observed in other cellulose fibres, and in jute is only seen for a narrow range of concentrations of the alkali. It may, of course, also be a consequence of extra-crystallite cellulose-lignin linkages.

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[1] Hess *et al.*, *Z. phys. Chem.*, B **4**, 321 (1929); B **11**, 381 (1931); B **43**, 309 (1939).
[2] Sen and Woods, *Biochim. et Biophys. Acta*, **3**, 510 (1949).

Davyum, a Possible Precursor of Rhenium (Element 75)

ON June 28, 1877, the Russian chemist, Kern, claimed[1] to have discovered a new element in platinum residues. A solution left after the removal of platinum, iridium and rhodium was concentrated with ammonium chloride and nitrate and gave a dark red precipitate. On ignition, this left a grey spongy mass that fused in the oxyhydrogen flame to a silvery ingot of a new metal which Kern called 'davyum' (Da), as he himself says, in honour of the great English chemist. Only 0·27 gm. of davyum was obtained and its density was given as 9·385 at 25° C.

Kern assumed its solution in *aqua regia* contained davyum chloride. With potassium hydroxide it gave a light yellow precipitate, soluble in acids. Hydrogen sulphide gave a brown precipitate that turned black. Potassium thiocyanate gave a red colour (or precipitate if heated). Later, Kern reaffirmed these results and mentioned others—formation of a double salt with potassium cyanide, a brown precipitate with the ferrocyanide and the formation of thio-salts with alkali sulphides[2]. Kern at first suggested that davyum might occupy the blank space in Mendeléeff's Periodic Table between molybdenum and ruthenium, in which case it should have an atomic weight of about 100; but later, when Alexejeff's preliminary determination indicated a value of about 154 [2], it was obvious that davyum could not be eka-manganese, though it might be dvi-manganese.

In the following year, Kern stated[3] that davyum was very rare and that most platinum ores contained no more than 0·0008–0·001 per cent; few contained the amount originally suggested (0·035–0·045 per cent). Little attention was paid to Kern's claim until Mallet[4], in 1898, repeated Kern's work using 15 gm. of residues from 35 kgm. of Russian platinum minerals. This contained insoluble matter (quartz, zircon and osmiridium) and a soluble portion from which a supposed double sodium chloride was prepared. This, on reduction with hydrogen, gave, after removal of alkali chloride, a metal that constituted 37·1 per cent of the salt. Assuming that the substance was a single compound corresponding with the formula Na_2DaCl_6, this would indicate an atomic weight of 151·5, or 165 if the formula was Na_3DaCl_6.

Mallet confirmed the reactions obtained by Kern, and it is interesting to note that they are mainly consistent with those of rhenium. In particular, the thiocyanate reaction and the formation of thiosalts are noteworthy, though the density given by Kern for the metal is less than half that of rhenium, namely, 21·04. But as Mallet pointed out, the whole quantity available was quite inadequate for any exact quantitative analysis.

Noddack and Tacke in 1925, probably unaware of Kern's work, claimed[5] to have found elements 43 and 75 in platinum ores; but their claim has not been substantiated by Russian workers[6], so that the presence of Mendeléeff's dvi-manganese in platinum minerals has even now not been indisputably established. There is, of course, no doubt of the existence of element 75 in Nature; the point is, does it exist in platinum ores? If it does not, then davyum is definitely ruled out. But if it should at some future date be found to occur in platinum minerals, that would go a long way towards substantiating Kern's claim to have discovered a new element.

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[1] Kern, S., *C.R. Acad. Sci., Paris*, **85**, 72 (1877); *Chem. News*, **36**, 4 (1877).
[2] Kern, S., *Chem. News*, **36**, 114 (1877).
[3] Kern, S., *Chem. News*, **37**, 33 (1878).
[4] Mallet, J. W., *Amer. Chem. J.*, **20**, 776 (1898).
[5] Noddack, W., Tacke, I., and Berg, O., *Naturwiss.*, **13**, 567 (1925).
[6] Zvjaginstsev, O., *Nature*, **117**, 262 (1926). Zvjaginstsev, O., Korsunski, M., and Seljakov, N., *Z. angew. Chem.*, **40**, 256 (1927).

Regeneration of the Hypophysial Portal Vessels, after Section of the Hypophysial Stalk, in the Monkey (*Macacus rhesus*)

AFTER section of the hypophysial stalk in the rat, regeneration of the hypophysial portal vessels occurs in the majority of cases[1], and the return of adenohypophysial function (as shown by reproductive activity) may be correlated with this vascular regeneration[2]. In order to see if regeneration of these vessels occurred in the Primates, the pituitary stalk was cut by the sub-temporal route in an adult male monkey (*Macacus rhesus*, 12·0 kgm.). Post-operatively, the animal remained in a semi-comatose condition for four days, and then returned to an apparently normal state of health and behaviour. Accurate measurements of the water balance were not made; but there was no obvious polyuria or polydipsia. Masturbation was observed on the tenth post-operative day, and again at about fortnightly intervals until the animal was killed.

On the eighty-ninth day after operation, a lethal dose of nembutal was injected intra-peritoneally and, after deep anæsthesia had been induced, the internal carotid arteries were perfused in a headwards direction with 500 c.c. of Indian-ink solution. After formol fixation and decalcification, serial sections (200 μ thick) were made through a block of tissue containing hypothalamus, pituitary gland and base of skull. Microscopic examination showed the pituitary stalk had been interrupted at the level of the diaphragma sellæ, and that a large mass of fine capillaries and some larger vessels had regenerated and re-established vascular continuity between the median eminence and the adenohypophysis. After formol fixation, the weights of various organs were: testes (both), 24·4 gm.; epididymis (both), 6·0 gm.; seminal vesicles (both), 24·9 gm.; prostate, 4·3 gm.; thyroid, 3·3 gm.; and adrenal glands (both), 1·4 gm. The histological structure of these glands was normal