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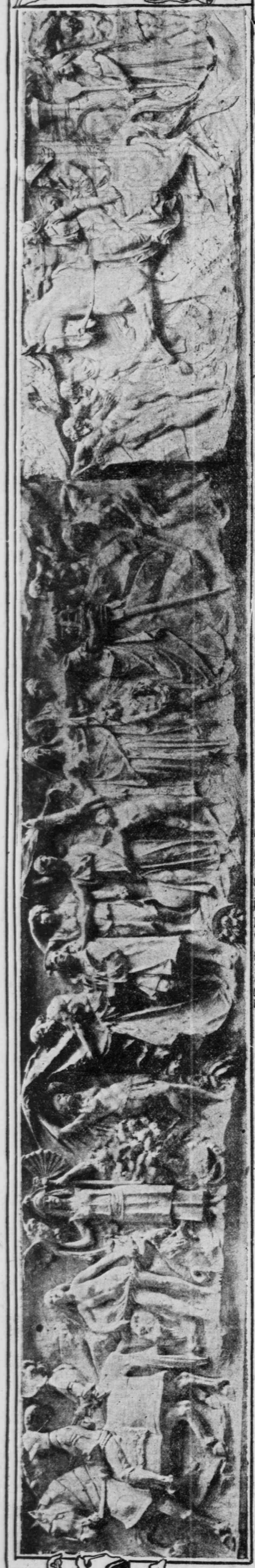
Monuments of Art at Stanford University



FRONT OF THE FRIEZE

TEN years ago Stanford University opened its doors to students. Much was written about its unique buildings, and those handsome structures, modeled on the California missions, and the long vistas of their arcades became familiar to all readers of magazines. In the past three years a transformation has taken place on the Stanford campus. New buildings have gone up following one another in surprising rapidity—buildings that fit into the general scheme perfectly and that compel the commodious structures of the inner quadrangle to surrender their proud distinction in American architecture.

The building of the outer quadrangle was begun in July, 1898, and has progressed with so little fuss and feathers that the public knows almost nothing of the rapidly changing environment at Stanford, and even people who have not been upon the campus within the past year stand dumfounded now in the presence of the glory of the new structures.

California owes its debt for the architectural beauty of the Stanford University buildings to Shapley, Rutan & Coolidge, the successors to G. R. Richardson, the famous Boston architect.

The great stretch of wide corridored buildings, sharply outlined against the background of the Santa Cruz Range, presents a picture the beauty of which never fades from the mind. The color scheme is not equaled in the world—buff of sandstone buildings and deep red of tiled roofs against the green of lawns and foothills and the indigo blue of the background of mountains.

The new buildings are mainly the parts of the outer quadrangle. In the center, facing the drive from Palo Alto, is the memorial arch. East of it is the assembly hall, and the Thomas Welton Stanford Library stands next. To the west is the geology building and next to it the zoology and physiology buildings, both nearing completion. At the corner of the quadrangle and stretching back along the side is the physics building, while the history building occupies the corresponding space at the opposite corner. The walls of these are up, as also of two buildings still unassigned at either end of the quadrangle and stretching back to the center of the ends of the quadrangle.

Along the front of the connected buildings of the outer quadrangle is a continuous arcade, 894 feet in length. The old quadrangle, which will be inclosed within this imposing array, is itself composed of twelve buildings inclosing a paved court 586 feet long and 246 feet wide.

The memorial arch ranks as the greatest monument of its kind in America and is a worthy rival of the great Arc de Triomphe. It is a hundred feet high, eighty-five feet wide and thirty-six feet in depth. The opening is sixty-four feet high and forty-four feet wide.

The frieze surrounding the arch, which has just been completed, is one of the greatest achievements in modern sculpture. It was designed by St. Gaudens and the modeling and carving was done by Rupert Schmid. Its colossal figures, of which there are more than a hundred, are about twelve feet high, and they stand out in deep bas-relief, presenting exactly the contour of statues. The procession of figures represents the "Progress of Civilization."

The central figure of the front of the frieze is Civilization—the beginning and the end of the procession. In her the frieze has its motif and inspiration, and in her the story culminates at last. In her right hand she holds her torch. At her back are Culture, Meditation and Amnesty, while the Genius of Civilization takes the torch from her hand. Next is Providence, and behind her the goddess of past and the goddess of future events—the Postverta and the Anteverta—and at her feet are the cornucopia and the globe.

