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Western Origins of the Rickshaw

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Looking at human-powered mobility worldwide in the second half of the nineteenth century, two revolutions stand-out as being particularly important:

- the emergence of rickshaws in the far east in the 1870s.
- the adoption of safety bicycles by the western world in the 1890s.

While most people are familiar with the 1890s western revolution in locomotion, the eastern one of the 1870s has remained something of a riddle. Should there have been western predecessors of these curricles on wheels that were drawn by a human being? And, if there were such predecessors, why had they been ignored in the rickshaw literature thus far?

An explanation may be found in a German treatise¹ by Ginzrot on carriages of 1830, an always trustworthy source, that reports (author's translation):

"In 1655 Sir Saunders Duncombe had suggested to King Charles I that in the larger cities of the continent it was

customary to be driven around the city in covered curricles called sedans in order to get one's business done. Since there were still few carriages in use here, he asked His Majesty for the privilege to introduce such curricles in England. This Duncombe was supported by the favorite, Buckingham, and through the influence of Buckingham he managed to obtain the required privilege for fourteen years. At the very beginning of their appearance, the people seemed to perceive these wagons or sedans, called roulettes in France, very unfavorably. Buckingham lost much of the favor he had enjoyed with the people by bringing this foreign carriage to England. Because this little cart had to be pulled or pushed not by horses but by people, John Bull resented the fact that the lord regarded the people as work horses by using them to pull the carts."

However, a human being pushing a Bath chair with an infirm passenger was all right. Thus far, I am unable to find period sources relevant to the above ac-

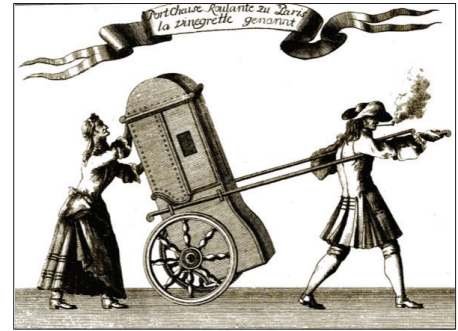


Figure 2a. Brouette aka vinaigrette from Schramm 1727 (ref. 5)

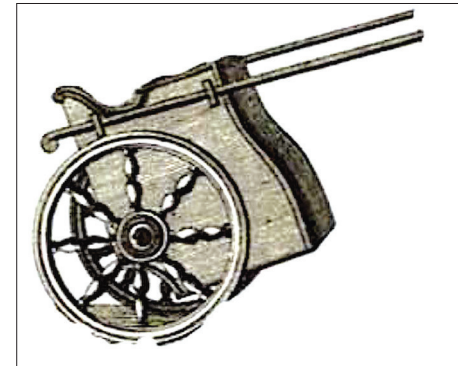


Figure 2b. tentative reconstruction of a probable summer version.

count, and a search in British newspapers for these roulettes or brouettes has not yet been accomplished, impeded by the fact that "roulette" also means the game of chance and "brouette" is the French term for "wheelbarrow" nowadays. However, a popular American book² on transport history claims, without giving sources, that brouettes were present in the UK during the 18th century, or, at least, in London. Since anglophone literature apparently didn't describe brouettes or the like, American and British historians were able to disregard the continental predecessors of the rickshaw.

Recently, though, a new monograph³ by Richard Bulliet about the history of the wheel finally took notice of the French predecessors of the rickshaw. While Bulliet does not specify a direct link between France and Japan around 1869, he at least doubts the American tale about the invention of the rickshaw by Jonathan Goble, a U.S. marine turned Baptist missionary, who claimed to have invented the rickshaw for his infirm wife at Yokohama in 1869. There are more rickshaw-inventor tales on the internet:

- Izumi Yosuke with Suzuki Tokujiro and Takayama Tosuke at Tokyo 1869, operators of a rickshaw service with a license (no patent);
- US blacksmith Albert Tolman at



Figure 1. Two brouettes in a comedy, circa 1707, by Claude Gillot (WikiCommons)

Worcester, MA, for a missionary heading for South America in 1846; and

- US carriage maker James Birch at Burlington, NJ, in 1867.

