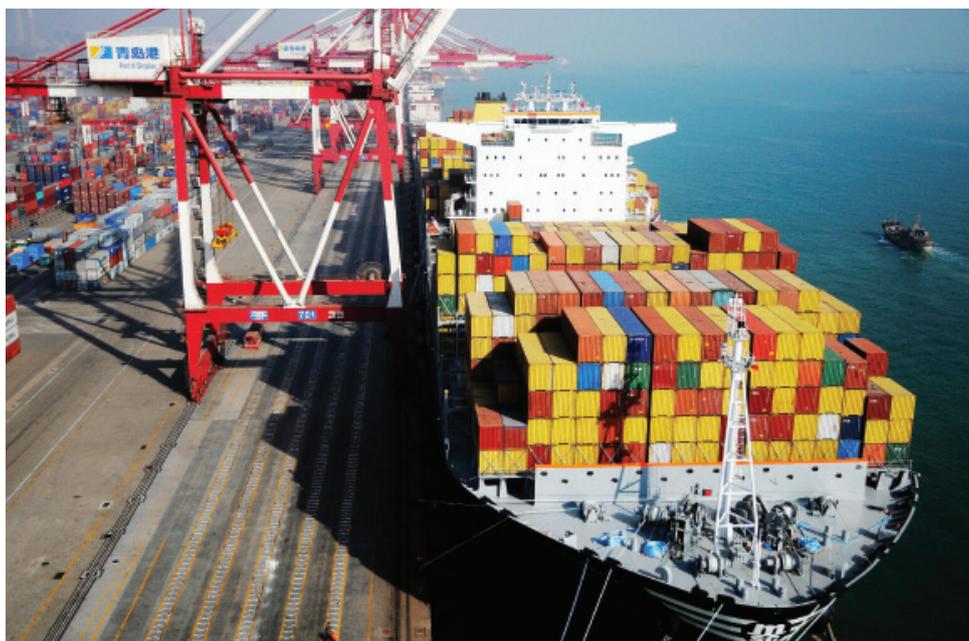


Investment analysis

Moving wine: a risky business

Christy Canterbury MW looks at the increasing importance of temperature control in the freight and storage of wine, and how fluctuations can adversely affect quality



both hot and cold, damage wine. To date, the remedial focus has been aimed primarily at long-distance, especially oceanic, shipments. While this emphasis is not misplaced, it is myopic. It is laudable that certain Japanese importers strip label wine bottles with a 'Shipped by Reefer' guarantee. Undoubtedly, the best place for wine en route is in a reefer – temperature-controlled containers regulated by generators. Still, wine often is left unprotected during other transit stages.

Consider a case of cru classé Bordeaux. At least three or four links lie between château and collector: négociant, shipper, importer and retailer or auction house. Generally, each party provides long-term, temperature-controlled storage. The danger zones, however, are loading docks, customs queues and delivery trucks.

Vogt has spent three years developing eProvenance's temperature-monitoring systems. The charts (*below and right*) provide startling data gleaned from over 650,000 temperature data points gathered by its tracking devices.

While most wine transport rests

FLUCTUATING TEMPERATURES DURING transport may damage more wine than cork taint. Eric Vogt, founder of eProvenance, a company which tracks wine through the distribution and storage chain, has collected data over the past three years that supports this premise. Where implemented, Vogt's tracking devices have shown that 14.7% of fine wine shipments from France to the US experienced temperatures above 26°C. Among 285 shipments of varying types from France to Asia, 13.3% suffered oxidation. In the same group, 69.6% of dry container shipments were damaged. Average industry estimates on cork taint, meanwhile, hover at 10%.

If this is true, why haven't more wine lovers noticed? For starters, wine often does not show visual evidence of damage. Unless bottles feel startlingly hot or cold upon receipt, only seepage, from the cork pushing out or sinking in, offers a clue. Bottles closed with screwcap are less revealing. Hence, damage often goes undetected until the bottle is opened. At that point,

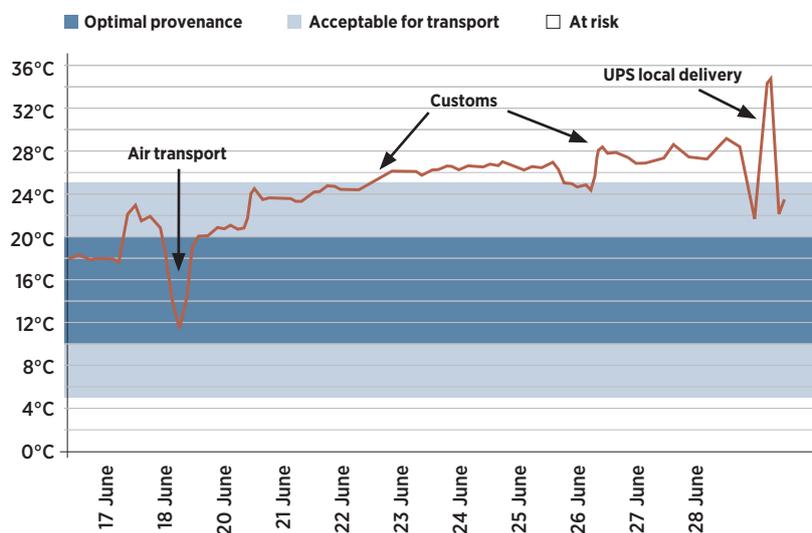
Above: wine can experience extremes of temperatures during shipping

many tasters are unsure how aromas indicate a wine has been adversely affected by temperature.

