tain amount of nitrogen fixed as acid. He created entirely new nitrogenous compounds, among them calcium cyanimide. He used pressure of hundreds of atmospheres to force nitrogen and hydrogen into combination in the form of ammonia. He looked the old-fashioned coke-oven over, and, horrified at its waste of valuable nitrogen, proceeded to devise a retort which would yield ammonium sulphate as a by-product.

Now Chile and the London Stock Exchange must take account of his work. The production of synthetic ammonia in 1926 seems to have been equivalent to 650,000 tons of pure nitrogen—more than twice that of Chile. Had it not been for the British coal strike and the depression in the iron and coke industries, an additional 340,000 tons would have been obtained as sulphate of ammonia. As it is, by-product ovens accounted for 240,000 tons of that form of nitrogen. Chile must at least reduce her export tax, and the companies that exploit her greatest natural resource must engage a few first-class research chemists to devise more economical methods of treating the nitrate scooped from the earth. What research has destroyed research may also save.

The chemist may be pardoned if he smiles as he reads the "prices current" for Chilean and synthetic nitrates and notes that there is more than a full year's visible export stock of Chilean nitrate to be disposed of and scarcely no stock at all of synthetic nitrate. For years he has been dinning the gospel of research into the ears of bankers and manufacturers. Now that his synthetic ammonia has broken a monopoly to which every nation long paid tribute, his audience is larger and more attentive. We actually believe him when he assures us that he can make gasoline in a factory and sell it in competition with natural motor-fuel, or that some day he will make synthetic rubber so cheaply that we can pave streets with it.—*The New York Times.*

DISCUSSION AND CORRESPONDENCE

ILLINIUM

IN a copy of *Gaz. chim. Ital.* (*56,* 862 (1926)) received a few days ago, Professor Rolla, of Florence, claims priority for the discovery of Element No. 61 and proposes for it the name Florentium on the basis of a "Plico Suggellato" filed in June, 1924. Professor Rolla began his search for the element early in 1922; see *Z. anorg. allgem. Chem., 157,* 571 (1926). In making his claim for priority he was, apparently, not aware of the following facts:

In 1919 the University of Illinois and the U. S. Bureau of Standards entered on a joint investigation of the arc spectra of rare earth elements, using materials resulting from long continued fractionations carried out at the University of Illinois. The results of this investigation were published in the U. S. Bureau of Standards Scientific Papers, *421* (1921), *442* (1922), *466* (1923). In the second of these papers, published at about the time that Professor Rolla began his work and two years before his "Plico Suggellato" was deposited, Dr. Kiess, who carried out the spectrometric studies, reported 130 spectral lines which were common to the spectra of Neodymium and Samarium, in the samples submitted to him by Professor Hopkins, and says, "These lines are of unknown origin and may belong to the missing element of order No. 61, coming between Neodymium and Samarium." In January, 1924, again five months before the deposit of Professor Rolla's document, L. F. Yntema published an article, "Observations on Rare Earths. XV. A Search for Element 61," in which he gives five additional lines in the ultra violet region and repeats the statement that these probably belong to Element No. 61. See J. Amer. Chem. Soc., *46,* 37 (1924). Finally, on the basis of still further work, including the finding of two X-ray lines of the L series, J. A. Harris with B. S. Hopkins announced the discovery of Element 61 and proposed the name Illinium. See J. Amer. Chem. Soc., *48,* 1594 (1926).

In the light of these facts, it would seem that the honor for the discovery of No. 61 belongs primarily to Professor Hopkins and that the element should be called Illinium rather than Florentium. This does not detract from the credit which Professor Rolla should receive for his independent discovery of the element. Both Professor Rolla and Professor Hopkins realize that a very large amount of additional work must be done before the element can be fully accepted.

W. A. NOYES

URBANA, ILL.,
JAN. 29, 1927

CONCERNING THE RING METHOD FOR MEASURING SURFACE TENSION

WHEN looking over the literature of the past five years, the writer can not refrain from being highly gratified by the large number of papers published on the ring method for measuring surface tension. Indeed, he can not help but feel that he is responsible to a certain extent for this sudden interest in a very old method as, previous to his first paper describing his instrument (a combination of the ring and of the torsion balance, 1919), so little attention had been given to the technique of the ring that hardly two or three workers had used it in twenty years. A few of the recent articles, however, are critical and tend to establish the inaccuracy and the unreliability of the method which he advocates. Some of them,