All of these tales ignore the French brouette as a model.

While business historians are content with the three entrepreneurs at Tokyo claiming to be the inventors, since successful entrepreneurs always claim to have invented their product, matters aren't that simple for the history of technology, and oral invention tales are obscure. In contrast to written texts, technical ideas can be grasped in a second by a technically minded person, stored in his mind and re-enacted at a different place or abroad. Business historians describe this process euphemistically as "technology transfer" ignoring the patent rights violations by individuals effecting the transfer (international patent conventions came at a later time). So, if we know no single inventor of the rickshaw, there still remains the possibility, that foreign merchants brought the idea to Japan, after the strict ban of horse-drawn carriages on Edo's (i.e. Tokyo's) streets was alleviated in 1866. Or, a Japanese traveller could have seen brouettes in Paris. For that to occur the brouettes would have had to have been present in Paris in the mid-19th century - an open question that I shall try to answer.

French brouettes

The brouettes, aka roulettes, date back in Paris to at least 1671, when they were introduced and heftily attacked by sedan carriers and hackney coachmen alike according to Ginzrot ⁴. An early type of brouette is depicted in an oil painting by French Artist Claude Gillot entitled "Les deux carrosses" and dated circa 1707. [Figure 1] It shows two nearly colliding brouettes from a comedia dell'arte skit (Harlequin and Scaramouche in brouettes

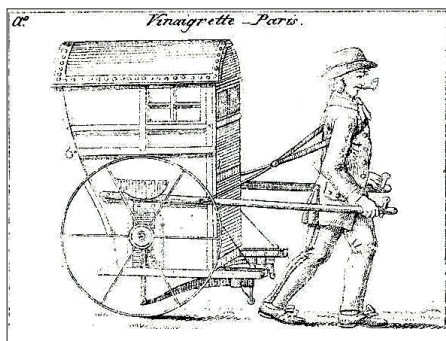


Figure 3. Vinaigrette, aka brouette, with leaf spring, circa 1756 (ref. 6)

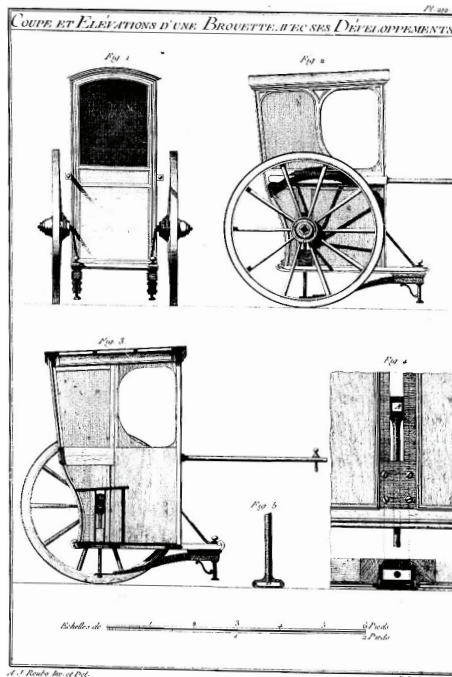


Figure 4. Brouette with helical spring, from Roubo 1769 (ref. 8)

- one of them carrying a mask - a judge passing by tries to solve the debate as to who has the right of way, but finally gets attacked by all four, operators and riders, from the brouettes). The pictured brouettes appear to be an early construction, or they reflect artistic license.

