THE UNIVERSITY OF STRASBOURG.

Germany intends to effect a moral conquest over her new province of *Reichsland* or Alsace-Lorraine as complete as its physical subjugation under her arms. Her success so far has not been flattering, but her designs are rational and are generously supported. She aims at throwing the higher education of the province into a German form and instilling patriotic zeal for the Fatherland into the hearts of her new beneficiaries. The University of Strasbourg has undergone a great change; it has been extended and transformed, and the German Government has expended a sum almost equal to $3,000,000 in its renovation and furnishment.

The University of Strasbourg was established in 1566 under the name of an academy; in 1621 Ferdinand II. erected it into a university, and the property of the Chapel of St. Thomas was assigned to it for the maintenance of its professors and its ordinary expenses. Of sixteen prebendaries, thirteen were occupied by the professors, each one of whom received fifty-two measures of wheat, fifty-six of rye, ten of barley—in all about one hundred and twenty-five hectoliters. The university was Protestant, but all creeds enjoyed its advantages in the courses of law, medicine, and philosophy.

The capitulation of 1681 delivered Strasbourg to France, and the rights and revenues of the university were entirely respected. It rapidly assumed French methods, and its faculty allied itself to French thought with alacrity and enthusiasm.

During the eighteenth century it enjoyed a great celebrity and offered an elaborate curriculum.

At the end of the last century the university was filled with students. Such eminent professors as Boehrig, Blessig, Louth, Schoepflin, Oberlin, Schweighauser, gathered about their chairs students of every nationality, among whom may be recalled Metternich, the Prince of Tremouille, Prince of Narbonne, of d'Argenson, of Segur, of Custine, and Goethe. The revolution suppressed the university.

In 1794 a school of sanitary science was instituted, which later became a faculty of medicine. The academy was established in 1806, the courses of law were opened in 1806, those in theology, belles-lettres, and science in 1810. The new faculties lasted until 1870, and counted among their members scholars of whom many are now illustrious. Duvernoy, Gerhardt, Schimper, Pasteur, Daubrée, Abbe Bautain, Saint-René Taillandier, M. Janet, Fustel de Coulanges, Aubry, Rau, Reuss, Colani, Sedillot, Schützenberger, Forget, Küss, figured in their brilliant lists. The professors had a high value, but the organization was defective.

Immense changes have been effected since the conquest of Alsace-Lorraine by the Germans in the historic seat of learning. It is difficult to recognize the original outlines amid the new and remarkable enlargements it has undergone. In place of the old academy inclosing a few halls and imperfect laboratories there is now a small town dedicated to the university needs. Here are the buildings for the schools of belles-lettres, of law, and science; the medical corps are gathered about the civic hospital, the faculty of theology will soon be established in new quarters, and the physical, chemical, and botanical laboratories, with the observatory, are completed and open to students.

The expenses incurred by Germany by this rehabilitation of the old university have been excessive. In all it amounts to about 11,200,000 marks, or about $3,000,000, contributed from the treasury of the empire in part, in part obtained by taxation from the province of Strasbourg, and the department of the Lower Rhine.

To-day in Germany there are 23 universities. Strasbourg is far from occupying the last rank, both in the number of its teachers and pupils. Munich has 72 regular professors, Berlin 68, and Strasbourg 64; 5,990 students are matriculated at Berlin, 3,399 at Leipsic, 2,276 at Munich, 1,646 at Breslau, 1,452 at Halle, 866 at Strasbourg, 723 at Heidelberg, 625 at Freibourg, 568 at Erlangen. Of the 866 students at Strasbourg 75 are assigned to the course of theology, 202 to the course of law, 211 to the course of medicine, 160 to the course of philosophy, 180 to the course of sciences.

The university is shunned by the natives of Alsace-Lorraine, who still regard with aversion and disdain the presence of the German jurisdiction in their midst, and their names are not frequent upon the lists of students.

A chair in the university is no sinecure. Each professor gives at least one lecture a day. M. Recklinghausen gives seven lessons a week and directs all the autopsies. M. Waldeyer gives each day a conference in neurology, three times a week a lecture upon general anatomy, and three lectures upon osteology and syndesmology. He moreover directs the histological studies. M. Goltz, professor of physiology, gives six lectures a week and controls the laboratory. M. Kundt and M. Fittig, who teach physics and chemistry, also give six lessons a week, and are in the laboratory from the morning until evening. There are 5 chemical assistants, 2 physical, 2 in anatomy, 2 in physiology, 2 in pathological anatomy, 1 in physiological chemistry, 4 in the medical clinic, 4 in the chirurgical clinic, and 3 *assistants d'accoucheur*.

