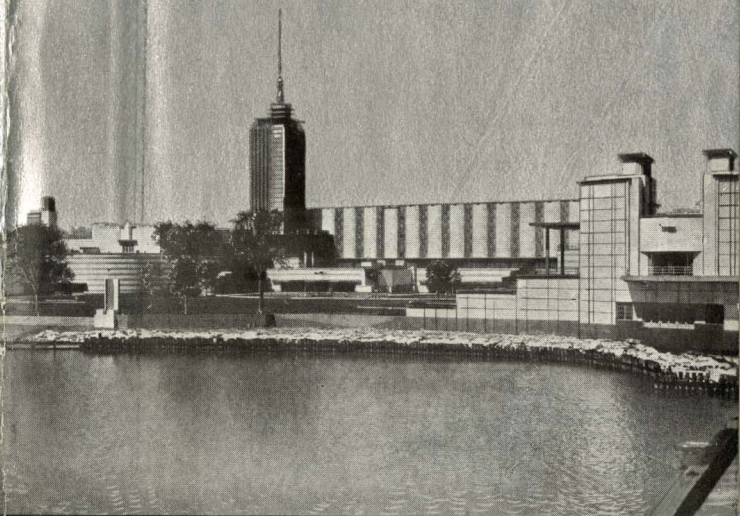


PLATINUM

ITS ROMANCE
AND ITS USE
IN THE ARTS
AND SCIENCES



HALL OF SCIENCE BUILDING—A CENTURY OF PROGRESS, CHICAGO, 1933

Presented at a Century of
Progress, Chicago 1933

BAKER & CO., INC.

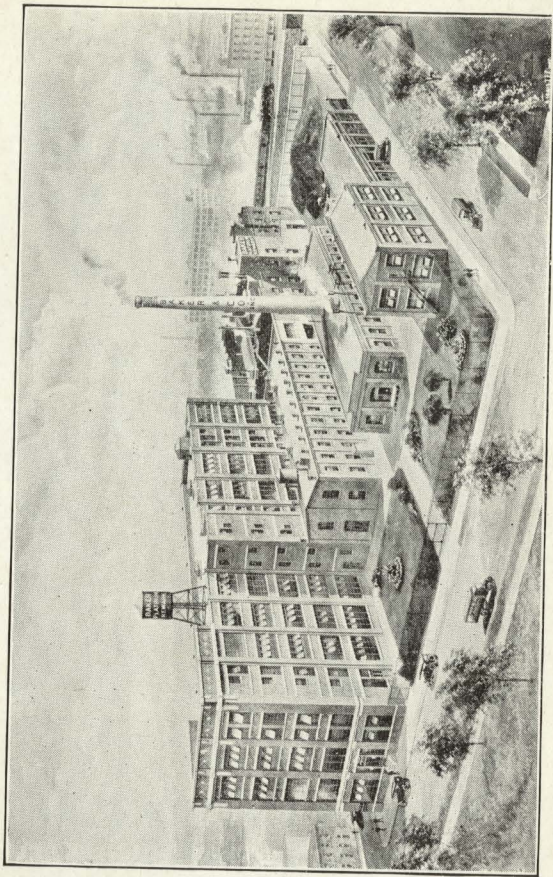
54 Austin St., Newark, N. J.

NEW YORK

SAN FRANCISCO

CHICAGO

LONDON



THE BAKER PLANT AT NEWARK, N. J.

PLATINUM is all things to all men, but to women it is romance. The thin band of platinum which has come to symbolize intimate personal association has in itself a romantic touch.

First brought to the Old World from the river beds of South America by the *conquistadores*, platinum was used as a counterfeit for gold by the simple process of covering pieces of it with that metal.

Later found in the Ural Mountains of the Muscovite Empire, it was again thought of as a counterfeit metal, and a Czar of Russia had a silversmith hanged because he had substituted platinum for silver. That was in the Nineteenth Century.

Today, in the fashionable shops of the Rue de la Paix, of London's Bond Street, of New York's Fifth Avenue and of Michigan Boulevard here in Chicago, platinum is the one accepted setting for the finest creations of the jeweler's craft.

Now the jewelers are turning to platinum not merely for the settings for precious stones, but also as the medium for the other creations of their art. Tiffany & Company has designed an after dinner coffee service in solid platinum, and Cartier has created a ladies' dresser set. Thus, modern craftsmanship is making available things of splendor and value which the royal courts of history never knew.

Like gold, platinum is found as alluvial deposits in river beds. The primitive way of recovering it was by washing it, just as the placer miners panned gold.

Now, hydraulic mining and dredging machinery have replaced the hand method to a large extent.

