
GFMS
Platinum & Palladium
Survey 2006
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Platinum & Palladium Survey 2006

Launch Presentations – 25th April 2006

London **Peter Ryan**

Johannesburg **Paul Walker**

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TANAKA KIKINZOKU GROUP

Tanaka Kikinzoko Kogyo

- **Platinum in 2005**
- **Palladium in 2005**
- **Outlook for 2006**

Platinum: 2005 highlights

- **Headline supply up 306,000 ozs at 7.48m ozs (4%)**
  - Mine production yielded 80% of this gain.
  - Autocatalyst recycling continues to rise.
- **Fabrication demand marginally lower at 7.53m ozs**
  - Autocatalyst up 9% on continued diesel strength and Euro 4,
  - but…jewellery fell sharply as China declined again.
- **Supply/demand effectively in balance**
  - Relatively minor gross deficit in 2005, 54,000 ozs
  - Gross deficit contracted by 383,000 ozs compared to 2004.
- **Above-ground stocks, minimal releases identified.**
- **Closely balanced market at the residual level also.**

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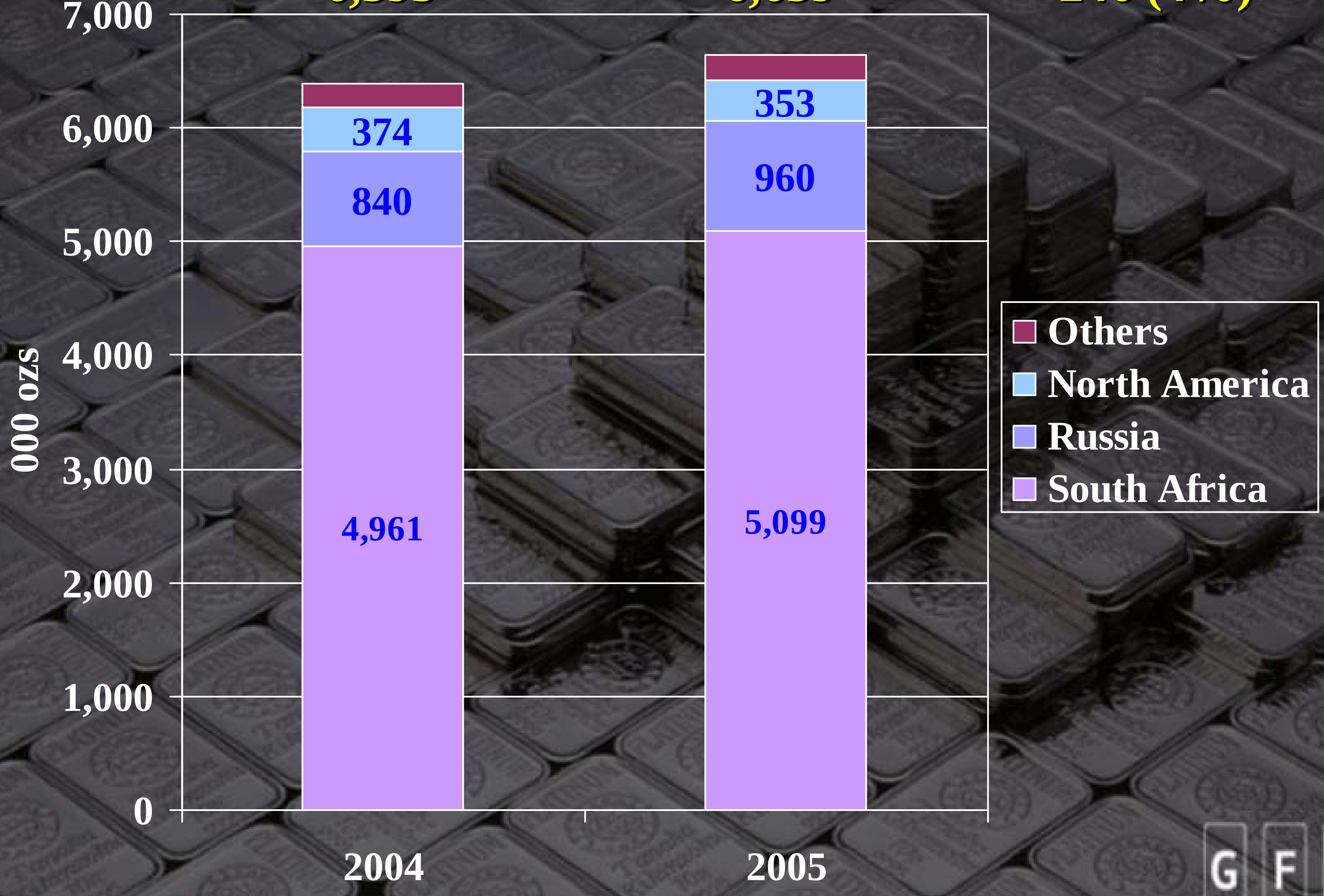
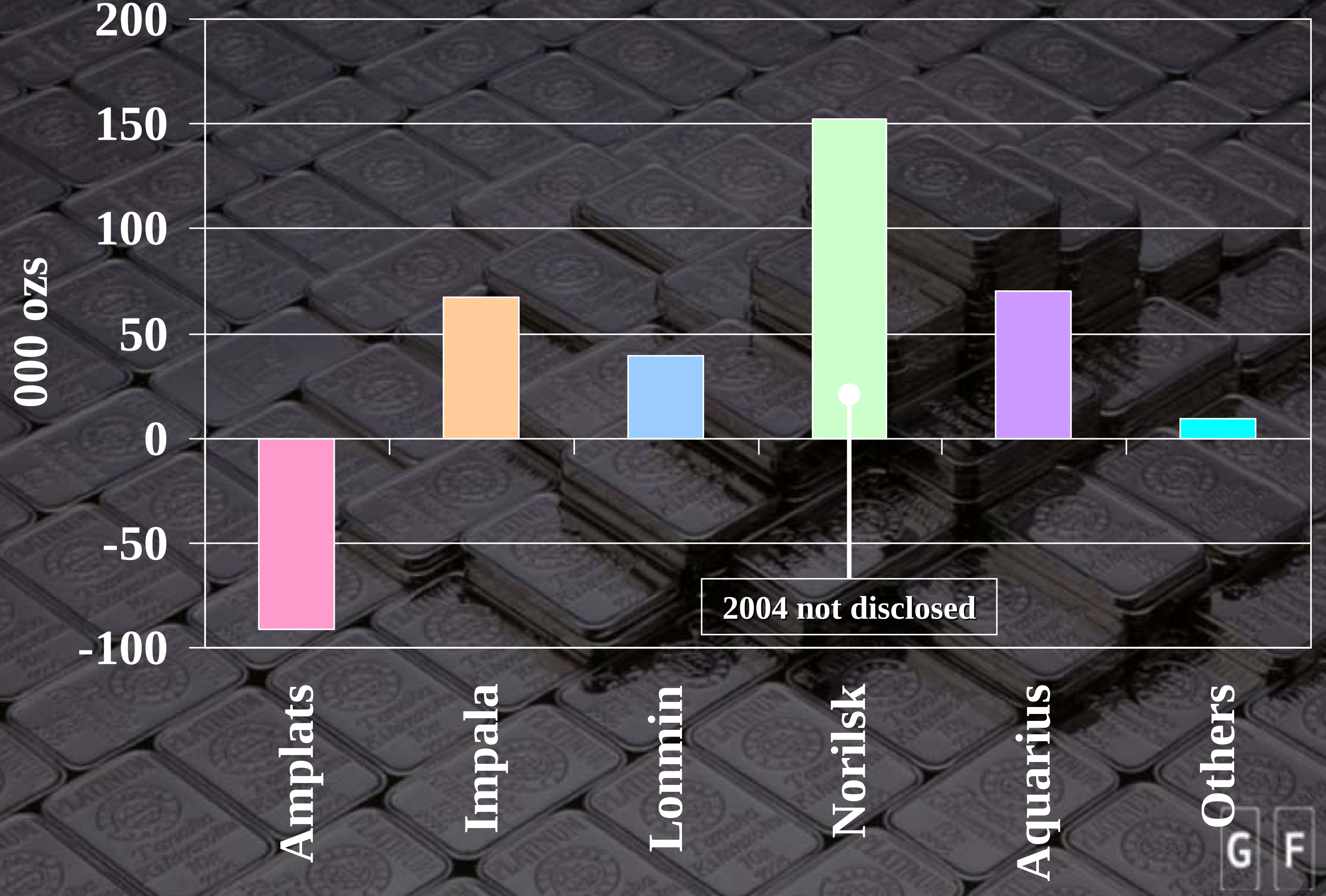
Mine production – platinum

