hundred and fifteen are in the Training Department. All students applying for permission to attend the Normal are requested to sign a statement that they desire to fit themselves for teaching, and also bind themselves to teach school after leaving the institution. The Preparatory Department is of a more recent creation. There were many students, we found, who would come from a long distance, and when examined for admission would fail in one or perhaps two branches, or, it might be, would not be quite sixteen years of age. These are now received in the Preparatory Department, and, as the law directs, are charged a tuition fee of $30 a year until they are admitted regularly into the Normal proper. The Training Department, consisting of three grades, is where the students of the Senior class are trained to teach. Each member of that class is required to teach five months during the year, and this is as much a part of the Normal course as that of studying and reciting lessons. And in granting diplomas, the record in the training school is equally as important as that of the class-room. In many cases it is more so; for every year we are compelled to deny diplomas to two or three members of the Senior Class, whose scholastic averages are excellent, but who strand in the Training School. These often go out and teach one, two, or three years, then return and satisfy us of their ability to properly conduct a school, when the diploma is given. The five hundred and forty-two students are divided into fifteen classes, the number of each class varying from thirty to forty-seven, and in one class reaching as high as fifty-six. Once a week—usually on Saturday afternoon—all the classes are given special instructions in the art of teaching. Each year we are devoting more and more attention to this essential branch of the work."

Respectfully submitted.

GESFORD, Chairman.
CALIFORNIA LEGISLATURE—ASSEMBLY.

TWENTY-FIFTH SESSION.

IN ASSEMBLY.

ASSEMBLY CHAMBER, Sacramento, February 15, 1883.

Mr. Speaker: The Committee on Education have visited the State University, Deaf, Dumb, and Blind Asylum, and San José State Normal School, and have to make the following report on the same:

UNIVERSITY.

The committee spent the greater part of the three days they were absent—that is, two days at the University—and made as thorough an investigation of the institution as this limited time would permit.

The committee find that the University is undergoing a fair degree of prosperity; that the faculty appear competent and industrious, and to be doing all in their power to advance the material prosperity of the University; that the under-graduates are making good progress in their various studies, and that the general discipline of the institution is good.

Where so many are doing excellent work, your committee do not think it invidious to call attention especially to the work done in some of the departments.

Professor Hilgard, in addition to the many requirements imposed upon him as a teacher of the various classes under his charge, has been doing much outside work, very beneficial to the State. He has made a map showing the general character of the soil throughout the State, which will be of great value to the farming industry. The map shows both the chemical and mechanical composition of the soils of the State, and their distribution. The Professor has also spent a large portion of his time in answering inquiries and investigating questions of practical importance to the State’s agricultural interests. He has shown, by investigation, that the waters of Tulare and Kern Lakes are too strongly impregnated with alkali to be applied with safety in irrigation. This alone saved to proposed investors thousands of dollars, and preserved from ruin thousands of acres, thus saving to the State many times the cost of the whole agricultural department of the State University. He is ably assisted in this work by Professor S. H. Dwinelle.

The committee also desire to call attention to the fact that the sums set apart by the Board of Regents for the Agricultural Department of the University seem utterly inadequate to its demands, and not in conformity with the Act of Congress bestowing an endowment upon the institution, to be used especially in the advancement of industrial education, and naming agriculture especially as a branch to be nourished. It appears that an annual appropriation of but three thousand dollars or four thousand dollars is not doing justice to the provisions of the Act, and that the College of Agriculture is decidedly crippled, both in equipment and faculty. The large horticultural and grain interests of the State demand that a chair of entomology be at once established, and that instruction be given, thorough and complete, in all that pertains to insects beneficial and injurious to vegetation.

The large stock interests of the State are demanding thorough instruction in the diseases incident to domestic animals. The scab in sheep alone is annually costing the State more than the whole cost of the State University; and the diseases among cattle, horses, and hogs are only adding to the cost. A professor of veterinary medicine and surgery would very soon
pay the cost of his salary in the instruction which he would give, and the beneficial effect that would follow even an ordinary acquaintance, spread throughout the State, with the various diseases that affect our domestic animals. With Professor Hilgard and Professor Dwinelle occupying the positions they now hold, and the chairs of entomology and veterinary medicine well filled, the College of Agriculture of the University could be more than a college in name, and, in the opinion of this committee, the number attendant upon its sessions could be largely increased.

THE PHYSICAL LABORATORY.

While the chemical laboratory of the University has been for some years one of the best features of the institution, comparing favorably in this regard with the oldest colleges of the Union, the physical laboratory has been entirely neglected. The ordinary physical apparatus for class-room experiments is of no use to the student in original investigation, and is merely an adjunct to instruction. The aim of all education should be to encourage research on the part of the student, and to that end to furnish him with the instruments to practically verify his theoretical conclusions. There is no more important field for work of this character than the physical science. The practical benefits resulting from improvements in all that relates to the measurement of time and space, to the determination of the strength of materials used in ordinary structures, to the calculation of the velocity and trajectory of missiles, to the force of impact of moving bodies, would far more than compensate the State for the small outlay necessary to furnish a laboratory with adequate instruments.

The appropriation of five thousand dollars asked for is no more than sufficient to purchase apparatus absolutely necessary to the efficiency of the physical department of the University. This money should be expended under the direction of Professor John Le Conte, who has an enviable reputation in scientific circles for original investigations in the domain of physics. He is one of the few American scientists whose labors are not unappreciated in Europe.