Let us take a trip to South America, to the San Juan River in Colombia, where modern machinery works in a setting of tropic palms and jungle fastnesses, for much of the world's supply of platinum still comes from this source first discovered by the *conquistadores*. We arrive at Buenaventura and transfer to a river steamer which runs up the San Juan. More and more the jungle seems to close in on us, with here and there a thatched village set on stilts along the water's edge.

Along the shores and in the river we begin to see natives working for their modest production of platinum in the primitive methods of our "Forty-niners" in the gold fields of California. Then we round a bend and come upon modern

industry's method. Like some giant creature of a prehistoric age, a great dredge sticks its snout into the river bed and scoops up sand, gravel and water which it passes through screens and over riffle boards. From these are recovered the fine particles of platinum. Like gold, platinum is found mostly in the form of small rounded or flattened metallic grains which are known as "sand." Sometimes they are nuggets about the size of peas. Once a nugget weighing 21 pounds was found.

Gold is found in these platinum deposits, and it is interesting that here it is treated as a by-product and is dissolved in mercury to be recovered later by distillation.

Just as man's desire for gold has made him burrow into the earth in search for the yellow metal, so has man's expanding needs for platinum sent him on similar quests. Half a mile under Canadian soil,

ore is mined. Brought to the surface, this ore goes through a series of modern metallurgical processes which include the pounding of heavy pulverizing machinery, the white heat of roaring furnaces and the soft hum of electrolytic refineries. Even then, platinum emerges only as a sludge which must be put through a complex series of chemical and heat treatments to produce platinum "sponge."

At this point the great plant of Baker & Company, Inc., at Newark, N. J., takes up the final processes in producing the beautiful metal that you know. Electric furnaces melt down the sponge at high temperatures. Chemicals separate the crude platinum of South American origin into pure platinum and its related metals, — palladium, rhodium, ruthenium, iridium and osmium.

All told, four continents supply platinum for the world's needs,—Europe,

South America, North America and South Africa whence also come our diamonds. Thus, the thin band of platinum which the bride receives at the altar brings with it world romance.

Although platinum is being taken from these four continents, the total amount produced from the beginning of time is only about equal to half a year's production of gold. Platinum is 100 times rarer than the yellow metal and 1,000 times rarer than the silver from which it took its name.

Its growing recognition as the metal for medals and trophies symbolic of highest achievement is a feature of the romantic change in the regard in which civilization holds platinum. The George Washington Bicentennial Medal presented to President Hoover a year ago was struck at the U. S. Mint in Philadelphia from

pure platinum, and the two great trophies created for the World Bridge Olympic are of platinum. More recently, the Canadian Institute of Mining and Metallurgy became the first outstanding scientific society to establish a platinum medal for annual award.

PLATINUM IN THE ARTS AND SCIENCES

In a booklet of this kind, it is impossible to give more than the briefest sketch of how this extraordinary metal is made to serve man in his search for scientific truth or to present more than a very inadequate review of the many forms into which it is worked for utility and adornment. We have literature describing our platinum products in detail and these will gladly be sent to those requiring technical information.

PLATINUM IN JEWELRY

Although gold had held the field for ages, today our finest jewelry is made of platinum. This came about because all the qualities which go to make the ideal jewelry metal are present in platinum. It has high monetary value. It is indestructible. It cannot tarnish and it enhances the beauty of gems set in it. Gold is yellow and in order to whiten it, other metals must be added to it. The brilliant whiteness of platinum is natural to it and cannot be improved. In addition, it is easily worked and the artist-jeweler can translate his most exquisite conceptions into imperishable, brilliant metal without difficulty.

We have specialized in platinum for more than fifty years. We work it into all the forms in which it is used by the manufacturing jeweler. Besides sheet and wire, we make a line of settings

which requires a sixty-four page catalogue to describe. Our line of ring blanks needs another complete catalogue. In short, everything the jeweler needs in platinum is made by us. We do not, however, make finished jewelry. We are not jewelers. Our function is to supply the jewelry trade with platinum and other precious metal material.

PLATINUM IN THE LABORATORY

It is difficult to imagine how modern science could get along without platinum. No substitute can completely take its place. It owes its importance in scientific research and processes to its ability to withstand both the action of chemical reagents and very high temperatures.

To the chemist and physicist, therefore, platinum crucibles and dishes, platinum-

tipped tongs and tweezers, platinum stirring rods, platinum electrodes and a myriad of other items are the everyday tools with which he works.

Our book, Data Concerning Platinum, describes them all in detail. It will be sent upon request, if such request is made upon your business letterhead.

