

# The Chase for Iodine

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A popularly accepted view is that for every chemical element discovered, one can identify the discoverer and assign credit to him. But when we look back from a historical point of view, most of the time it is not true. A person who isolates a new element may not fully realise its importance. In such a case, the contribution made by later workers on the same new substance or the element has to be taken into account. From this, we construct a logical picture of the discovery made and judge the role played by each and every person connected with it. The discovery of the element iodine provides an interesting example of this aspect of a scientific discovery. Let us begin with an overview of the characters involved in it and trace the path of research to confirm the existence of this important element in nature.

Bernard Courtois, son of Jean Baptiste Courtois, was born at Dijon, France, in 1777. At the time of his birth, Jean Baptiste worked as a laboratory assistant in a chemical laboratory. A few years later, he took up the post as a manager of an artificial saltpetre (Potassium Nitrate) Works. Subsequently, during the Napoleonic Wars, he owned a small unit for the production of saltpetre. Bernard was apprenticed as a pharmacist and then went to the laboratory of a well-known French chemist, Thenard and Seguin. During this period, France was engaged in war with Britain and its allies across the English Channel. This resulted in curbing the supply of Potassium nitrate to France from foreign sources, which was essential for the preparation of gunpowder. To counter this situation, the French government appealed to the public to probe alternative sources of the strategic material potassium nitrate. In response to it, Bernard explored brown seaweeds off the coast of Normandy and Brittany in order to produce it. One fine day in 1811, he washed copper vessels used for treating the seaweed ashes with hot sulphuric acid. He noticed that a violet vapour appeared that condensed to form beautiful and lustrous crystalline scales. This was the new element, iodine! Although Bernard had accidentally discovered the new element iodine, he did not pursue further investigation with it, as he was too busy with his livelihood.

However, he communicated his discovery to his former colleagues Nicolas Clement and Charles Bernard Desormes somewhere in mid-1812. Clement did not take up the investigation of the substance given to him by Bernard, but did show it to Andre Marie Ampère, a distinguished French physicist, in the summer of 1813.



Gay-Lussac

Around 1800, a centralised system for French education was established under Napoleon's regime. In it, "First class" of an institute refers to the first year of secondary education. The first class of the institute comprised members who were elected on the basis of meritorious work in the field of science. It was a prestigious honour to be a member of the Institute. Clement, a chemist desirous of seeking membership to the Institute, started work on the new substance along with Desormes, a chemist and also his father-in-law. Together, they presented a short memoir based on some experiments carried out using the new substance given to them by Bernard Courtois. They claimed that the new substance formed an acid when it came in contact with hydrogen. As per the norms of the institute, a commission was appointed to examine the memoir. Two notable chemists of France, Gay-Lussac and Thénard, were assigned to review and carry out further research in order to ascertain the nature and properties of the new substance discovered.