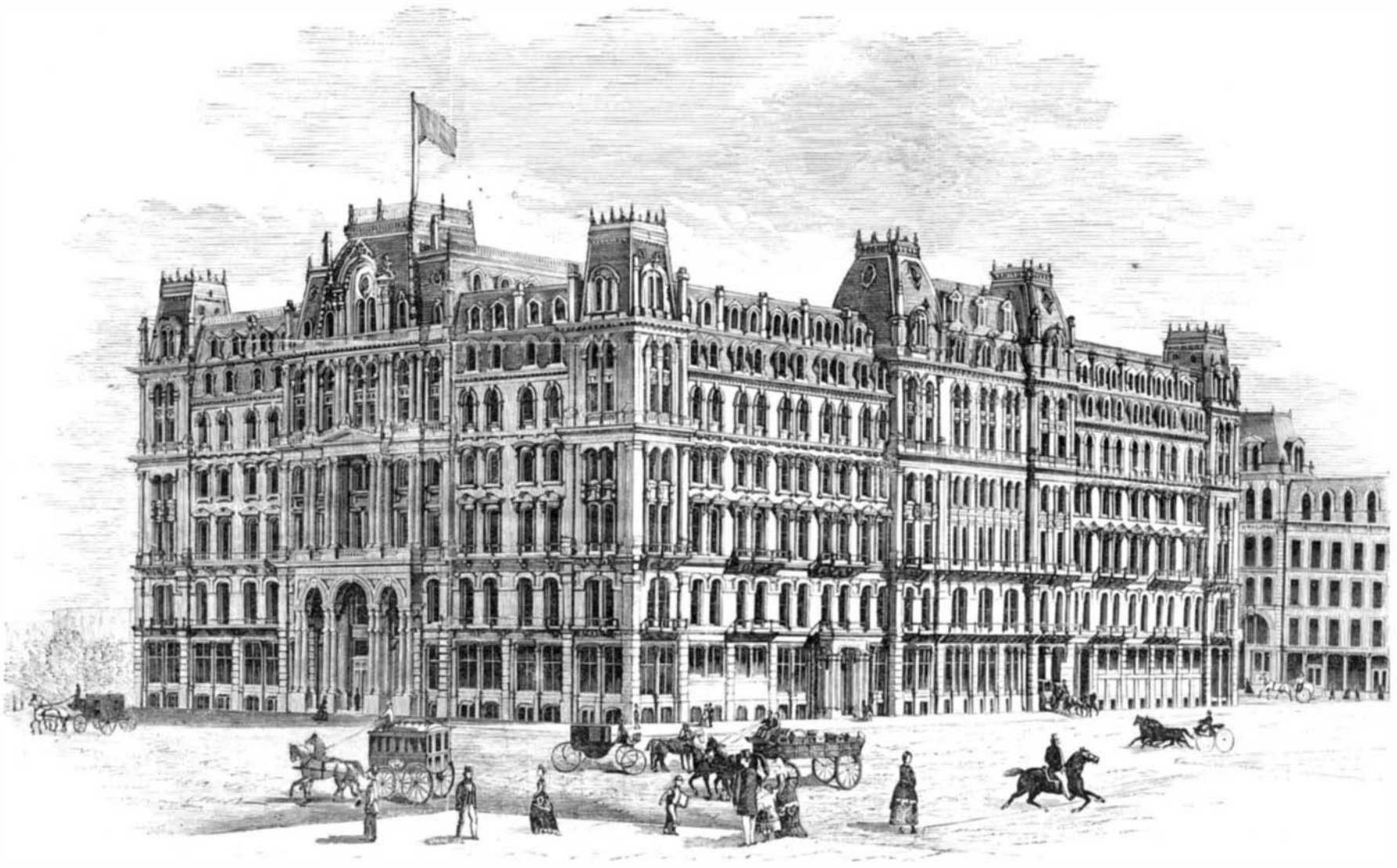
The points which we have presented above in regard to ornamentation are simply those which seem most important in demonstrating the value of zinc as a building material, and while we do not by any means advocate its use generally in the place of stone in ornamentation, where stone is plenty and cheap, yet we wish, if possible, to overcome the prejudice which appears to exist in many instances where the employment of zinc would be more economical and equally appropriate.

