<table>
<tr><td colspan="4">Table II

Elemental Analysis of the Roubles</td></tr>
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Year	Coin	Iron, %	Platinum, %
1828	3 rouble	Trace	100
1830	6 rouble	1.6	98.4
1834	3 rouble	0.7	99.3
1835	3 rouble	4.8	95.2

<table>
<tr><td colspan="3">Table III

Lattice Parameters and Crystallite Sizes of the 3 Rouble Coins</td></tr>
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Year	Crystallite size, nm	Lattice parameters, nm
1834	34.29	0.392
1835	32.29	0.391

was used a reference. However, the remanences and coercivities of the coins were too small for detection.

Density measurements were carried out (Table I), with the coins suspended by wire in ethanol. The theoretical density of pure platinum is 21.45 g cm^{-3}, and any substantial decrease from this value would indicate the presence of other foreign elements, that is, a genuine coin. The 1830 and 1835 coins were observed to have lower densities than the other two. From this measurement, and within experimental error, the Johnson Matthey archive thus appears to hold two genuine and two forged coins.

SEM was performed on the materials, using energy dispersive X-rays (EDX) to identify the elements present (Table II). Trace amounts of iron were found in three of the coins. The 1828 coin appeared to be ~ 100% pure platinum.

Finally, XRD was performed on the 1834 and 1835 coins to find if the 1834 coin was pure platinum. The two coins were both indexed to pure platinum. It was observed that the 1834 coin has an exact match to these parameters, while the 1835 coin has a definite shift towards a platinum/iron phase that is indexed. It is likely that the 1834 coin is in fact pure platinum and thus a forgery. Table III details the lattice parameters and crystallite sizes of the coins. Pure platinum has a lattice parameter of 0.3925 nm which is very close to the value obtained for the 1834 coin. The 1835 coin has a slightly lower value, indicating unit cell volume depression caused by the iron.

Conclusions

From these measurements we conclude that the 1828 coin is a forged rouble. It is more than likely that the 1834 is also a forgery as its platinum con-

tent is too high. The 1830 and 1835 coins are genuine roubles as they contain other elements, most notably iron.

References
1 A. Austin, private E-mail communication, 28th July, 1999
2 Johnson Matthey, London, internal manuscript
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4 D. F. Lupton, *op. cit.*, (Ref. 3), 72; and references therein

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Production of Fine Iridium Fibre
In the last issue, K. Mori of Tanaka Kikinzoku Kogyo KK described the production of flocculate platinum fibre and non-woven fabric, which are used as electrically conductive fillers for porcelain enamel (*Platinum Metals Rev.*, 2004, 48, (2), 56). Now, Furuya Kinzoku KK of Japan have produced fine iridium (Ir) and Ir oxide fibre from linear Ir compounds with Ir–Ir bonds as the main chains in a fibre-like shape (*Japanese Appl.* 2004-027,399). The Ir compounds are thermally treated either in H_2 or O_2, to form fine Ir or Ir oxide microfilament, respectively. The fibre size is 0.1–5 μm by ≤ 20 μm, with surface area > 1 m^2 g^{-1}. The Ir fibre displays a high melting point, chemical stability, and has excellent characteristics as a catalyst.