PLATINUM GAUZE FOR AMMONIA OXIDATION IN NITRIC ACID MANUFACTURE

When a mixture of ammonia gas and air is passed through platinum gauze, heated to about 900° C., the ammonia is oxidized and nitrous gases produced. These, dissolved in water, give nitric acid of high concentration. The method, because of its simplicity and directness, has practically displaced the older and more complicated processes.

PLATINUM GAUZE D-B 750

Patented

Gauze made of this alloy is an improvement upon pure platinum gauze for ammonia oxidation in the manufacture of nitric acid. It is the joint development of E. I. DuPont de Nemours & Co. and Baker & Co., Inc. Where pure platinum gauze develops an efficiency of 92 per cent, D-B 750 shows 96 to 98 per cent. The useful life of the gauze is higher by 60 per cent or more.

Full information will be furnished, if requested upon your business stationery.

PLATINUM MASS CATALYSTS

Platinum Mass Catalysts are used in the manufacture of sulphuric acid and have great advantages over substitutes for them. They will take care of great overloads with satisfactory conversion per-

centages and 90 per cent of the metal can be recovered. The actual cost of replacements, therefore, is but 10 per cent of the original cost, plus a small refining charge. We both make these catalysts and offer the refining service.

PLATINUM IN THE GLASS INDUSTRY

We make a special patented alloy for use in lining glass maker's tanks and for refractory dies and feeders. We supply too, platinum spindles for density determination.

PLATINUM IN THE ELECTRICAL INDUSTRY

Platinum is used in the electrical industry for many purposes, particularly contact points. Because of its ability to endure high temperatures, it resists the action of hot electric sparks, without injury to itself. We make these points in

great variety, both regular stock patterns and to order. We make them too of many other metals and alloys.

THERMOSTATIC METAL

Your electric refrigerator and your thermostatic heat control depend upon a thin strip of metal which changes shape as the temperature rises or falls. Mounted upon this strip is one of the contact points of which we were speaking. The strip is made of thermostatic metal. As it bends or straightens itself, it makes or breaks the electrical contact, starting or shutting off the motor. Thermostatic metal is one of our specialties. It must be very accurately made, so that a given temperature will bend or straighten it just so much. We have the equipment to produce it exactly as it should be and in any shape with or without contacts attached.

PLATINUM IN RAYON MAKING

Platinum has a great deal to do with the lustrous fabrics of rayon which have attained such great vogue within comparatively recent years.

The rayon filaments are made by forcing liquid cellulose through spinnerettes. Looked upon solely from the mechanical angle, these spinnerettes are perhaps the greatest triumph of modern precision methods. They are tiny cups of an alloy of platinum and gold or palladium and gold. Holes are tooled in them of unbelievably small size. Think of as many as 2,000 of these, very close together, and measuring only .001 of an inch in diameter and all so alike that they do not vary in size more than .00004 of an inch. To see them, a microscope is needed.

PLATINUM IN DENTISTRY

The metals of the platinum group have been a boon to dentistry. Full dentures (plates) made of their alloys are light and thin. They are very comfortable, because alloys of the platinum metals conduct heat quickly and changes of heat and cold are easily transmitted through them. People using such dentures do not suffer the feeling of heat in the mouth, so unpleasantly familiar to wearers of dentures made of substances other than precious metal. The platinum metals alloys take a brilliant polish which reflects the tints of mouth tissues to such an extent that the metal becomes all but invisible. Yellow gold always shows. Platinum metals cannot tarnish in the mouth. They are tasteless, easily cleaned and kept sanitary. Dentures made of them cannot be broken.

Today, the dentist makes many full dentures, bridges and inlays of alloys of the platinum metals. It seems probable that the use of gold for these purposes will eventually become obsolete.

PLATINUM IN UNUSUAL APPLICATIONS

From time immemorial it has been the custom to reward outstanding achievement, particularly in athletics and sports, with a suitably inscribed trophy designed to symbolize the admiration of the givers. We have had such trophies of silver and of gold. The visitor to A Century of Progress will be privileged to see them made of solid platinum. Intrinsic value and imperishability are the two qualities a trophy must have and platinum has them both in the highest degree. For the first time, a complete all platinum after dinner coffee set will be shown as well as

a platinum dresser set for the boudoir and numerous smaller jewelry pieces.

RHODIUM PLATING

Our research laboratories have given the world rhodium plated precious metal. Rhodium, you will remember, is one of the platinum group. It is used very largely for plating silverware with a protecting covering of rhodium. This metal is very hard and absolutely immune to tarnish. Silverware, so treated, never needs polishing. Our process preserves the true silver color.