AGRICULTURAL, MINING, AND ARTS COLLEGE.

Your Committee on Education visited the Mechanical and Mining Arts College, and have the honor to report on the Mining School and the appliances and mechanical means therefor as follows:

Professor S. B. Christie is at the head of the Mining School Department of the Mechanical and Mining Arts College; and, we believe, no department of the University affords greater evidence of important and practical work.

The metallurgical laboratories afford most excellent facilities for making assays of all classes of ores, slags, etc. We visited the crushing and sampling room, where we found iron mortars and rubbers for pulverizing ores for assay and analysis. In the furnace room we found iron-clad crucibles and furnaces built in the wall, and muffle furnaces constructed in like manner, and supplied with necessary tools and work benches. We also observed, in addition to the permanent furnaces, a full assortment of movable clay muffles, tube crucible furnaces.

The weighing room had the proper appliances of ore scales; also wood and sand bath for paring gold and silver. There were also found separate balance rooms for the fire assay, balances and yellow glass windows for the burned or mint assays of silver bullion; also, rooms for volumetric or bullion assays. These advantages and the metallurgical models and drawings afford great facilities for even original investigations, and we believe are eminently adapted to the thorough instruction of students and making experiments of general benefit and great importance to the mining interests of the State.

We believe, also, as has been anticipated, that important problems relating to hydraulic and mining machinery, and the economical methods of treating our so-called rebellious ores, may be the legitimate functions of this mining department of the Mechanical and Mining Arts College. And with the model stamp mill and dressing works, for which an appropriation is asked, it can complete a thorough course for the assay, determination, and reduction of ores from our unnumbered quartz mines of the State, so that practical reports can be made which will be of very great importance to our mining interests.

APPROPRIATION ASKED FOR THE DEPARTMENT OF MINES.

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<th>Description</th>
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<td>For model stamp mill and dressing works</td>
<td>$6,000</td>
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<td>For other apparatus and chemicals</td>
<td>$2,000</td>
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<td><strong>Total</strong></td>
<td><strong>$8,000</strong></td>
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And the committee hereby recommend that such appropriation be made.
The committee can only report favorably on the little they were able to see of the working of the Normal School at San José during the very limited period of their visit, and they think time would be well spent were some of their body to pay a more extended visit either to that institution or the newer institution at Los Angeles.

While the committee report favorably on what they saw generally at the San José Normal School, they feel it their duty to call public attention to defects in our public school system, which might be corrected in a measure through sound normal teaching and training. In many cases the pupils who graduate from grammar schools are almost wholly unprepared for the business of life; their powers of observation and of reason have not been cultivated, and what of these powers they possess have been acquired in spite of school training. The pupils learn nothing of things by observation, and their power of reasoning is wholly undeveloped. In marked contrast to the custom of our schools is the method employed in the German Vorschule or primary school. As in the Birkbech schools, children of nine and ten years of age are active and intelligent collectors and classifiers of plants, animals (generally of insects or birds only), and of minerals; while in the common rudiments of learning their progress far outruns that of the pupils of our schools. An admirable feature of the German schools which has largely tended to produce this result might be readily adapted to our system.

Once a week, at least, each teacher takes his class, either into the country to collect plants, insects, or minerals, to observe, examine, and classify them, or to some factory or other industrial establishment.

The committee also deem it necessary to call attention to the disadvantages as well as the advantages of the graded system, as now carried on in our public schools.

While not overlooking the fact that much good is accomplished by classification, when not carried to an extreme, they feel compelled to say that the graded system of this State has been carried beyond the limits of usefulness.

The brightest as well as the dullest of pupils are classified together, and this produces the evil result of retarding the progress of the former, and pushing the latter beyond his capacity. The promotion of one, therefore, is dependent upon the progress of the other. The one is discouraged because his progress is retarded by the dullness of the other, and his less brilliant classmate is compelled to accept advancement before he is prepared.

Whatever may be the advantages of graded schools, they seem to be mostly thrown away under our system, if we may judge from the comparison of their results with that of an ungraded school on Harrison street, San Francisco, near Eleventh.

In that ungraded school of about forty-four boys, who are either too poor to attend the public schools, or too unruly to be there disciplined, or from some other cause have been kept out of school, and who were (till they went to this school) generally looked upon as "hard cases"—boys from eleven to fourteen perform exercises with dispatch and accuracy in the extraction of cube root, mensuration, and combination; one of them can write almost equal to copper plate engraving; five or six are following closely in his footsteps, and boys of seven to eight years can read in the fifth reader. Your committee have yet to see the graduate of the graded schools who at fifteen or sixteen years of age can equal these boys of eleven to fourteen.

DEAF, DUMB, AND BLIND ASYLUM.

The committee in their visit to the Deaf, Dumb, and Blind Asylum were given an opportunity to observe as to the instruction of the unfortunate children of our State who are inmates of this very worthy institution. The committee cannot bestow too much praise to the managers and teachers in charge. We would recommend that the appropriations asked for the support of this institution be allowed in full, and also that a sufficient amount be appropriated to establish a mechanical school in connection therewith.

The committee also find that the subordinate instructors and tutors are under paid. The committee think that these teachers should at least receive as much compensation for their services as is paid to teachers of public schools throughout the State.

STORKE, Chairman.