She intrusts the torch to Columbus, who, opposed by the spirit of medievalism, tears the veil from America. Pizarro and Cortez now appear, mounted, tearing down the idolatry of ancient America and preparing the way for Christianity. The corner of the arch is decorated with the chief Aztec divinity.

At the end of the arch is the figure of a missionary preaching to a group, and the cross emerges from the ruins of the temple. Liberty protecting religion and the Pilgrims landing at Plymouth Rock follow. At the corner of the frieze is Wisdom.

The rear of the frieze, that portion facing the inner quadrangle, bears a procession of figures representing the thirteen States, each carrying a shield and all led by Washington, accompanied by two generals. Columbia is the central figure of this side of the frieze. Abundance points the way westward. Three mounted grazers and cattle, by their side the god Pan, Ceres, accompanied by mowers and reapers and plowmen, and an allegorical figure representing mining, complete this side of the frieze.

The march of the industries continues across the portion of the frieze around the other end of the arch. Here is electricity, steam, science, knowledge, philosophy, with the mirror of introspection, medicine, metaphysics, and mathematics with her compass.

Coming to the front of the arch again, as the procession approaches the central figure there are depicted events in the history of California. Titans hold up the mountains which the railway enters. Equestrian figures and workmen cleaving the rocks are followed by the locomotive and the genius of engineering controls the work. Civilization, the central figure, points to the accomplished task and rewards it through her genius.

The Leland Stanford Memorial Church is the most imposing building on the campus and when completed will be the finest church in the West. Its total height is 175 feet. To the second gallery it is 100 feet high. The spire will accommodate the great clock and chimes. There are two galleries, one in each transept. The organ, heard with so much pleasure during the Epworth League convention, is being placed in the front gable nave.

The interior of the church is sandstone most beautifully carved, and mosaics and stained glass windows by Lamb and Tiffany, reproducing the great paintings of the Vatican, will complete the interior decoration. The church is the central building of the rear part of the inner quadrangle, and the only one not built before the opening of the university. The Assembly Hall, completed now two years past, has a frontage of 108 feet. It has a seating capacity of 1700, and 2000 people can easily be accommodated in it.

The Thomas Welton Stanford Library was built of a legacy—$300,000—which Senator Stanford gave his brother, the Australian millionaire, and which was given back by the brother to the university for the library building. Practically the entire amount was spent on the building.

The geology building has a frontage of 120 feet, and a depth of 75 feet. The zoology and physiology building's frontage is 200 feet, and its depth 100 feet. It has a large exhibition hall, 100 feet square, the first floor with a fire-proof floor of expanded metal.

The history building has a frontage of 120 feet and a depth of 50 feet, and the physics building, at the other corner of the quadrangle, has the same dimensions. All of these buildings are two stories high and project over the arcade running the length of the quadrangle. Arcades at either side of the memorial arch and at the ends connect with the inner quadrangle arcades, until the place seems a maze of pillars and arches.

The two one-story buildings in course of erection at the ends of the outer quadrangle are each 75x50 feet.

The chemistry building stands apart from the quadrangle half way between it and the museum. It is 223 feet long, 72 feet wide and three stories high. All the working laboratories have fireproof floors and the building is a model for its purposes. An annex in the rear for assaying is now in use, and the building will be ready for occupancy about January 1, at which time it is expected that all the buildings now in process of erection, except the church, will be completed.

The most amazing thing about this stupendous undertaking is that the buildings are being erected from the university's vast income, not a dollar of the endowment being disturbed. Mrs. Stanford is naturally anxious to see the building scheme completed during her lifetime, and it is understood that work will begin next summer on the remaining buildings of the outer quadrangle.

NORTH SIDE

EAST SIDE

NORTH SIDE

INFANTRY ARM OF THE FUTURE

WHEN the present small-caliber rifles were first introduced there were many criticisms on all sides, but gradually the critics became silent and the new weapon was accepted without further objection.

The outer form of the various models constructed between 1886 and 1889 is materially different from that of earlier types. The addition of a jacket or mantle for the tube and the attachment of the magazine, however, were not conducive to a convenient shape of the rifle, although a more convenient form is much desired by the soldier.

In the last decade it has been found that the outer jacket could be dispensed with and the weight thereby considerably reduced, at the same time giving the piece a more manageable form.

Reduction of weight has been the constant effort of the manufacturer and inventor of late years, and it is greatly desired for service. The present models vary in weight from eight pounds to 9.92 pounds, the United States Krag-Jorgensen weighing 9.355 pounds. High authorities are of the opinion that it is not asking too much of manufacturers to have this weight reduced to 7.15 pounds, and it is believed that this will be the weight of the infantry rifle in the near future.