	2004	2005	Up
	6,393	6,639	246 (4%)



Platinum production, up 246k ozs



Autocatalyst scrap; platinum

- **Recovery in 2005 rose by 8% to 840,000 ozs**
  - Has increased by 45% over the last 5 years.
  - World's 4th largest source, 11% of headline supply.

- **North America remains dominant: 500,000 ozs**
  - <u>But….growth slowing;</u> 2% in 2004, only 1% in 2005.
  - Reflects decline of auto industry usage from late 1990s.

- **Europe rising rapidly: 193,000 ozs (up 29%)**
  - Platinum recovery has <u>quadrupled over last 5 years</u>
  - <u>42% of ELVs now catalyst equipped</u>

- **Other regions: 147,000 ozs (up 9%)**

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Platinum, headline supply in 2005

'000 ozs	2004	2005	Change
Mine production	6,393	6,639	246
Autocatalyst recycling	780	840	60
Total supply	**7,173**	**7,479**	**306**

Up 4.3% in 2005

(Excluding supplies from above-ground stocks)

Platinum demand in 2005

'000 ozs	2004	2005	Change
Autocatalyst demand			
– diesel vehicles	1,623	1,942	318
– gasoline vehicles	1,918	1,905	(13)
Total autocatalyst	**3,542**	**3,847**	**305**
Up 9% in 2005			
Share of total demand	46%	51%	

(Excluding the use of industry stocks)

Autocatalyst in 2005

Platinum 3.85m ozs (up 9%)

- **North America 5% lower at 668,000 ozs**
  - Ongoing thrifting & substitution by palladium
  - Light vehicle production down 0.8% in 2005
- **Europe up 17% at 1.84m ozs**
  - Strength of LD diesel market, production up 4%
  - Output of Euro 4 compliant diesels doubled in 2005
  - Diesel share of production up from 45% to 47%
  - Minor assist last year from fitment of DPFs.
  - Total light vehicle production 1% higher
- **Japan & other regions: 6% higher at 1.34m ozs**
  - Higher volume/tighter regulations e.g. China

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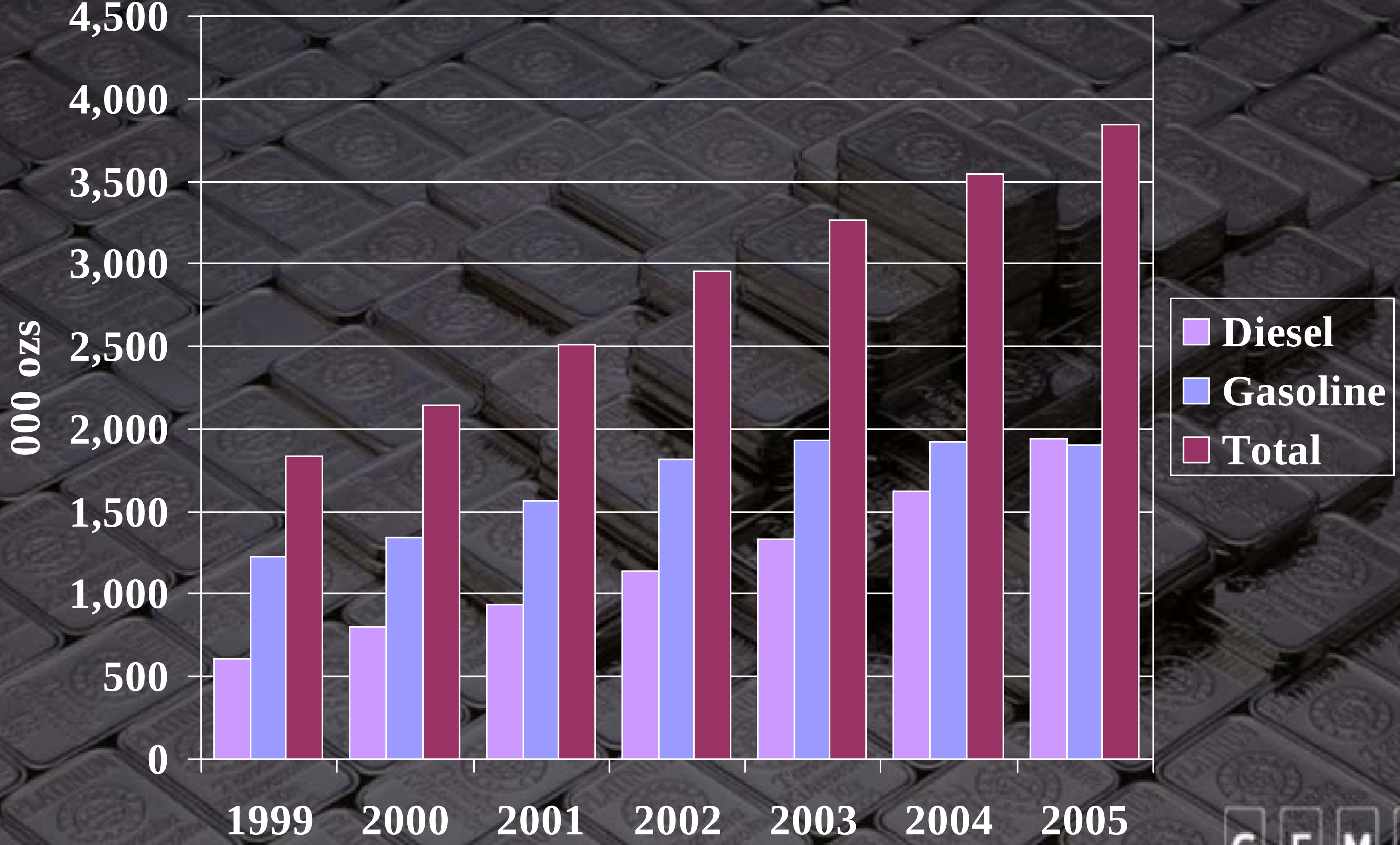
Autocatalyst – platinum demand

More than doubled since 1999



(Excluding the use of industry stocks)

Platinum demand in 2005

'000 ozs	2004	2005	Change
Autocatalyst	3,542	3,847	305
Jewellery fabrication	**2,208**	**1,827**	**(381)**
Down 17% in 2005			
Share of total demand	29%	24%	

(Excluding the use of industry stocks)