## PACIFIC HOTEL, CHICAGO.

The Pacific Hotel Company are about to erect, at Chicago, the magnificent edifice of which we herewith give an engraving. The cost of the building is to be one million dollars and when completed it will be one of the largest and most complete hotels on the continent.



## THE PROPOSED PACIFIC HOTEL AT CHICAGO.

It will occupy an entire block, bounded by Clark, Jackson, Lasalle, and Quincy streets. The opposite façade to that shown on Clark street is the exact counterpart of that on Lasalle street, save that it has full retail-shop fronts, adapting it to the business character of Clark street. The hotel has the following dimensions: front, on Clark street, 190 feet; on Jackson, 325 feet; on Lasalle street, 180 feet. A characteristic feature of the hotel is the adoption, for the first time in this country, of the internal glass-sheltered court, for the arrival and departure of guests. From the carriage court, where all the passengers and baggage are received, the former pass to the grand arcade, which occupies the second interior court of the building, upon which the three entrances on Lasalle, Jackson, and Quincy streets directly open. All the business offices of the house are thus on the lower floor, and of dimension and finish that justify the promise of the noble exterior. The house has five hundred and fifty-three rooms, exclusive of the public apartments and offices. The rentals of the company are further essentially helped by eight superb stores and twenty-two elegant offices, each the best of its class, and suited to its respective locality, on the leading retail and office street of the city. The material of the three store fronts will probably be the yellow Ohio sandstone. A proposal for a lease of the hotel portion of the structure for ten years, at a rental of $75,000 per annum, has been made. Chicago has been long favored with good hotels, but this enterprise promises, by the opening of 1872, to place her in the front rank in this respect. W. W. Boyington, Esq., of Chicago, the architect of the structure, has, in his portion of the work, achieved a most noteworthy monument of professional skill.

## SCIENTIFIC INTELLIGENCE.

### PASTING PARCHMENT PAPER.

It is not an easy thing to join the stiff, smooth surfaces of parchment paper on to other paper, or on to wood, pasteboard, etc. The paste does not seem to hold, and on this account this paper has not been so generally used in book-binding and for similar purposes.

The difficulty can be overcome in a very simple way. The surface of the parchment must first be moistened with alcohol or brandy and then pressed while still moist upon the glue or paste. When two pieces of parchment are to be joined, both must be moistened in this way. It is said that the paper will sooner tear than separate where it has been thus fastened together.

Another way is to put a thin piece of paper between the surfaces of parchment and apply the paste. This forms a firm joint and can with difficulty be separated. Glue and flour paste are best adapted for uniting surfaces of parchment. Gum-arabic does not answer.

### ALUMINATE OF SODA.

This article is now largely employed in the manufacture of milk glass, hot cast porcelain, etc. Hitherto cryolite was used, but this mineral attacked the furnaces and was not always free from iron and other foreign substances. It is now proposed to substitute one hundred-weight of natron aluminate for the $1\frac{3}{4}$ hundred-weight cryolite and $\frac{1}{10}$ hundred-weight of soda, formerly employed.

The aluminate of soda prepared in the process of the manufacture of soda from cryolite, is usually pure, and is capable of various applications, in dyeing calico, printing, manufacture of a very heavy white soap, for lakes, etc.

### DISINFECTING PADS.

It is often desirable to disinfect the odor of perspiration, and this can be accomplished by means of pulverized charcoal. Take an ounce each of finely pulverized charcoal, gum-arabic in powder, and water. Put a thin paste of this between two sheets of paper or of cloth, and press by the hand or between weights, to smoothe wrinkles, and then allow it to dry in the air. It is then ready to be cut into soles for the feet or into pads as required.