The objection that this will increase the shock of recoil too much will not hold, as it can be overcome by finding a proper propelling agent. The Vetterli gun (model of 1869-81), weighing 10.14 pounds, had a force of recoil of 1.2 meter-kilograms, and did not incommode the soldier. The Mauser gun (model 1895), weighing 8.7 pounds, had a recoil of but 0.85 meter-kilograms. It is only a question of finding a propelling agent which will give a practically constant pressure while the projectile is in the bore.

It may be assumed as quite certain that in the near future the infantry arm will utilize the force of recoil to open, compress and close the breech mechanism. Until the proper propelling agent is found, however, it will be impossible to construct a suitable infantry arm of this kind.

The question of caliber has also come up again. The Spanish-American and the South African wars have shown that small-arm projectiles of 0.236, 0.276 and 0.303 inches diameter produce, in the majority of cases, wounds which do not put the wounded out of action even temporarily, not to speak of incapacitating them for a war of any considerable duration.

The surgeons of these wars are unanimous in the opinion that these modern projectiles are really as humane as was reported when they were first adopted. Even as early as the Graeco-Turkish war Dr. Edmond Lardy reported that "our small-arm projectiles did not arrest the cavalry at all, and the infantry only very inadequately." And Dr. Hildebrandt, surgeon in the Royal Prussian infantry, reported in regard to the South African war: "More than a third of the wounds, unless the projectile strikes a nerve or large vessel (which is rare), are so light that the wounded are able to march on, and even to continue to fire, while the pain is scarcely felt. In case of horses, even when fatally wounded, they can go a considerable distance before breaking down."

The small caliber, of course, enables a large number of rounds to be carried, but this is of little advantage if the projectile does not kill; moreover, to give the piece the same life it must be made thicker in the barrel, consequently heavier, and so the advantage of the small caliber is neutralized. This refers to calibers below 7.5 millimeter, as compared with one of 8 millimeter. Again, the 8 millimeter projectile (with the same muzzle velocity) will be superior to the smaller calibers at long ranges, because it will retain a greater energy and will be less affected by air currents acting across the plane of fire.

It may be possible, perhaps, to construct guns of very small caliber (under 0.3 inch) which will fulfill all requirements, but the present indications are that the rifle of the future will have at least a 0.315-inch bore and probably greater.

The question of a practical sight is at least as important as that of caliber. The sight should be very simple in construction, admit of quick and certain adjustment for every range and of easy supervision by the squad leaders, and possess an extended field of view. Above all, it should admit of quickly catching the target, which would indicate the open ring sight as the best, such, for example, as is used in sporting rifles, where the same quality of quickly catching the target comes into play.

Another requisite is a simple and reliable range finder, since the best sight may prove dead capital without it. Finally, there must be an arrangement to prevent firing too high; it is much less important to continually raise the ballistic power of a firearm than it is to arrange it so that the soldier is automatically compelled to fire approximately right. This matter has been referred to by many high authorities of late. The Belgian Lieutenant d'Aout says: "Give the soldier as soon as possible a gun which approximately points itself." Lieutenant General Rohne of the Prussian army adds: "I consider it quite possible to construct a rifle which can be fired only at elevations under 3 or 5 degrees, giving a maximum range of 1970 yards, and entirely preventing firing at elevations now possible. Of course, this is only for ordinary use; there must also be a special arrangement to admit of the use of higher angles." It is believed that ordinarily no range over 1750 yards will be required, and the modern graduations to 2190 yards are of no practical use.

The bolt and the movable (but not detachable) magazine will remain, as they have proved their efficiency.

The bayonet is still essential, but as it has become a dagger in its use it will have a shape to correspond.

All bands, etc., will probably be made of aluminum alloys, such as magnalium, to reduce the weight.

The small arm of the future will, therefore, weigh about 7.15 pounds (without bayonet), its caliber will be .315 to .373 inch; it will have a bolt block, a movable (but not detachable) magazine holding five or six rounds, a simple ring sight, with an arrangement to prevent firing too high, and a pistol grip. The plates, bands, etc., will be of magnalium or some similar light metal, and the bayonet a four-cornered dagger.

This is the weapon which the modern authorities on tactics would like to see in the hands of the infantry soldier, and believe will be ere long.—New York Sun.

REAR OF THE FRIEZE