A more technical plate of the brouette at the beginning of the 18th century is given in a German book of 1737 by Schramm⁵. [Figure 2a] This picture also shows a new mode of operation necessitated by the fact that hackney coachmen continued to derive pleasure from forcing brouettes into the curb and making these ultralight vehicles fall over. To prevent this and to help the puller by pushing, a second person was added. According to Ginzrot, the second person usually was the wife of the puller and the brouette operation secured enough income for a living for both. The curved interface between upper and lower body of this brouette suggests that there might have been an open operation in summer, but no support of this has been found yet. [Figure 2b]

The brouettes were nicknamed "vinaigrettes" (the vinegar dealers' carts) that obviously were predecessors. This may explain the acceptance of the brouettes in Paris, in contrast to the earlier Londoners' hatred of a man-pulled curricule. The original vinaigrette carrying a keg of vinegar and pulled by the vinegar seller himself avoided horse droppings that would

spoil the vinegar - a plausible problem solution.

Ginzrot ⁶ gives us a later shape of a brouette, aka vinaigrette, with a smoking brouetteur. [Figure 3] Unfortunately, the engraver forgot to give the year after A^o (i.e. anno), but that can be determined from Garsault's book ⁷ of 1756. The 18th century appears to have been the hey-day of brouettes in Paris. Ginzrot tells us that they were used primarily by the lower classes, while the upper class still preferred sedans, since the legs of the carriers provided a less bumpy ride than the iron-tired wheels of the brouettes. This was remedied by either leaf springs (see Figure 3) or even with shock absorbers ⁸ between axle and brouette body, the latter being described as the invention of French builder Dupin (no patent found). [Figure 4] Now the brouette's body looked quite similar to the body of a period sedan.

Like taxi-ranks of today there were brouette-ranks ⁹ on 17 places and streets of Paris in 1779. [Figure 5] The same source tells the anecdote about a famous comedian who, having dined, needed to arrive in time on stage at the Comédie. He urged the brouetteur to run faster, who replied that he had no pousseur (pusher)

Le Pont Saint-Michel.	La rue de Venise.
Le pont Marie.	La place du Palais-Royal.
La Croix du Trahoir.	Le portait Saint-Eustache.
La barrière des Sergens-Saint-Honoré.	La place de Sainte-Opportune.
Les rues de l'Echelle.	Les rues des Gravilliers.
De Richelieu.	De Michel-le-Comte.
De Montmartre.	La place Baudoyer.
Des Bons-Enfants.	La rue du Temple, près celle Porte-foin.
Des Petits-Champs.	

Le bureau des brouettes est rue du Temple, vis-à-vis la rue Porte-foin; & celui des chaifes à porteurs, rue du Mail.

Figure 5. Brouette-ranks of Paris in 1779 (ref. 9)

with him and invited the comedian to push instead. The comedian arrived in time, but was thoroughly soiled because of the dirty streets (this was before Haussmann's macadamized boulevards).

According to Ginzrot's book the brouettes were still present in 1830, because it describes the situation in present, not past, tense (my translation):

"Although it is usually said of these little curricles that only common people and poor fortune-hunters, as well as the compliant sisters [prostitutes] make excellent use of them...there is still a class of modest, honest old people in Paris whose wealth does not allow them to use the usu-

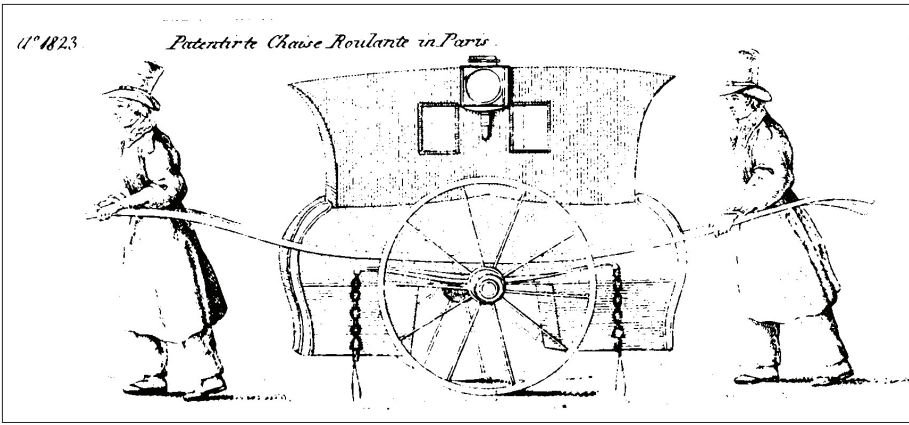


Figure 6. Chaise roulante, patented 1823, from Ginzrot (ref. 10)

al hackney carriages. They let themselves be driven around in such roulettes, be it to get fresh air outside the city or to visit a remote friend in the suburbs...As far as the price is concerned, one usually pays 5 sous to go from one alley to the other and 10 sous to another quarter of the city; but if one wants to cross the new bridge, one has to pay double."

