what Mr. George W. Vanderbilt is doing on his North Carolina estate. Mr. Vanderbilt, as is well known, is making on his estate a sort of model forest, where scientific forestry is to be practiced, and experiments made in acclimating valuable foreign trees, and in the most profitable management of the native species; but every one does not know that his plan includes horticulture and agriculture as well as forestry, and that he wishes and hopes to make his experience valuable to American farmers and land owners everywhere. With this view, he proposes to build on his property a little village, including not only a hotel, but houses and stores, where people interested in agriculture, who come properly introduced, may rent rooms or houses for themselves and their families, for such time as they may desire to study the work going on upon the estate. There can be no doubt that there will be plenty of applicants, for nowhere else in this country can such opportunities for advanced study of the sort be found. Fortunately for his countrymen, Mr. Vanderbilt is not only able, but willing, to expend large sums of money in experiments which may return, for the present, nothing but advances in scientific knowledge; and it is just these experiments which are perhaps, in the end, most valuable to the country.—Amer. Architect.

THOSE who hold that no man can avoid his fate may find support for their doctrine in the experience of Charles J. Weller, of Elkhart, Ind. He was employed in grinding at an emery wheel, but, regarding the position as dangerous, handed in his resignation. Five minutes before the time for ending his last day at the work the wheel burst and killed him.—Philadelphia Ledger.

Correspondence.

The Strangest Insect in the World.

To the Editor of the SCIENTIFIC AMERICAN:

With reference to the article on the above subject in No. 1, Vol. lxxiii, of the SCIENTIFIC AMERICAN, will you permit me in the interests of scientific pursuit to remark that up to the present the moth which produces the caterpillar attacked by the fungus Sphaeria Robertsii is not known to scientists, though it is surmised to be a member of the genus Hepialus or swift moths of Europe? It was formerly thought to be Hepialus virescens, the giant green moth of New Zealand, called by the Maoris pepe, but that cannot be, as virescens is a wood borer and undergoes all its transformations chiefly in the lower parts of the trunk of the New Zealand currant or wine berry tree, Aristotelia racemosa, and occasionally in other trees, such as manuka, leptospermum, the black maire, Olea apetela, etc.

The vegetable caterpillar, hotete (Maori), evidently pupates in the ground, and some must escape the attacks of the fungus spores to perpetuate the species, though the pupa has yet to be satisfactorily accounted for. From information obtained by my eldest son, G. H. Grapes, from the Maoris at Otaki, North Island, it appears that the grub or caterpillar pepeaweto (Maori) which begets this curiosity is dark olive green, about 3 inches long and found an inch or so beneath the surface of the soil, but, so far as I can ascertain, has never been seen by an entomologist. Specimens in my possession prove that the head is not the sole point of attack, but that both extremities are attacked indifferently; indeed, my experience tends to the belief that the anal extremity is the oftener selected by this singular and mysterious parasitical growth. The twig-like woody appendage is sometimes forked, and in one of my specimens exceeds 9 inches in length. The attacks of Robertsii seem altogether confined to the extremities of the caterpillar, unlike an allied British species, Isaria farinosa, which attacks the larvæ of the cabbage moth, Mamestra brassicæ, on the anal, dorsal, and abdominal regions indiscriminately. Parasitic fungi are met with in Australia and other countries which attack living and dead larvæ, pupæ, etc., consisting of upward of twenty-five recorded species, but none are so conspicuous or so remarkable, that I am aware of, as Sphaeria (formerly Torrubia) Robertsii, examples of which may be seen in many museums. Finally, I would observe that "Aweto" is the Maori appellation for the larva of the New Zealand convolvulus hawk moth, Sphinx convolvuli, frequently seen feeding on the kumara or sweet potato, Convolvulus chrysorrhizus.

GEORGE J. GRAPES.

Caerbroi Paraparaumu, North Island, New Zealand.

How to Make a Million.

A sprightly little sheet call Results, published in Chicago, devoted to advertising, gives an account of a meeting of prominent business men in St. Louis. It was, in fact, a meeting of commercial clubs of several cities, and among those present were a number of millionaires who were interviewed with the question, 'How can a man make a million dollars?" and these are some of the brief replies:

George M. Pullman: "Could not tell you—really, I could not. I did not come down here to be interviewed, and, anyway, this is too short notice to give a comprehensive opinion."

Marshall Field: "Oh, pshaw! What do you ask such a question for? There is no general recipe that I know of, unless it be industry, economy and a cheerful disposition."

P. D. Armour: "Oh, my gracious, what a question! I have lost my patent for making money, and now don't know any more about it than anybody else. Go ask Marshall Field. He is making lots of money now."

Lyman J. Gage: "I did not come here to talk about money making. It occurs to me that men who want to make money will know how and where to proceed."

Charles Fargo: "What do you ask me for? I've got no money. Pullman could tell you, if he would."

N. K. Fairbank: "I could not give you a rule, for there is no such thing in money making."

Marvin Hughitt: "Work like the devil, and hold on to what you make. A man must solve his own problem—nobody can do that for him."

Franklin MacVeagh: "Well, that is a poser. I will indorse all that Mr. Hughitt has said, however."

E. M. Phelps: "Go talk with those men who know—I don't."

Which all goes to show, adds Results, that the reporter went to the wrong people. He should have interviewed the "financial experts." It is clear that this reporter never did any interviewing for an advertising journal.

What does a millionaire know about making money, or a successful advertiser know about advertising?

The men who have really done anything never want to tell how they did it.