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Jewellery fabrication; platinum

- **Fabrication fell a further 17% to 1.83m ozs in 2005**
  - 3rd year of decline, over 1m ozs shed since 2002 peak
- **Japan declined by 9% to 525,000 ozs**
  - Continuing a 10 year decline, was ~1.5m ozs in 1996
  - White gold now firmly established as a major competitor
- **Europe & North America, down 11% to 442,000 ozs**
  - Reaction to high prices now clearly evident in US market
  - European high-end unaffected but volume market down.
- **China down further 24% to 825,000 ozs**
  - Consumer reaction to high prices, continuing margin pressure
  - Competition from gold (incl white) and palladium

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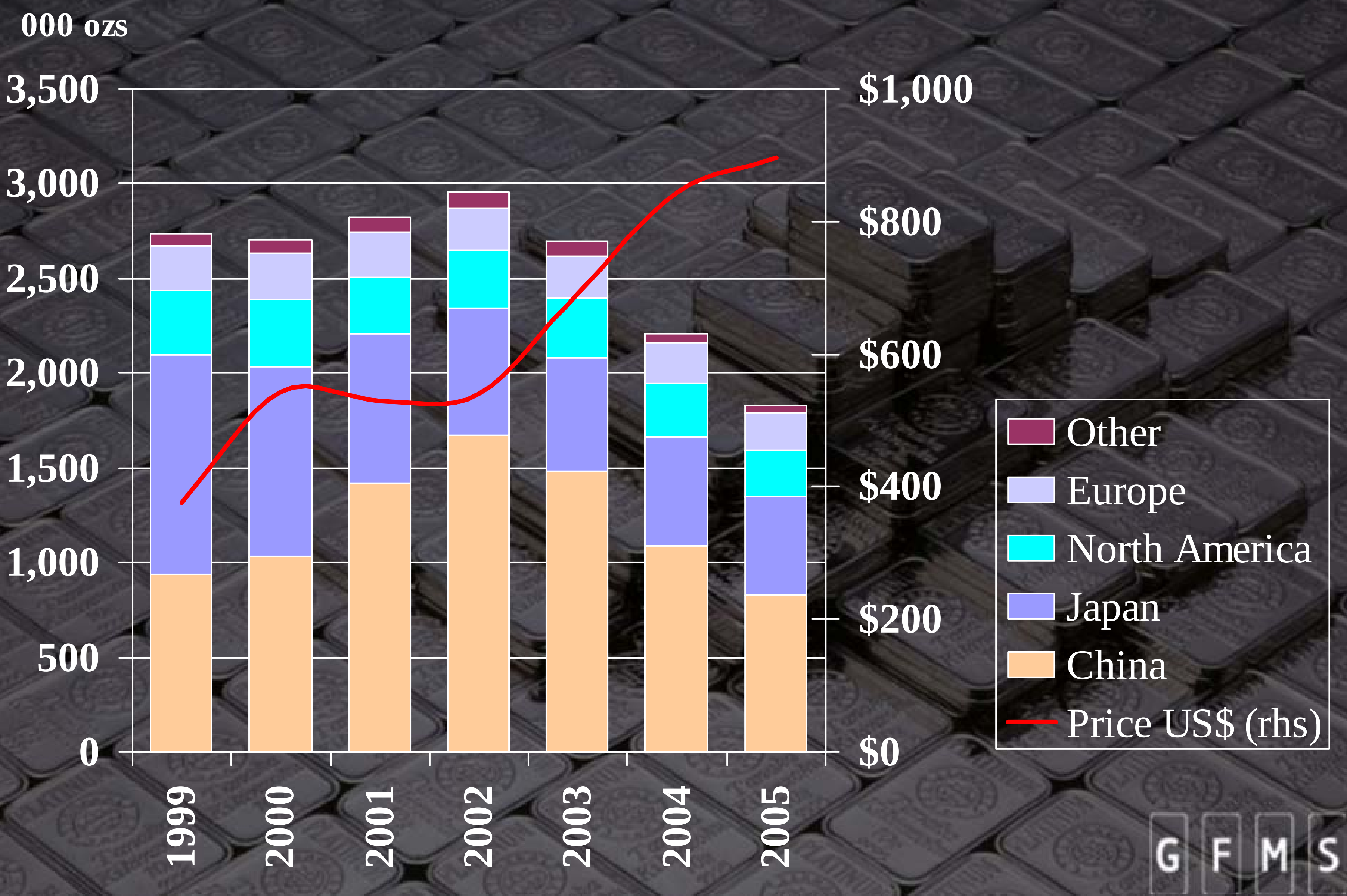
Jewellery fabrication – platinum



Jewellery margins – China 2005

	Gold	Gold	Platinum	Palladium
Product	24 carat	18 carat*	Pt950	Pd950
Fabricator	1.5%	24.1%	2.1%	10.6%
Retailer	10.8%	32.7%	11.6%	61.8%

*Average of yellow and white gold

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Platinum demand in 2005

'000 ozs	2004	2005	Change
Autocatalyst	3,542	3,847	305
Jewellery	2,208	1,827	(381)
Other industrial			
– glass industry	490	475	(15)
– other sectors	1,370	1,385	15
Total demand	**7,610**	**7,534**	**(76)**

Down 1% in 2005

(Excluding the use of industry stocks)

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Platinum - supply & demand

'000 ozs	2004	2005	Change
Headline supply	7,173	7,479	306
Demand	7,610	7,534	(76)
Gross surplus (deficit)	**(437)**	**(54)**	**383**

(Excluding above-ground stocks)

Platinum - supply & demand

'000 ozs	2004	2005	Change
Gross surplus (deficit)	(437)	(54)	383
Above-ground stocks			
Russia	165	0	(165)
US DLA	0	13	13
Residual surplus (deficit)	**(272)**	**(42)**	**230**

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Palladium

Palladium: 2005 highlights

- **Headline supply up 457,000 ozs at 7.56m ozs (6%)**
  - Mine production increased by 285,000 ozs (4%)
  - <u>Sharp gains in autocatalyst recycling</u>, up 172,000 ozs (35%)
- **Fabrication demand up 455,000 ozs at 7.83m ozs (6%)**
  - <u>Highest level of demand since 2000</u>
  - <u>Major gains in jewellery</u>
  - Autocatalyst stabilised after years of decline
- **Gross deficit: essentially static at 277,000 ounces**
- **But… substantial sales from above-ground stocks**
- **Residual surplus increased to 881,000 ounces**

