

# Casanova on the Metallurgy of Platinum

## THE EXPERIMENTS OF THE MARQUISE D'URFÉ

In the course of his article on "The First Experiments on Platinum" in the April 1960 issue of *Platinum Metals Review*, Dr J. Russell-Wood recounted the story of the samples of platinum that were brought to England in 1741 by Mr Charles Wood, the assay master of Jamaica, and of the experiments conducted on them both by him and by his brother-in-law, Dr William Brownrigg, and reported to the Royal Society of London in 1750. The publication of this chapter in the history of platinum has now led to the disclosure of an account of some early experiments that appears to have escaped attention hitherto, almost certainly because of its somewhat unusual source—the *Memoirs of Casanova*!

Our attention was first drawn to the passage in question by Dr L. H. Callendar, who pointed out that Casanova records that he saw samples of platinum during his visit to the laboratory of a rich woman of Paris, the Marquise d'Urfé, who like many others of her time was attempting to transmute base metals into gold. This was in the year

1757, very soon after Casanova's celebrated escape from imprisonment in "The Leads" in Venice. From here he had fled to Bolzano and then on to Munich and Strasbourg, arriving in Paris in the January of 1757.

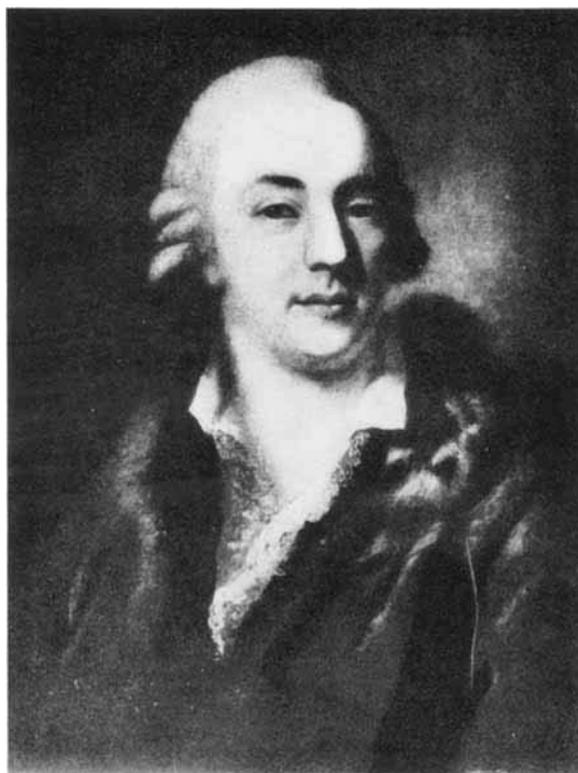
Here he obtained entry to some of the most exclusive circles, largely on account of his reputation as a practitioner in the occult sciences—a subject in which he was deeply interested although giving it little credit.

The Marquise d'Urfé, a credulous woman deeply immersed in the occult and in alchemy as were so many in the eighteenth century, greatly desired to meet Casanova, and an introduction was arranged by her nephew.

### Jacques Casanova

*Born in Venice in 1725, Casanova is famous as an adventurer and lover. He was none the less a considerable scholar and scientist of his time, and his Memoirs give a vivid yet faithful picture of life in Europe in the eighteenth century*

*(From a portrait by Alessandro Longhi)*



de. Elle me montra un baril rempli de Platine del Pinto qu'elle étoit maîtresse de convertir en or pur quand bon lui sembleroit. C'étoit M. Vood en personne qui lui en avoit fait présent l'année 1743. Elle me fit voir la même Platine dans quatre différens vases, dont trois la contenaient intacte dans les acides vitriolique, nitreux, et marins, mais dans le quatrième, où elle avoit employé l'eau régale la Platine n'avoit pas pu résister. Elle le fondoit au miroir ardent, et elle me dit que seul on ne pouvoit pas la fondre autrement, ce qui selon elle la démontrait supérieure à l'or. Elle me fit voir précipitée par le sel ammoniac, qui n'a jamais pu précipiter l'or.