So brouettes must have been present in Paris, some seating two passengers side-by-side, in the first quarter of the 19th century as well.

Chaises Roulantes

Possibly inspired by the introduction of speedy draisines to Paris in 1818, especially the stable ladies' draisines for female passengers, a French brevet was granted for a Chaise Roulante in 1823. Again this term isn't very specific, describing nearly everything rolling on wheels and seating a passenger - from Bath chair to brouette. This patent at the French INPI has no picture, but fortunately the book of 1830 by Ginzrot presents a plate ¹⁰. [Figure 6] The patent was granted to entrepreneur Félix Tranche La Hausse.

Accordingly, this chaise roulante was an ambulance, pulled and pushed by two men between shafts. It contained either a bed or two seats back-to-back for a sick or elderly passenger and an attendant. The patient's seat contained a chamber pot, too, and there was storage for his belongings. The chains to the ground were to discharge into the ground energy from any lightning bolt that struck the vehicle - a widespread precaution taken at the time. No information of the speed attained is available. This service could be rented for two francs an hour. There is no hint of how long this service persisted though - perhaps through the second quarter of the 19th century or longer. The French word for the rickshaw, pousse-pousse i.e. push-push, evokes the configuration of puller plus pusher.

Karl Drais's city draisines of 1845

At age 60, Karl Drais himself posted his proposal for city draisines in a newspaper.¹¹ [Figure 7] As was often the case, he appears to have been inspired by reading news of a similar project from abroad. Working off of his three-wheeled lady's draisine of 1818, he suggested a three-wheeler, was half draisine with a rider in front, half cabriolet, seating two passengers in the back. A similar config-

Stadt-Fahrdraisinen.
(Vortchaisen-Draisinen). — (Droschken-Draisinen). — (Kutschchen-Draisinen).

[1558] (In der Carlstuber Zeitung No. 41 d. J. vorläufig künftigh angezeigt.)

1) Leichtere Draisinen mit vier (vierfüßigen) Rädern, so das (statt bei einer Damen-Draisine *) eine Dame vornen einsetzt, und ein Herr (wie bei einem Rent-schiffchen) hinter derselben etwas höher sitzt, um aber die Dame hinauszufahren, während er dieselbe auf guten festen Schotzern mit Leichtigkeit fortzuführen ein Werk zu thun ist, indem die Draisine in ebenen Städten mit gutem Pfahler in harter Extrapfanne wenigstens zwei Personen gut fortzuehren kann, die hinter derselben etwas höher in einem nachlässigen Carlstuber sitzen, welches so eingerichtet ist, das dasselbe bei schönem Wetter offen, und bei Regenwetter mit dem Kutschchen schnell bedeckt werden kann &c. &c.

2) Hauptlich bedürfen kann man eine solche Draisine viel leichter machen, als eine sogenannte Droschke von einem Pferde gezogen, weil diese viel härter sein muß, um im Falle des Scheiterns eines Pferdes dem Schwerverfahren in eine etwas tiefe Wassergrube zuweilen zu müssen, was bei einem von einer vernünftigen Person getriebenen solchen Draisine bei weitem nicht so leicht zu stützen ist.