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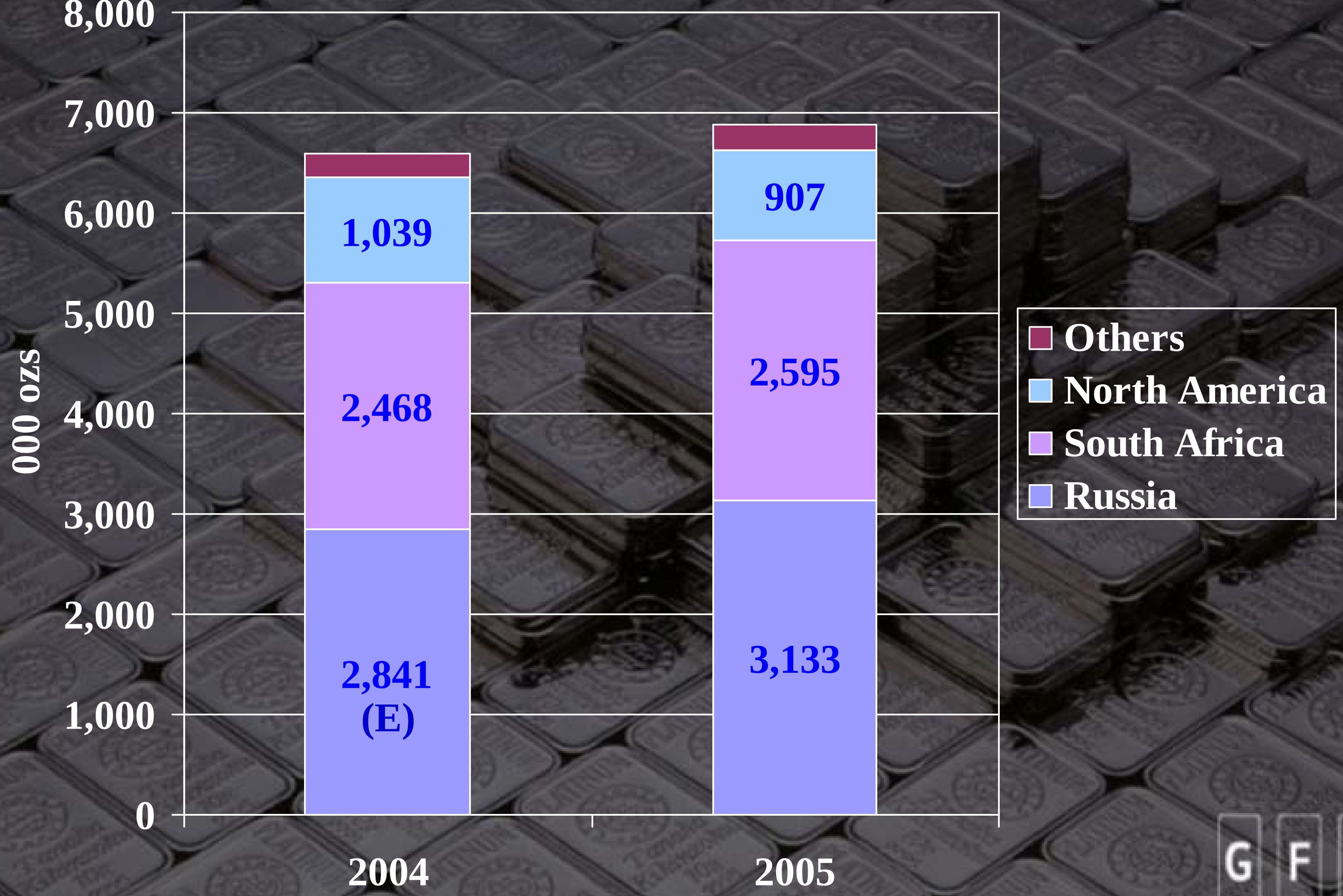
Mine production – palladium

2004	2005	Up
6,600	6,885	285 (4%)



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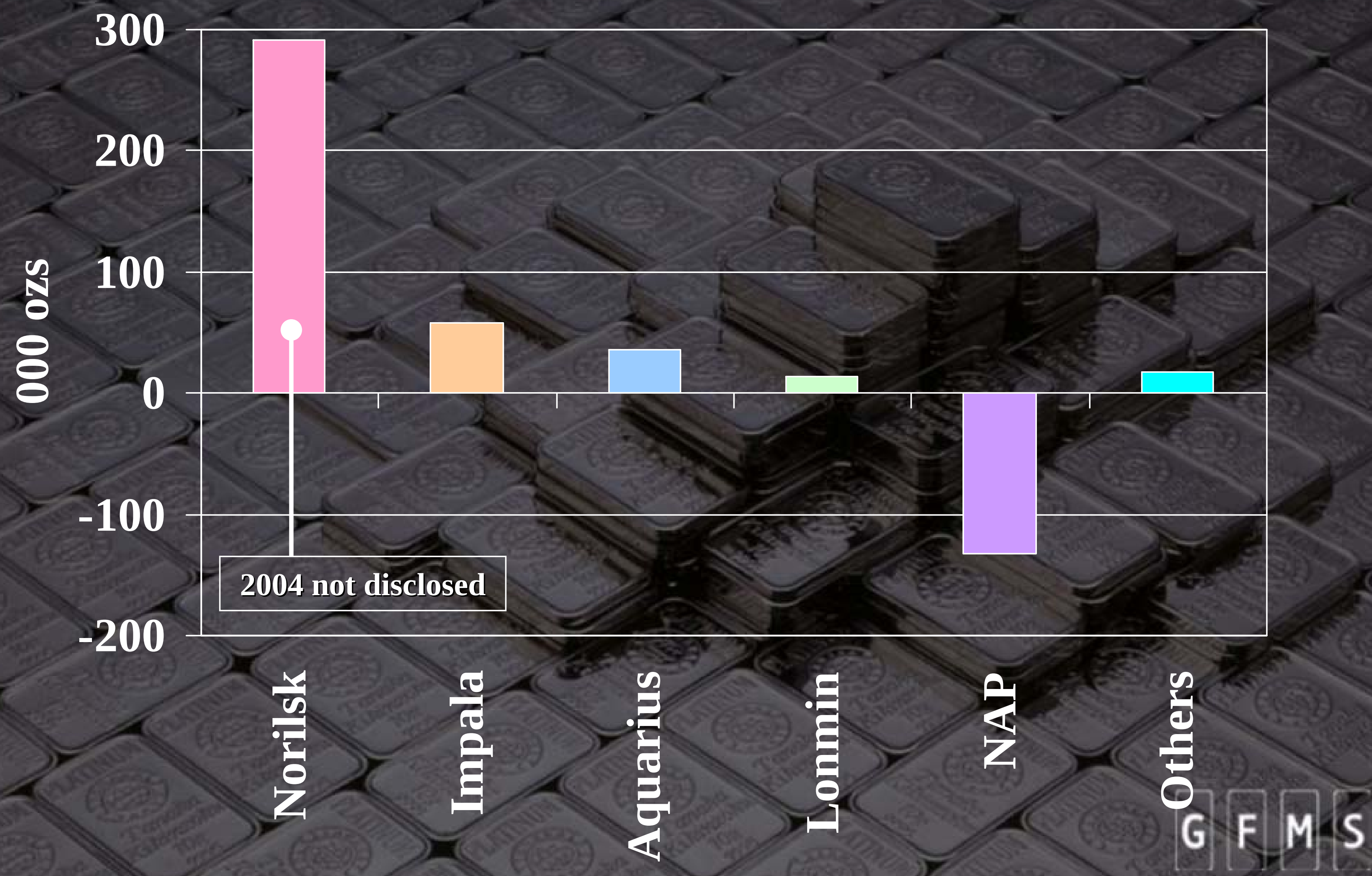
Palladium production, up 286k ozs



Autocatalyst scrap, palladium

- **Substantial gain in 2005, up 34% to 670,000 ozs**
  - Now exceeds Impala's (world #3) mine production
- **Recovery in North America surged to 456,000 ozs**
  - Reflects massive rise in auto industry use in late 1990s
- **European recovery rose strongly to 119,000 ounces**
  - Also driven by increased palladium usage from late 1990s
  - Market maturing rapidly but remains only half-way there
- **Recovery in other regions 95,000 ozs**