### FLUORIDE OF GOLD.

M. Prat, of Bordeaux, has published the results of extended researches into the properties and compounds of gold, from which we abstract the following results:

1. Chemically pure gold can be prepared in the form of sponge. 2. Gold can be oxidized by certain oxy-acids. 3. There exists a liquid chloride of gold superior to the sesqui-chloride, also a sesqui-iodide and a carbonate. 4. There are also two oxides, a suboxide, $Au_2 O_2$, and a binoxide, $Au O_2$, capable of yielding two series of new oxides.

The most important result was the preparation of spongy gold; this is accomplished by saturating a solution containing ten per cent of chloride of gold by pulverized carbonate of potash, and for each equivalent of gold salt, he adds an equivalent of a saturated solution of the same carbonate; he then treats the filtered liquid with five equivalents of pulverized oxalic acid, added in small quantities at a time, and boils the liquid for ten minutes. The gold is reduced to the state of an extremely fine powder—these grains, as if by mutual attraction, agglomerate and form a spongy mass without metallic luster and resembling a wet natural sponge, but convertible by the hammer into solid ingots. The transformation into spongy metal affords a means of separating gold from a majority of other metals. M. Prat also reasserts that he has prepared fluorine from fluoride of gold in the form of a yellowish gas similar to chlorine.

### PREPARATION OF PURE NITROGEN.

Berthelot removes the oxygen from the air in the following ingenious manner: Clean copper turnings are placed in the bottom of a flask and half covered with ammonia. The flask is stopped by a cork provided with a safety tube and delivery tube, which latter can be closed with a rubber cap. After a few days the oxygen of the air is completely absorbed and can be displaced by water to which a little ammonia and copper have been added to deprive it of pure oxygen. Having been washed by concentrated sulphuric acid the gas can be preserved over mercury until required for use.

### APPLICATION OF DIFFUSION IN SUGAR REFINERIES.

Abbé Moigno states that in the years 1869–1870 the number of sugar houses in which the principle of diffusion or dialysis was employed for refining sugar was 82, and that 31 additional works are in process of construction, so that in 1871 there will be 113 refineries in which practical application will be made on a large scale of Graham's important law The crystallizable sugar passes through membranes while the impurities being uncrystallizable are retained in the tank where the original solution was made. The fact that so many large houses employ this method would seem to indicate its entire practicability.

### VOLUMETRIC DETERMINATION OF COPPER.

M. Weill dissolves the alloy or ore to be examined in excess of hydrochloric acid, and thus obtains the copper in the state of bichloride, which, even in minute quantities, will color the liquid bluish-green. If a solution of protochloride of tin be now added, it will transform the copper to protochloride, which is colorless. By employing a graduated solution of the tin salt the amount of copper thus transformed can be easily determined; the protochloride of tin is added until the color disappears.

### CRYSTALS OF IODIDE, BROMIDE, AND CHLORIDE OF SILVER.

M. Debray has discovered that hot solutions of salts of mercury will dissolve the iodide, bromide, and chloride of silver, which salts will crystallize out beautifully on the cooling of the solution. Large and beautiful crystals were thus obtained. He also remarked that the crystals of chloride of silver were not acted upon by light, and explained the phenomenon on the principle that they probably contain traces of mercury.

### OXYGENATED BREAD.

Messrs. Welton and Birch have recommended a new way of introducing oxygen into the stomach by means of bread. The air contained in the bread is extracted by means of a pump, and oxygen substituted in its stead. The bread is said to mold rapidly, which can be prevented by inclosing in cans covered with a small amount of carbolic acid. A mouthful of this bread is said to take away at once loss of appetite and to produce a pleasant sensation to persons afflicted with dyspepsia. It is also recommended in all cases of nervousness, scrofula, and defective digestion. Unleavened bread is said to be less liable to spoil than the ordinary kind.

### SOLUBLE PRUSSIAN BLUE.

Dissolve one part, by weight, of iron wire in sufficient aqua regia to convert the whole of the metal into the chloride, and add $7\frac{1}{2}$ parts of a concentrated solution ferrocyanide of potassium. Collect the precipitate into a filter, and wash out and allow to dry in the air. This form of Prussian blue is said to be soluble in distilled water, but if it be heated to 212° Fah. it loses its action of crystallization and becomes insoluble.