*The passage in Casanova's manuscript describing his visit in 1757 to the alchemical laboratory of the Marquise d'Urfé in Paris. Here he saw samples of platinum that had remained unattacked in sulphuric, nitric and hydrochloric acids, but were dissolved by aqua regia and then reprecipitated by sal ammoniac. Apart from the reference to transmutation in the opening sentence, the details of the chemistry of platinum are perfectly correct. (Photograph by courtesy of F. A. Brockhaus, Wiesbaden)*

At their first meeting they talked of chemistry, magic and the occult, and she claimed to be in possession of the philosopher's stone. After showing him her library, containing many valuable manuscripts, she took him into her alchemical laboratory, at which Casanova expressed himself as "truly astonished". The Memoirs then continue—quoting from the definitive edition published in 1960 by Brockhaus-Plon, Vol. 5, page 108:

"Elle me montra un baril rempli de *Platine del Pinto* qu'elle étoit maîtresse de convertir en or pur quand bon lui semblerait. C'étoit M. Vood en personne qui lui en avoit fait présent l'année 1743. Elle me fit voir le même platine dans quatre différens vases, dont trois le contenaient intact dans les acides vitrioliques, nitreux

et marins, mais dans le quatrième, où elle avoit employé l'eau régale le platine n'avoit pas pu résister. Elle le fondait au miroir ardent, et me dit que seul on ne pouvoit pas le fondre autrement, ce qui selon elle le démontrait supérieur à l'or. Elle me le fit voir précipité par le sel ammoniac, que n'a jamais pu précipiter l'or."

Apart from the reference to transmutation the chemistry of platinum here described is of course perfectly correct. Platinum is unattacked by sulphuric, nitric and hydrochloric acids, but is dissolved by aqua regia; it is reprecipitated from solution, unlike gold, by sal ammoniac. Much of this had been established by Scheffer in Sweden in 1752. But as far as the melting of platinum is concerned, all attempts at normal melting in

crucibles had failed and it was not until the October of the following year, 1758, that Macquer and Baumé, themselves using a large concave "burning mirror", managed to concentrate the heat of the sun on to a specimen sufficiently to produce the first recorded case of partial fusion. This is not to say that melting could not have been brought about by others at an earlier date.

The "M. Wood" from whom the Marquise d'Urfé claimed to have received her specimens in 1743 can of course only be the Charles Wood of Jamaica who returned to England in 1741. (It was apparently almost invariably the practice, particularly in the eighteenth century, for the French to write "V" for "W".) Whether Wood ever visited Paris is not known, but his name had become fairly well known in scientific circles at this time as the first source of samples of platinum.

The interest in this passage is admittedly more literary than scientific since Casanova did not actually write his Memoirs until much later in his life, the first draft being completed in 1792, although he apparently kept careful notes of his many adventures. In 1758 there appeared in Paris the little book compiled by one Morin on *La Platine, l'Or Blanc, ou le Huitième Metal*, bringing together the account by Brownrigg of his own and Wood's experiments, letters from William Watson, Scheffer's paper from Sweden, Lewis's paper of 1755 and—rather curiously in the present connection—an anonymous letter commenting on all these from Venice dated September 1756.

Clearly both the Marquise d'Urfé and Casanova himself could have been aware of all this material some time in 1758, and Casanova's memory of the precise period of his visit to her laboratory could conceivably have been faulty. In other words, as scientific history the evidence is weak, but as an indication of the interest at that time being displayed in this new metal—as well as of the essential veracity of the much maligned Venetian adventurer—this reference to platinum is of unusual significance.

That alchemy survived well into the eighteenth century despite Boyle's scathing commentary in *The Sceptical Chymist*, published in 1661, is clearly established, but it is even referred to by Brownrigg in his first communication to the Royal Society in 1750. "Some Alchemists", he wrote, "have thought that Gold differ'd from other Metals in nothing so much as in its specific Gravity; and that, if they could obtain a Body that had the specific Weight of Gold, they could easily give it all the other Qualities of that Metal. Let them try their Art on this Body; which, if it can be made as ductile as Gold, will not easily be distinguish'd from Gold itself." The Marquise d'Urfé was thus doing no more than might be expected of her in attempting to transmute the new metal platinum into gold—an operation which she informed Casanova she could perform "when she pleased".

Finally, there is the question of Casanova's own reliability. For many years it has been claimed that he was no more than an adventurer whose Memoirs were largely a series of wholesale inventions. Immoral though he certainly was by the standard of our times, more recent studies—particularly those of Mr J. Rives Childs—have gone a long way to establish that he was none the less a considerable scholar, that his accounts of his associations with many people mentioned in the Memoirs are substantiated by historical evidence, and that his life story gives a faithful reflection of the conditions and events of the eighteenth century in Europe prior to the French Revolution. The very circumstantial record of his encounter with the metallurgy of platinum must clearly lend support to this latter view.

L. B. H.

### References

- Donald McDonald, "A History of Platinum", Johnson, Matthey & Co., Limited, London, 1960  
J. Rives Childs, "Casanova", George Allen & Unwin Ltd, London, 1961