The distribution of expenses is as follows for the years 1883-1884. Total expenditure, $231,300.

The management of the university (cleaning, clerical force, outlays) costs $9,724; the salaries of the regular and extraordinary professors, private instructors, lecturers, $133,250, of which the professors in the theological faculty receive $9,975; those in the law, $27,850; those in the medical, $32,525; those in the faculty of philosophy, $33,000; those in the scientific, $26,800. The various institutes and seminaries for maintenance demand $69,616, which is divided as follows: Anatomy, $4,312; physiological chemistry, $1,975; physiology, $2,050; pathology, $2,825; medical clinic, $3,612; chirurgical clinic, $4,725; clinic d'accouchements, $13,545; ophthalmic clinic, $1,300; clinic of psychiatry, $2,550; physical institute, $3,006; chemical, $6,675; zoological, $1,350; mineralogical, $1,500; botanical, $3,500; observatory, $3,512; philology, $1,125; archæology, $525, etc.

To these expenses a few others must be added, raising the total to $231,300. The receipts do not cover these outlays, and the German Empire subscribes an annual revenue of $100,000 for their payment.—*Revue Scientifique.*

"STORING WIND POWER," REVISED AND CORRECTED.

Here we are! Now we know how to do it; we thought we did not, but it seems it was only our own personal lack of knowledge, for forthwith the instruction comes, from the East and from the West. Under date of July 24, Mr. Davis writes from Calais, Me. (just as far east as you can get and call it United States), and one week later Mr. Mortensen gives his views in the *Racine Daily Journal*. It is quite pleasant to see that our utterances have stirred up the brethren, and though we may have occasion to show in what respects they are wrong in the conclusions which they reach, still it is only in the hope of stimulating them and many others to additional efforts. The problem is one involving interests of immense importance, and our first article was written in the hope of calling attention not only to its importance, but to the difficulty of its solution.

The plan suggested by Mr. Davis is to use the windwheels directly in raising weights, their descent by gravitation to drive the machinery. In many respects the suggestion is admirable. The direct application of the force to the driving shaft, and the hoisting and the transfer of this directly to the running gear, whatever it may be, is a matter well worth consideration. We have lost nothing of the power we originally derived from the wind except that which is due to friction. If this plan were practicable we should have made a great advance, but it brings to us the same difficulty that we encountered with the receivers of compressed air—it demands such dimensions as to make it too unwieldy for service.

A few figures will show this too plainly to be mistaken. We may assume that practically fifty feet would be as high as it would be best to calculate on hoisting the weights. Now if Mr. Davis will take his slate and pencil and check us when we go wrong, we will cipher it out. A weight of 100,000 pounds descending 50 feet may be held to develop one horse power nominally during one hundred and fifty minutes—two hours and a half—or a weight of 400,000 lb. to equal one horse power during a working day of ten hours. To insure consecutive work of a factory from wind power we need to retain a constant surplus for three days, though we should very seldom need it, as two days would carry us safely except at extremely long intervals.

Recurring now to the size formerly suggested, an engine of twenty horse power, we must have on the basis here shown, in order to secure thirty hours of service, 24,000,000 pounds in weight suspended at the height of fifty feet. Our material would naturally be cast iron, as the least expensive thing, without incurring a great additional bulk in using sand or water. (We shall find the bulk of the iron serious enough). To give us the weight we require we must have at least 53,000 cubic feet. A block four feet square by two feet thick, weighing over seven tons, would be as much as we could readily hoist at one lift. But of blocks of that size we must have over 1,600.

Placing them on the ground on their thin side, so as to occupy the least space and leave room for supports and for management, we cannot get them into less room than 300 feet by 150. That is something of a building, and all to run a twenty horse power engine. Perhaps some one will cipher a little further and estimate what sort of framework will be required to suspend 24,000,000 pounds fifty feet high and keep it running up and down all the time without shaking. We do not feel competent to the task; our arithmetic has given out, otherwise we should have gone into the market to try and see what we could buy that iron for. Really, we believe we should have taken to speculating in twenty horse engines before we could have completed the trade.

The plan suggested by Mr. Mortensen is to store the power by means of springs, which shall be forced down by the action of the windwheels, and drive the machinery by their recoil. This is not capable of being shown in figures as could the descent of weights, for we have no data from which to calculate. Mr. Mortensen thinks he can make a spring which shall be able to do the work of one horse power for an hour consecutively. If he can accomplish it he will make a wonderful advance, but it will be wise for him to be cautious in its management. When he has that amount of energy stored in it, he will have a fearfully dangerous instrument to manage. If he can restrain that terrible power and keep it in check so as to draw on it steadily and safely, very well; but it is perhaps probable that we shall wait a long time before we see it done. Of the supposed cost we are not told.