Als Droschke (wenigstens für zwei Personen eingerichtet, indem dabei das Pferd fast ganz erpaßt, ist der Vortheil schon groß, besonders wenn man (etwa gegen etwas Abgabe an die Kutschger) zu dem jetzigen Zeit den Vorteil, welche während dem Warten in der (niever) Stadt-Draisine ihre Zeit des Wartens benutzen können, wie z. B. hässliche Schänder, welche bei Anwesenheit zum Fahren ihre Arbeit schnell in ein Kutschchen-Schiffen &c. legen, und sich vorsetzen können, und im Vergleich gegen Vortchaisen, ist der Vortheil noch auffälliger, indem bei dem Gebrauche dieser, zwei Personen nötig sind, um eine Person in Schiffschiffen fortzuführen, während bei einer oben beschriebenen Draisine nur eine Person nötig ist, um zwei Personen wenigstens in harter Extrapfanne, oder mit Galoppschiffen zu transportieren.

Und zu folgenden Zwecken ist die Erfindung tauglich, nämlich:

1) für Herrschaften, welche wohl einen elegant geführten Bedienten, aber nicht auch Kutschger und Pferde mit Kosten von ungerade tausend Gulden jährlich halten wollen, das sie sich statt dessen nur einen Diener und eine solche elegante Stadt-Fahrdraisine für höchstens 400 schwere Gulden Capital **) zu kaufen brauchen, um elegante Equipage mit Wohnung zugleich zu haben, um auf gutem Pfahler noch schneller fahren zu können, als jetzt mit den besten Pferden, was auch den vornehmsten und reichsten Herrschaften begehren mag;

2) für Leute, welche nur zeitweilig einen Bedienten mit Equipage halten wollen, und

3) für die obigen Zwecke zumal in Wien-Anhalten zu erziehen &c. &c.

In näheren Erklärungen mit Beispielen bereit, behält sich übrigens der Erfinder von Drais seine Erfindungspatentrechte vor, und bietet sie Weltfremden, Engländern, Schweden, oder Exemplarweise zum Kauf an.

Die Rechte der in dem vorstehenden Aufsatz in meinem Namen gemachte Ausfertigungen beschneidet ich hierdurch.

Carlstube, den 24. Juli 1845.

Karl Freiherr von Drais.

Die Rechte vorstehender Unterschrift des Freiherrn von Drais dahier wird anordn. öffentlich beglaubigt.

Carlstube, den 24. Juli 1845

Groß. k. k. Stadtamtverwalter.
Der Bezirksnotar.
G e r h a r d.

vdt. Hörs.

*) Siehe Weimarer Journal für Literatur, Kunst, Luxus und Mode. Jahrgang 1820. Juniheft, Seite 305 &c.
**) Mit Einschluss des Honorars für den Erfinder mit Theilhaber.

Figure 7. Karl Drais's 1845 ad on city draisines (ref. 11)

<p>Rikshaw.</p> <p>Extremely durable, with strong steel spoked wheels running on ball bearings, and shod with solid rubber tyres. The body and the upholstery are of the finest quality and finish. It is fitted with a folding hood. The shafts are detachable, as well as the wheels and the hood, in order to reduce the packing space. Net weight 63. Gross weight 150 kg. Size of Case 160x110x77 cm.</p> <p>Price complete: £ 18, 15, 0.</p> <p>Code: Rikshaw.</p>	<p>Pousse-Pousse à roues-essouffées.</p> <p>Exécution élégante et solide, roues avec forts rayons en acier montées sur roulements à billes, pneumatiques de première qualité, très belle carrosserie capitonnée avec armoires, capote pliante. Branards démontables ainsi que les roues et la capote, en vue d'un emballage facile. Poids net 63. Poids brut 150 kg. Caisse. 160x100x77 cm.</p> <p>Prix: Frs. 468, 75.</p> <p>Mot du code: Rikshaw.</p>	<p>Coche de coolies.</p> <p>Ejecución elegantísima de gran solidez, ruedas de acero con llantas de zona y cojinetes de bolas. Carrocería esmeradamente ejecutada con cajonete. Cubierta y las dos lanzas desmontables así como también las ruedas para facilitar el transporte.</p> <p>Peso: Neto 63 kg. Bruto 150 kg. Caja: 160x100x77 cm.</p> <p>Precio: Frs oro 468, 75.</p> <p>Llave telegráfica: „Rikshaw“.</p>	<p>Kullwagen.</p> <p>Hochfeine, solide Ausführung, starke Stahlspeichen-Räder auf Kugellagern mit solider Gummibeherrung, Prima-Karosserie und Polsterung mit Kästchen, zurück-schlagbares Verdeck. Handgriffstangen abnehmbar, auch Räder u. Verdeck behufs rationeller Verpackung. Nettogew.: 63. Brutto 150 kg. Kiste: 160x110x77 cm.</p> <p>Preis: Mk. 375,-</p> <p>Codewort: Rikshaw.</p>
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Figure 8. Rickshaw of 1907 made by German bicycle manufacturer NSU for sale in the Orient (ref. 13). Insert: art-nouveau front badge of NSU.