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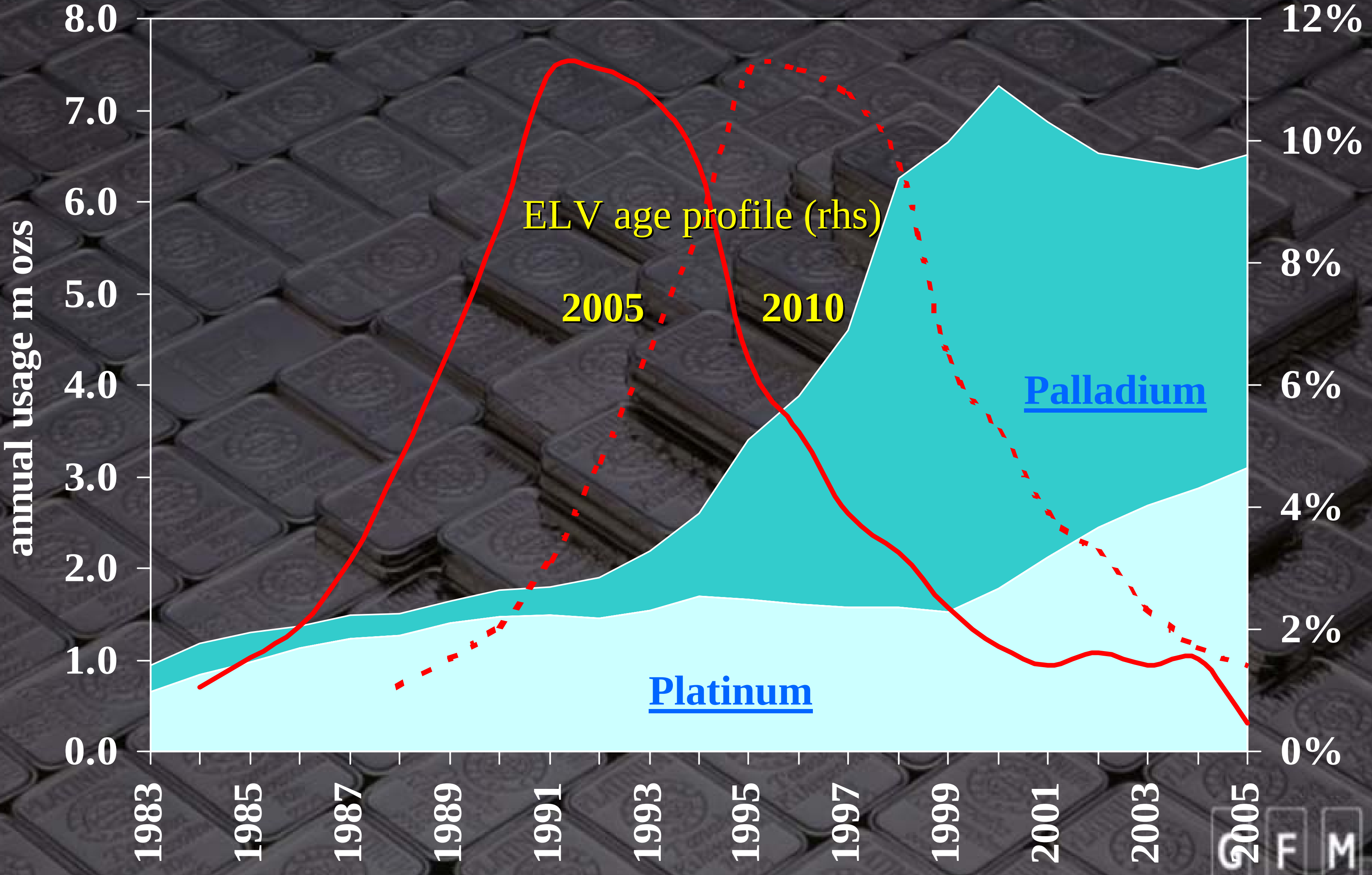
Autocatalyst scrap recycling

(the mountain approaches the scrap yard)



Palladium, headline supply in 2005

'000 ozs	2004	2005	Change
Mine production	6,600	6,885	285
Autocatalyst recycling	498	670	172
Total supply	**7,098**	**7,555**	**457**

Up 6.4% in 2005

(Excluding supplies from above-ground stocks)

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Palladium demand in 2005

'000 ozs	2004	2005	Change
Autocatalyst demand			
North America	1,548	1,487	(61)
Europe	1,213	1,185	(28)
Japan	727	749	22
Other regions	650	714	64
Total autocatalyst	**4,137**	**4,136**	**(1)**
Unchanged in 2005			
Share of total demand	56%	53%	

(Excluding the use of industry stocks)

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Autocatalyst in 2005
Palladium 4.14m ounces (unchanged)

- **North America down 4% at 1.49m ozs**
  - Smallest decline in 5 years, now looks to have stabilised
  - But thrifting again countered gains from substitution
- **Europe 2% lower at 1.19m ozs**
  - Mirrored decline in production of gasoline vehicles
  - Gasoline share of production slipped to 53%
  - Euro 4 compliant gasoline vehicles up 11%, (diesels doubled)
  - Substitution & Euro 4 benefits outweighed by thrifting
- **Japan & other regions: demand up 6% at 1.46m ozs**
  - Higher vehicle production e.g. China, Japan, Mexico, Brazil
  - Tighter regulations e.g. China

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Autocatalyst – palladium demand

Stable in 2005, but down one third since 2000

(Excluding the use of industry stocks)

Palladium demand in 2005

'000 ozs	2004	2005	Change
Autocatalyst	4,137	4,136	(1)
Jewellery fabrication	**884**	**1,131**	**247**
Up 28% in 2005			
Share of total demand	12%	14%	

(Excluding the use of industry stocks)

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Jewellery demand, palladium

- **Fabrication demand up 28% to 1.13m ozs**
  - Exceeded 1m ozs for the first time
- **Burgeoning market for palladium jewellery in China**
  - Gained further ground after stunning début in 2004
  - Fabrication up 23% to 814,000 ozs (incl white gold).
  - Palladium volume equalled platinum in 2005
  - Margin opportunity for the trade, value buy for consumers
  - Happening despite limited marketing and VAT handicap
- **Elsewhere, fabrication up 44% at 317,000 ozs**
  - Nascent production of palladium jewellery (mainly for US)
  - Increased use in white gold alloys

