

## STUDY OF THE LIFE AND MAIN ACHIEVEMENTS IN THE FIELD OF APPLIED MECHANICS OF THE GREAT AMERICAN INVENTOR R. G. LETOURNEAU

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As it is well known, the humankind faces now (at least) 3 great questions: a) How could be improved the efficiency of the young generation education? b) Which has to be the attitude towards the strong present tendencies of depreciation of the basic moral values? c) Which are the most important machines for the humankind (and of Romania's, especially) development in this century?

The life and main achievements of the great<sup>1</sup> (but not too well known in Romania) American inventor R. G. LeTourneau provide many good answers to these essential questions. Given being is not possible to separate the achievements relative to the inventor's life, we will point out (see e.g. his autobiography [1], as well as the new publications [3]-[8] from this century) that the whole life of LeTourneau (1888-1969) developed along 4 main disjoint directions, whose final convergence ensured his outstanding moral force, technical and financial results.

These main 4 directions of LeTourneau's life and achievements were (in chronological order): a) his remarkable interest (shown from 14 years) and results in the frame of the vocational education, b) his early integration in the Christian church (at 16 years) and his strong support to the philanthropically missions (that determined his generally used appellation of "mover of men"), c) the more than great interest (a true personal passion) for the machines design<sup>2</sup> and building, demonstrated beginning from 17 years (with the design of a micro-model of heat engine), d) his remarkable solutions for manufacturing and business activities without any deviations from the ethical principles (that is why his autobiography was published approximately 9 years before his death, so the eventual contestants had sufficient time to deny his affirmations).

### 1. R. G. LETOURNEAU AND THE VOCATIONAL EDUCATION

R. G. LeTourneau left his 7<sup>th</sup> elementary form to work in an iron foundry. He completed his technical education<sup>3</sup> with:

a) no less than 17 years of remunerated apprenticeship in a lot of absolutely different professions as (besides the: (i) iron foundry): (ii) trees 'cutting and their stumps pulling, (iii) lead burning for batteries of electrical accumulators, (iv) extraction of the low grade ore, (v) brick layer, (vi) carpenter, (vii) irrigation ditch digger, (viii) farmer, (ix) oak chopper, etc.,

b) the study of several correspondence courses in Applied Mechanics and Electrical Engineering, ended with some practical applications as the set up of a motorcycle, the cars repairs, etc.,

c) the thorough discussions with his engineers, ended with the foundation of an important private University (the second from the East-Texas). LeTourneau's requirement for his academic students was to think permanently (during their academic studies) to the solution of a problem of clear technical & social interest, bringing finally a net improvement of this problem approach.

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<sup>1</sup> His machines represented nearly 70% of the earthmoving machines and engineering vehicles used during World War II, and over the course of his life he secured nearly 300 patents (according [1]).

<sup>2</sup> In this manner, he coined the surname of "mover of mountains".

<sup>3</sup> We have to emphasize here that the first published book about the advantages of the self-education (in strong connection to the nature) was that of the Swiss writer and philosopher Jean-Jacques Rousseau (1712-1784): "*Émile ou de l'éducation*" [9].

## 2. R. G. LETOURNEAU'S FIGHT TO PROMOTE ETHICAL SOLUTIONS TO THE LIFE MATTERS

Very early (around of his 16 years age, during his apprenticeship in iron foundry), R. G. LeTourneau was confronted with some ethical deviations of some of his young friends<sup>4</sup>. Without any external influence, his decision – in the Christmas season of 1904 – was to become a Christian.

Already in 1919 (at Stockton, California), LeTourneau participated to some activities of the Christian Missionary Alliance, e.g. by transporting some fallen down drunkards at the Peniel Mission house, and evangelizing them, which led firstly to his surname of “mover of men”.

Given being R. G. LeTourneau was a very hard-working man, he was able to give to his Evangelic Church \$5000/year beginning from 1924, and – since 1935 up to his death – no less than 90% of his revenue. Additionally R. G. LeTourneau has founded the Evangelic Center from New York, the newspaper Now (since 1935) with more than 600,000 readers, he directed the missionary works from Liberia (West-Africa) and Peru (Southern America), and other numerous Christian and philanthropic missions in USA (including the “Le Tourneau Christian Center Camp” and conference grounds in Rushville, New York), United Kingdom (e.g. at Stockton-on-the Tees), etc.

## 3. THE OUTSTANDING INTEREST OF LETOURNEAU FOR THE MACHINES DESIGN AND MANUFACTURE

It is pointed out by the invented machines for the: a) land leveling [intended to the set up of high-streets, take-off/landing ways for airplanes, irrigation systems, high-streets repair after some cataclysms (or bombardments)], involving also the Mountains mover achieved in 1923, at 35 years, b) the jungles crushing, cutting and transport of the trunks of some tremendous trees, the transports in the arctic regions (with huge wheels, acted by electrical motors), c) the re-figuration of some cities by means of some buildings displacement, d) amphibious ships (with both aquatic and terrestrial motions), tows for the ships pulling through some canals, landing crafts retrievers, e) integrated manufacturing systems (starting from steel foundries, rotators designed to facilitate the welding, etc), f) mobile missile launchers, g) systems intended to the building of: (i) bridges, (ii) portable islands for oil offshore drilling, etc.

