

But, in this case, the term $\frac{P\delta V}{T}$ must be omitted from (8); and, by (10) this amounts to subtracting $-R\delta n$ from (11), so that (11) becomes

$$\delta S = \frac{-U\epsilon\delta n - \frac{3}{2}RT\delta n}{T} \quad (16)$$

The result of equating (15) and (16) is the same as that of equating (7) and (11), and leads immediately to (12) and thence to Saha's equation (13).

The Transmutation of Mercury into Gold. H. NAGAOKA. (*Naturwissenschaften*, July 31, 1925.)—From his investigations of the spectral lines of gold and mercury this Japanese physicist was led to regard as promising an attempt to transmute the base into the noble metal. He accordingly sent the discharge of an induction coil of maximum spark length of 120 cm. from a tungsten point to a body of mercury covered with oil. Before the experiment the mercury was chemically purified, and in addition was distilled at least twice in a vacuum. Under the action of the discharge the mercury forms a sort of mixture with the charred oil, and after two or more hours it furnishes a reaction for gold. When, after preliminary treatment, the residue was extracted with aqua regia, unmistakable traces of gold were found. Parallel experiments conducted in the absence of the discharge produced no such evidences of gold. Further, in some cases of the experiment small particles of metallic gold were obtained.

The disruption of the mercury atom takes place only in fields of several million volts per cm. A fuller account of these highly interesting investigations will appear in the *Japanese Journal of Physics*.

The International Astronomical Union met in July, 1925, at Cambridge, England. In connection with this the University conferred the honorary degree of doctor of science upon five of the members of the Union. Of these, two, President Campbell and Doctor Schlesinger, were from the United States; one, W. de Sitter, from Holland; one, B. Baillaud, from France, and the fifth was the author of the article reviewed above. In presenting him the Public Orator, T. R. Glover, said, "Light was once more sought from the East, and a Japanese astronomer came well skilled to track the footsteps of the fugitive atom. A shrewd and able investigator, he had quite recently invited the men of science to decide whether in point of fact he really had made gold out of humbler atoms by transmutation."

G. F. S.