uration¹² had been suggested in 1817 by a Swiss artist named Wocker and also in 1819 by an Englishman named Birch. Drais argued mainly for the economics as compared to a horse-pulled cabriolet. Alas nobody took up the idea, since acceptance by the authorities was improbable then in Germany. One suggestion turned out to be visionary: the driver should - during a wait for new customers - do tailorwork. Fifty years later there are indeed photos of drivers in India waiting on their rickshaws for passengers and tailoring.

So even in 1845 news of brouettes must have come from France to Germany, further evidence of their existence well into the 19th century. Technology transfer by travellers to Japan, where rickshaws started a boom from 1869 on, was thus

feasible within a generation, quod erat demonstrandum. Possibly, the progressive ideas of the Paris Commune finally put an end to brouettes in the 1870s.

Bicycle technology for rickshaws

With locally built rickshaws mushrooming throughout the far east, western bicycle manufacturers started producing lightweight steel-tube rickshaws from the 1890s on for the colonies. So finally we arrive within the scope of this conference.

Figure 8 depicts a German example¹³ made by the Neckarsulmer Fahrradwerke at Neckarsulm (where, by the way, the 3rd ICHC took place). Their rickshaws of 1907 had wire-spoked wheels, ball bearings, solid rubber tires, and a folding hood. They were traded via London to the colonies. ●

End Notes

- 1 Ginzrot, Johann Christian: *Die Wagen und Fuhrwerke der verschiedenen Völker etc.*, Munich 1830 (Reprint Hildesheim/New York 1979); vol. iii, p. 144.
- 2 Tunis, Edwin: *Wheels - A Pictorial History*. Cleveland 1955.
- 3 Bulliet, Richard W.: *The Wheel - Inventions and Reinventions*. New York 2016, Chap. 10.
- 4 Ginzrot, EN1, iii, p. 139,
- 5 Schramm, Carl Christian: *Abhandlung der Porte-Chaises*. Nuremberg 1737, p. 48.
- 6 Ginzrot, EN1, Table xlii.
- 7 Garsault, François A.: *Traité des voitures*. Paris 1756, Table ix.
- 8 Roubo, André Jacob: *L'art du menuisier*, 1. section. Paris 1769.
- 9 *Dictionnaire historique de la ville de Paris*. Paris 1779, p. 691.
- 10 Ginzrot, EN1, Table xlii.
- 11 Mannheimer Morgenblatt of 1 August 1845.
- 12 Lessing, Hans-Erhard: *Automobilität - Karl Drais und die unglaublichen Anfänge*. Leipzig 2003, p. 166 and 300.
- 13 Krach, Martin: *NSU-Fahrräder 1886-1963*. Heilbronn 2001, p. 61.

Conference Moment



During the 30th ICHC some of the participants made a visit to the bicycle museum in Retz, Austria. Here Fritz Hurlt (left), proprietor of Fahrradmuseum discusses the fine points of his Draisine and Hobby Horse with Nick Clayton (UK), Helge Schultz (Germany), and Andrew Ritchie (UK).