Some (few) examples concerning the main Inventions, as well as of important works accomplished by R. G. LeTourneau, as entrepreneur (the corresponding pages in the second autobiography edition are indicated)

- The racing car “Gondola” – 1905, pages 37, 127;
- The first mechanical bulldozer for leveling by breaking - 1910; page 58,
- The high-speed cars trumpeting sound obtained by means of a cut-out in their exhaust pipe, pages 72-73,
- First build railroad (fall of year 1925), page 138,
- First build important highway (spring of 1926), between Oakland and Stockton, p. 138,
- Prefabricated houses, from: a) steel bars, b) using the concrete, page 221,
- The walking ship, able to move not only on the high seas, but also to go forward on dry land, page 259,
- Sugar cane harvester (for Hawaii), page 261,
- Multiple applications of the wheels acted by electrical motors, page 263,
- The moving platforms for the off-shore oil drilling, page 269.

As a result of his outstanding contributions to the solution of several technical difficulties, to R. G. LeTourneau were awarded some national (US) distinctions, particularly the:

- The tenth (unique) annual award of the National Defense Transportation Association, as the person whose “achievements contributed most to the effectiveness of the transportation industry in support of national security”, p. 263.

<sup>4</sup> Only days after his 16<sup>th</sup> year anniversary, the police came to him for information on the whereabouts of a friend wanted for assault and battery. Then in rapid succession three other friends of him got in trouble with the law.

- The Frank P. Brown medal of the Franklin Institute for “revolutionary improvements in earth-moving equipment”, p. 268.

#### 4. THE BUSINESSMAN ACTIVITIES

While his activities as entrepreneur (begun without hired coworkers in 1920, at the age of 32 years, rather late, but consolidated by his 17 years of “hard” apprenticeship in multiple professions) in the field of the land leveling, construction of de highways and tunnels, R. G. LeTourneau begun his businessman activities (with hired personnel) at 34 years, in 1922, involving also 3 “apprenticeship” years (1926-1928) besides the great Californian businessman Henry Kaiser. His businessman activities continued without interruption up to 1966 (at 78 years).

Which were the secrets of his important financial successes? A) Very hard work (14 hours/day or even more) and high-love for his profession, B) Auctions at considerably less prices than those required by his competitors, which brought him – with some risks of severe financial losses – many contracts (sometimes considerably more than he could accomplish!), being so permanently solicited at maximum, C) The integral use of all available materials, of the scraps, inclusively, D) The immediate identification of the momentary markets requirements and the almost instantaneous “folding” on these tendencies.

#### 5. NOT AT ALL CORRUPTION!

As it is well-known, in order to run a complex manufacturing and selling system, involving many contradictory people, it is usually necessary to resort to some corruption acts (as the bribes, different influence actions on the decision factors, etc) in order to ensure the “lubrication” of the manufacturing machinery.

Given being R. G. LeTourneau and his collaborators recognized the general God’s authority, nothing of this kind was never necessary, because they were not opposite, but united by their faith.

That is why R. G. LeTourneau published his autobiography approximately 9 years before his death, to become possible to be contradicted by the people who knew his activities. His memorial service, held in the gymnasium of LeTourneau University was a triumphant service. Days after this memorial service, people on the streets were remarking “That was an unusual memorial service! Why aren’t more memorial services like that?”.

#### 6. SYNOPSIS OF THE MAIN DATA OF R. G. LETOURNEAU LIFE AND ACHIEVEMENTS

- Activities as newspaper’s distributor (approx. 48 papers/day) at 13 years (summer of 1901). Given being he was more concerned on different nature observations, he was fired very soon!
- The beginning of his apprenticeship in an iron foundry, at 14 years. From this moment, he didn’t receive any financial help from his family!
- After 17 years of apprenticeship in completely different professions, following the crash of his cars’ repair and maintenance common affair (produced by his selling collaborator), R. G. LeTourneau was at 30 years unemployed and with \$5000 in debt (beginning of 1919).
- Due to his hard and remarkably various LeTourneau’s apprenticeship years, his activities as entrepreneur and businessman were followed by some outstanding general (and financial, inclusively) results,
  - In his last 35 years (1935-1969), LeTourneau has given to the Church 90% of his revenue, after his \$5000/year pledge given during the 11 years (1924-1934),
  - He established the foundations of many charitable institutions, of some Christian newspapers (e.g. Now, with approx. 600,000 readers), and of the LeTourneau University (from the Eastern Texas), especially.
  - He succeeded to set up important machinery plants and technical installations on all 6 continents (USA – plants, Europe – 2 plants, Africa, Asia, Australia, and Southern America – at least one plant and/or technical installation on each continent).





1) Could be accomplished absolutely right economic affairs? The absolutely outstanding answer of R. G. LeTourneau being YES, if you work very much and hard, if you have a strong interest for your profession and if you are always subject to the ... principles of the Christian life (he received in USA the surname of "God's businessman"!)

2) Is it actually the Christian faith an efficient religion? Again, the R. G. LeTourneau answer and practical proof was YES! (see before),

3) Why is efficient the vocational education? Yes, and R. G. LeTourneau required to the students of his University, set up in the Eastern Texas, to think permanently (during their academic studies), to the solution of some new problems, of incontestable interest, able to bring some net contributions after their faculty graduation.

Why are though the life and achievements of R. G. LeTourneau little known?

We believe that the main reasons are:

- a) the exemplary Christian modesty of R. G. LeTourneau,
- b) though his total revenue was rather high (of the magnitude order of some \$ hundreds), only a small part of it remained at his disposal, due to his grants to the Church, to his academic colleges and University, to his philanthropic actions, etc.
- c) the hard concurrence of his competitors, who didn't accept in fact his altruistic (unselfish) actions.

## 8. CONCLUSIONS

Given being the outstanding results of the LeTourneau's life and achievements, and the corresponding answers (perhaps, the unique possible!) to some of the main matters of the present world, we consider that these elements should be better studied, known and applied.

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