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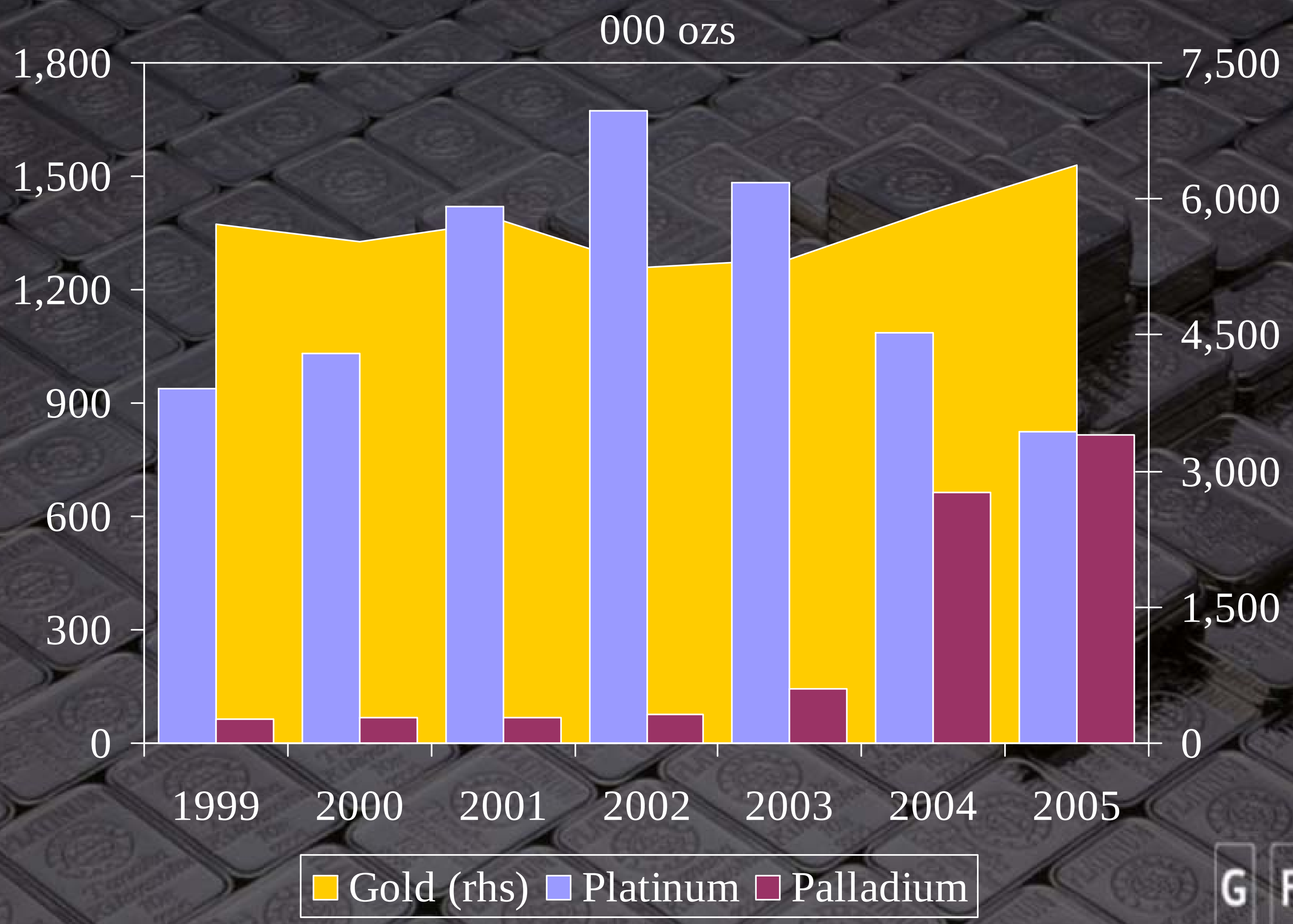
Jewellery fabrication - China



Palladium demand in 2005

'000 ozs	2004	2005	Change
Autocatalyst	4,137	4,136	(1)
Jewellery	884	1,131	247
Other industrial			
– electronics	1,066	1,121	55
– other sectors	1,290	1,444	154
Total demand	**7,377**	**7,832**	**455**

Up 6% in 2005

(Excluding the use of industry stocks)

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Palladium supply & demand

'000 ozs	2004	2005	Change
Headline supply	7,098	7,555	457
Demand	7,377	7,832	455
Gross surplus (deficit)	**(280)**	**(277)**	**3**

(Excluding above-ground stocks)

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Palladium supply & demand

‘000 ozs	2004	2005	Change
Gross surplus (deficit)	(280)	(277)	3
Above-ground stocks			
Russia	300	700	400
Stillwater	375	439	64
Auto industry	150	0	(150)
US DLA	38	19	(19)
Sub total	864	1,158	294
Residual surplus (deficit)	**584**	**881**	**297**

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Outlook for 2006

Platinum in 2006

Surplus expected, first since 1998

Headline supply forecast to rise ~500,000 ozs (7%)

- Amplats adding ~300k ozs, Aquarius (Everest) ~130k ozs

Record high prices to restrain growth in demand

- Autocatalyst: strong gains from light & heavy diesels…but
  - Ongoing substitution by palladium in gasoline sector
  - Partial substitution by palladium in diesels starting in 2006
- Jewellery: further significant attrition seems inevitable
  - China to decline still further (gold likely to be impacted also)
  - Scrap volumes expected to increase
- Overall: growth in demand unlikely to exceed rise in supply

Palladium in 2006

Stock sales again likely to exceed gross deficit

Headline supply expected to rise ~250,000 ozs (3%)

- Mining to add ~100k ozs, Autocat recycling ~150k ozs

Demand to grow again, but much depends on jewellery

- Autocatalyst: demand to increase for 1st time this decade
  - Gasoline: substitution gains, limited thrifting, higher production
  - Entry of palladium in light diesel catalysts starting this year
- Jewellery: palladium's price advantage remains intact
  - China: higher price may limit growth in palladium jewellery
  - But, movement away from gold & platinum may help palladium
- Overall: gross deficit likely to be overwhelmed by stock sales

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Price factors - platinum

- Deficits reducing since 2002 but prices have been rising.
- Investor interest clearly a major factor
  - Nymex net longs trended higher over 2005 (declined in 2006)
  - Resurgence of Japanese "general public" from mid 2005
- Fundamentals remain positive, despite shrinking deficits
- Decline of jewellery means demand is now less flexible
- In turn, this raises sensitivity to supply-side issues, e.g.
  - Production incidents, industrial relations etc.
- Perception remains that above-ground stocks are limited
- **Stocks have been depleted by ~4.5m ozs since 1999**

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Price factors - palladium

- Gross deficits since 1999, basic fundamentals are sound
- Autocatalyst turning the corner, jewellery on the up
- But, stock releases have exceeded gross deficits since 2001
- Consequently, large residual surpluses since then (3m ozs)
- But, these surpluses do not indicate stocks have risen
- Instead, ownership has changed hands, at lower prices
  - Large investor holdings e.g. Nymex/Tocom net longs ~2.5m ozs
- **In reality, stocks have reduced by ~11m ozs since 1999**
- *But despite this reduction, large stock-piles still remain*