But let us hope for success, and try again. These two plans have not brought us what we need, but some others may. The matter is of too thoroughly vital importance to be dismissed simply because difficulties are in the way. Store the Wind Power.

DISTILLED water in the daylight is of a blue color. By gaslight the color is green.

What the Soil Needs.

Analyses of the constituents of growing and ripened plants are a safe means of ascertaining what constituents they take from the soil, and their proportional and absolute amounts. With these data the intelligent farmer can estimate, with an approximation to certainty, what in the way of special fertilizers he should return to the soil. The occasional—periodical—bulletins from State experimental stations are of value as guides to the cultivator of the soil in this direction.

From the August bulletin from the New York Agricultural Experiment Station at Geneva, N. Y., the following is copied as an analysis of the ashes of a yellow flint corn, the "Waushakum:"

Potash	34·36
Soda	0·50
Magnesia	11·64
Lime	10·76
Oxide of iron	1·28
Phosphoric acid	10·43
Sulphuric acid	2·60
Silica	19·59
Chlorine	2·93
Carbonic acid	5·76
	90 85

The demand for nitrogenous materials by the maize plant is shown in the statement, from analysis, that the corn in the dry state demanded and absorbed in one instance 1·86 per cent of all its nourishment, as shown by the residuum of ashes, the highest percentage of any of the constituents resolvable into ashes, the water, of course, passing off as vapor. The result of this series of experiments, extending over the period when the pollen of the corn impregnated the ear until the full growth of the grain, shows the necessity of frequent re-enforcements of the nitrogenous elements of the soil for the successful growth and ripening of the corn crop.

The Secret of the Success of Patent Medicine Manufacturers.

Says the *Milwaukee Sentinel*, in a recent article on "Patent Medicines": "It is advertising that is the secret of success in the case of patent medicines, if there is any secret about it. There is not a patent medicine which is superior to the preparations provided for by the standard medical publications. It is much simpler, however, for the person who wants a medicine to buy a bottle of patent medicine, good for every human ill, than to go to a physician. By advertising a patent medicine extensively and persistently the people are brought to recognize certain common and simple sensations as evidences of a disease which this particular remedy will cure. About all that is required to succeed in the patent medicine line is money and nerve to use it in advertising. It makes no sort of difference what medicine it it—the combination of drugs is the item of least importance.

It is well, perhaps, to put the drugs, if any are used, in spirits, so that a man can take his whisky with a clear conscience—indeed, with a sense of his own worthiness in taking care of his health. Occasional changes in the name of the medicine and of the maker are desirable, for after a few years the public demand something new. The same medicine may be used, but a change of name and of the character of the illustrations is demanded. After a long run of a patent medicine as a cure for lung troubles, a new run may be established by calling it a remedy for stomach troubles. When a fortune has been made out of lung pads, they can be cut down in size and another fortune made out of them as kidney pads."

An Artificial Nurse for Infants.

An apparatus for affording artificial heat to infants in the earlier stages of their existence after birth has been introduced into the Maternity Hospital, Paris, by Dr. Tarnier. He calls it a *couvreuse*, and it is a plain wooden case or box, measuring about 2 feet 8 inches by 2 feet 4 inches, and 2 feet 4 inches in height. The box has a double covering, the space between being filled with sawdust to retain the heat, and is divided into two parts. The lower half contains a reservoir, which holds about sixty liters of water, and is fed by a patent boiler that stands outside the box, and is warmed by an oil lamp; or hot water may be used without recourse to the lamp. The upper portion of the box forms a warm chamber, where a little basket or cradle is placed, large enough to hold two infants. From an opening at the side this cradle may be withdrawn, while the top of the box has a double glass covering, so that the children and the thermometer lying by their side can be constantly watched. Apertures are made in the lower portion of the box, the fresh air travels over the hot water reservoir, and is thus warmed before it reaches the child. The temperature within the *couvreuse* is generally maintained at 86° Fah., and though the contrast on withdrawing the child to be fed or washed is very great, amounting often to 30° Fah., colds are not so frequent as among the infants nursed in the ordinary manner. Altogether the experiment is considered so successful that it is proposed to supply all the hospitals of France with this automatic nurse.

Copper from Arizona.

Last year Arizona produced over 17,000,000 pounds of copper. Thus far during the present year the increase has been 38 per cent, and new furnaces are going up. Arizona's output will probably be not less than 25,000,000 pounds for 1883.