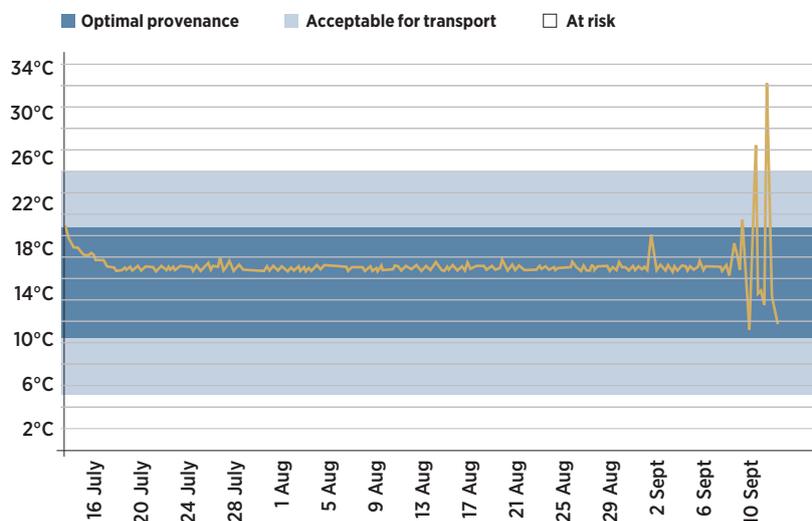
Links in the chain

Professionals and collectors widely accept that temperature extremes,

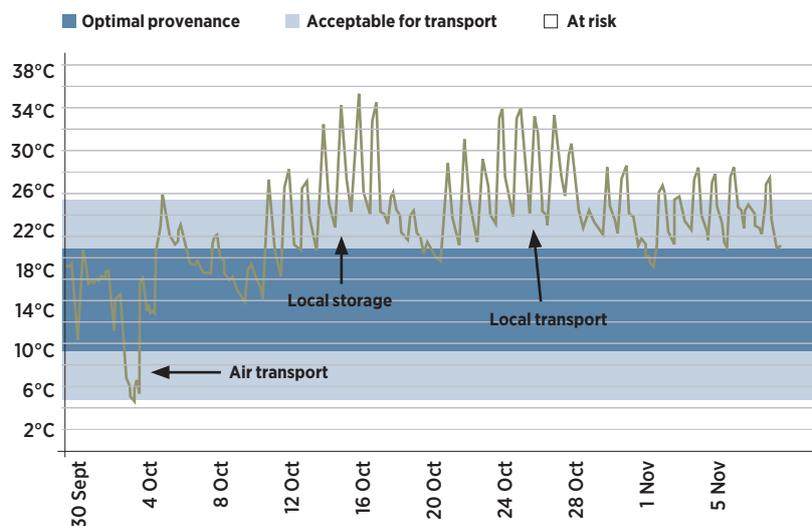
Bordeaux to New York by air freight



Bordeaux to Brazil by sea container



Bordeaux to Brazil by air freight



in the trade's hands, collectors should be actively involved. And, at last, collectors have access to unparalleled control via eProvenance's RFID sensor-based temperature monitors, which can be placed in cases prior to shipment. Aside from this high-tech solution, collectors can exercise a stringent shipment temperature campaign by:

- Insisting local deliveries be made in temperature-controlled vehicles.
- Checking on shipment routes. For example, a FedEx shipment from New York to San Francisco might

pass through Memphis. While temperatures in the departure and arrival cities may be fit for shipping, they may not be at the more southerly Memphis hub.

- Being wary of air transport, often used to 'protect' fragile wine from extended exposure to undesirable elements. Speed does not ensure optimal intra-shipment temperature.
- Exercising patience. Bordeaux *en primeur* wines ship two years after purchase. Why rush the final leg? Dr Christian Butzke, oenology professor at Purdue University,

advises wine should never see temperatures over 30°C.

- Inserting a temperature clause in shipping contracts.
- Knowing whether your shipper has temperature spoilage insurance.

Temperature damage

Why are these precautions against temperature extremes paramount? Science shows deterioration begins with a single heat spike. Ambient temperature does not immediately impact wine quality but the liquid's temperature must change.

Furthermore, a bottle's position in a case or a case in a pallet determines how much, or if, either is affected by ambient temperature fluxes.

Wine is aged to allow chemical reactions to occur. At a consistent, typical cellar temperature of 13°C, they materialise gradually. At higher temperatures, the processes accelerate and at different rates.

A study by Butzke shows these processes begin in earnest over 16°C. Damage includes oxidation, browning and a change of aroma and flavour. Extremely low temperatures, assuming the wine does not freeze, can also affect aromas and flavours in the wine. Wine that has not been tartrate-stabilised may drop its (harmless) colourless crystals.

Awareness of these issues has vastly improved. But links aside, shipping in active reefers must now be tackled. For too long, much of the chain has hoped for the best. This process will be unlike the fight against cork taint, where a sole link (the producer) could make a change. The greatest challenge is that most transportation transitions do not occur in the hands of wine experts.

Looking ahead, the widespread adoption of rigorous temperature controls should revolutionise the fine wine quality chain. Similar to the rising tide floating all boats, if proper shipping temperatures become *de rigueur*, long-term storage conditions should too, improving the provenance of wines sold at auction, retail and restaurants, and leading to fewer disappointments when bottles are opened. **D**

Christy Canterbury MW is a wine journalist, speaker, judge and educator based in New York