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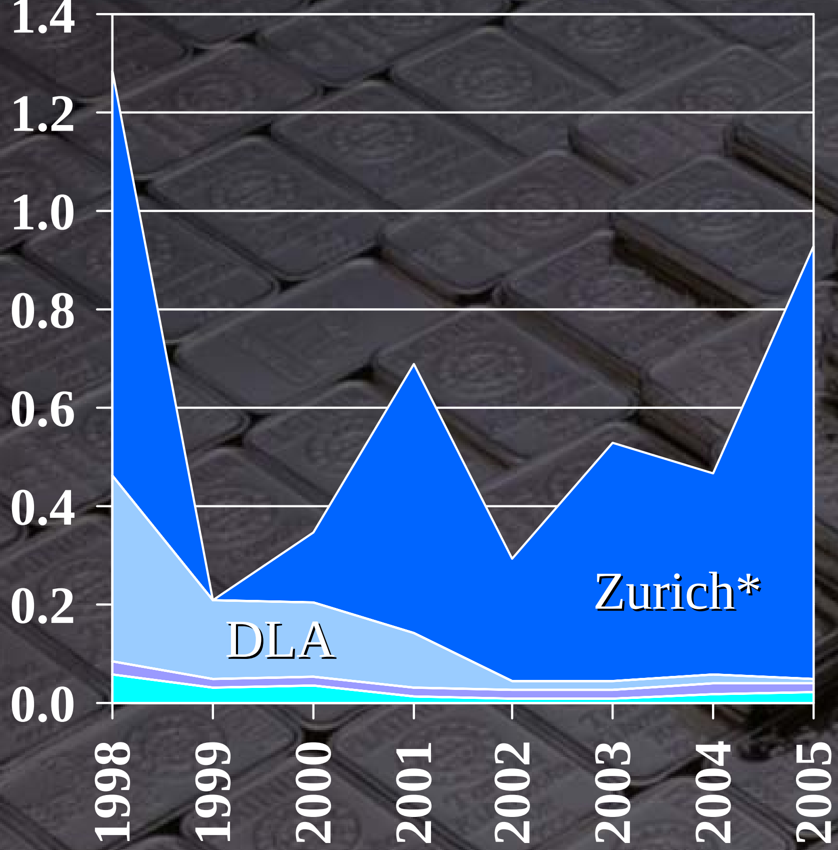
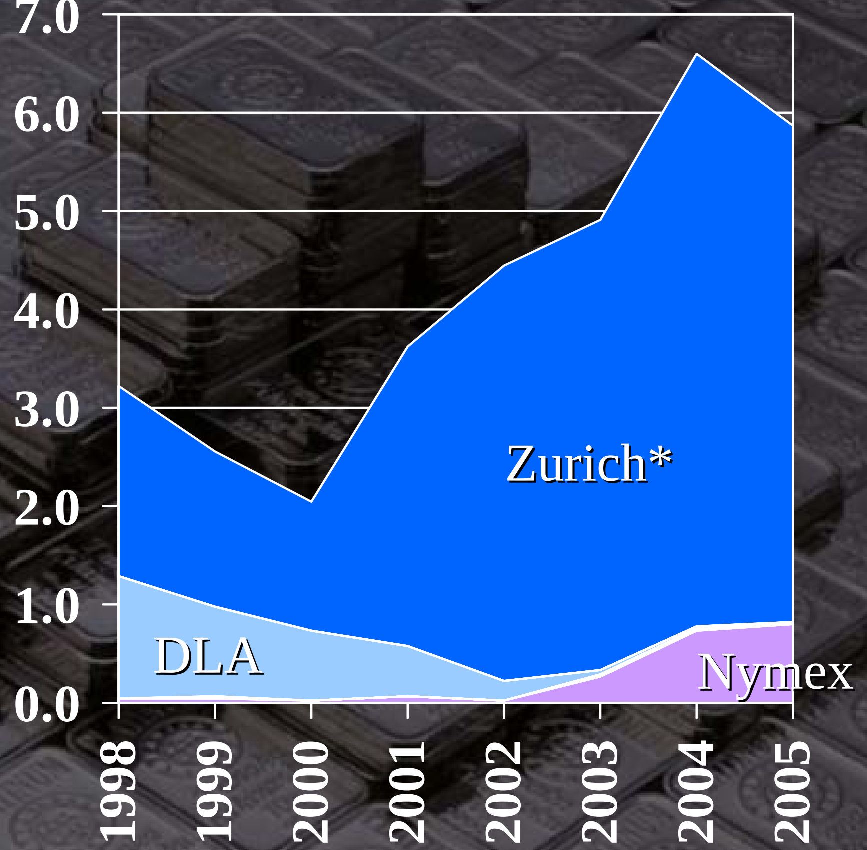
Part of the story on above-ground stocks

Zurich*, DLA, Nymex & Tocom

Platinum



Palladium



Ounces - millions

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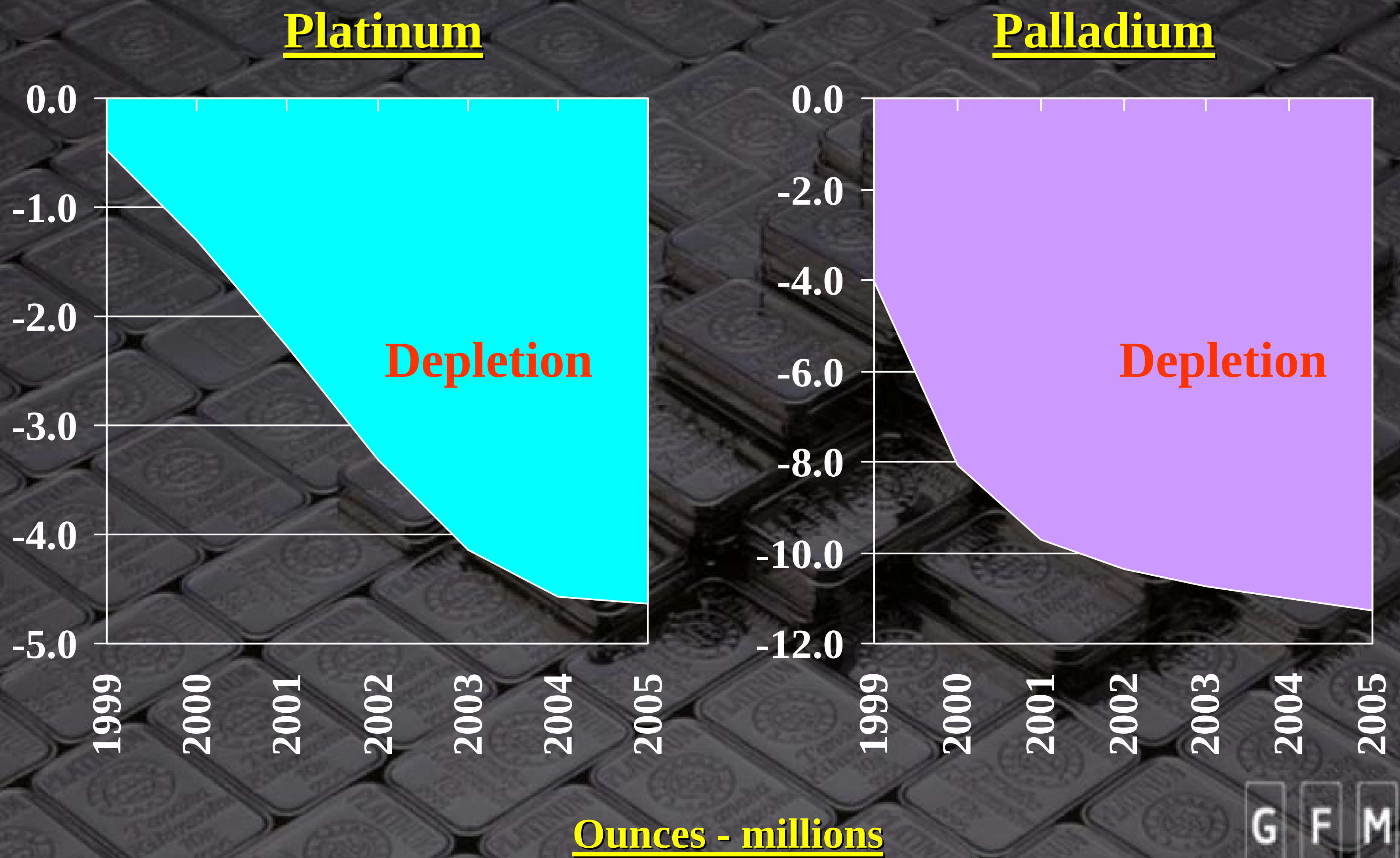
*** Zurich = implied minimum basis cumulative net imports**

Changes in above ground stocks
(cumulative gross surpluses/deficits)



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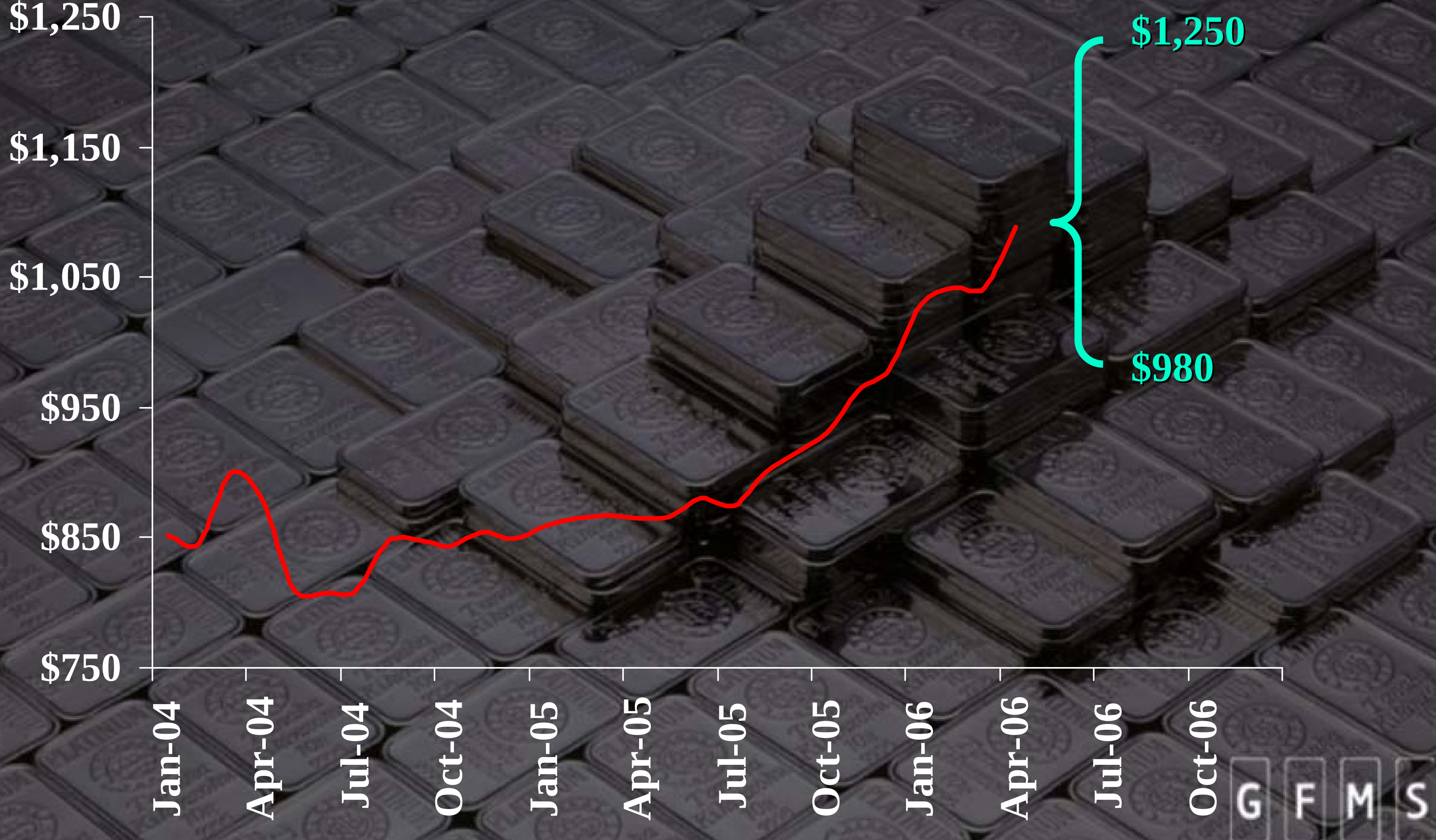
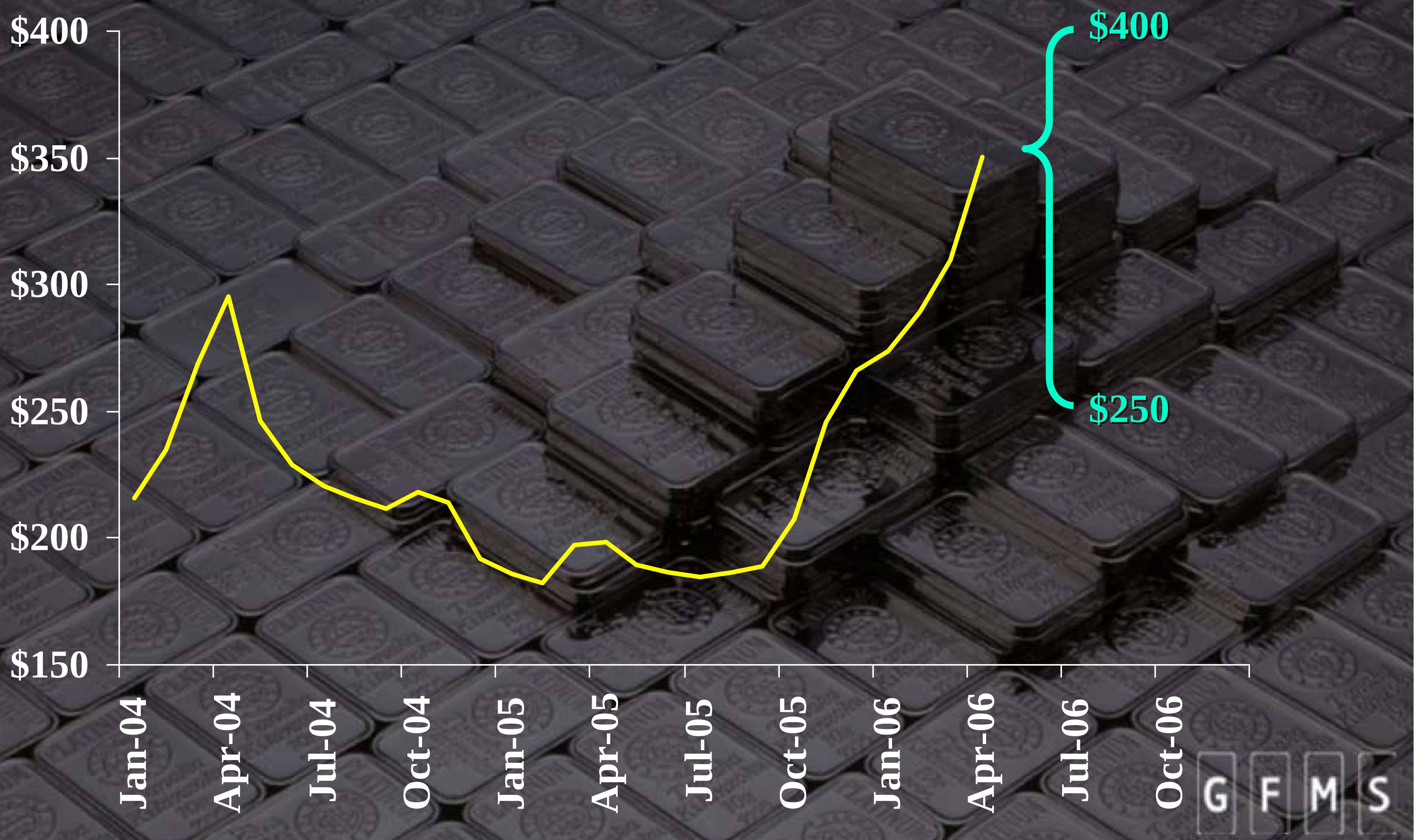
Platinum – 2006 price outlook



Palladium – 2006 price outlook



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