

The Surveyor in Society

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The role of the surveyor in society is a subject of concern and evolution.

Like many professions in the beginning of this third millennium A.D. our role in society can be asked by the general public as the image of the (land)surveyor and its functions have changed with the introduction of newer technologies.

After 20 years of work by Commission 1, after Mr. Simpson first with Rafaelli, than Jan De Graeve and Jacques Tassou, the definition of the Surveyor was confirmed by F.I.G. in the Montreux General Assembly 1981 and the Code of Ethics was adopted and published « paper 103.1 »

This was a period where the 3 official languages were French, German and English. In most of the European countries the identification of a surveyor was well understood by the public on the European continent, since English has become « the universal communication language ». In 1991 the F.I.G. published the functions and activities of surveying : publication no 2 (1991) being adopted at the General Assembly in Helsinki on June 11th, 1990.

The definition of the Surveyor, Vermessungsingenieur, Géomètre-Expert was adopted at General Assemblies in Rome and London.

Historically there has been quite an evolution.

The activity of measuring have been in practice for over 5000 years as shown on cuneiform tablets from Mesopotamia, recently sold from the Cincinatti library (USA) was one of the tables +/- 1900 BC – 1700 BC in Akkadian language from Sumer mentions :

« 3 acres of field ad Nerdanham, 14 sar of field for Pichi-Ilishan, the judge 9 sar of field for Hulsius... 1 ebel and 3 iku each for Sin-Eribam ... »

This text just confirms that areas were measured 4000 years ago by surveyors to be joined with the real estate transactions.

Under the reign of Hammurabi, king of Babylon (1792-1750 BC), he prepared an important juridical document known as the « Code of Hammurabi ». In 1901 Jean Vincent Scheil discovered the important stone monument which is preserved in Le Louvre in Paris.

Private property is described in great detail ; the water wells, the canals and irrigations are tasks of prime importance for the country where royal possessions were also administrated by high rank officers : the surveyors

Originally there are older versions known of the rules and law in Sumer and fragments have been found dating for –2113 to –2096 for the Ur-Nammunce Dynasty (-2130 BC). This law applied to a vast area of Ur and Akkadia.

Property belonged not only to the king, but the Code also rules about private property ; taxation was based on manpower for war and/or for building public works, canals, dikes, lakes and water supplies. The Code rules also the property rights that go with the land, occupancy, indemnity, cultivation and taxation : damage by floods was a constant preoccupation for the landlords and the rulers. Property titles were in common use and land and houses could be sold or leased, exchanged or given, mortgages were possible, giving land as guarantee.

In that region 4000 years ago as to day, short water supply was already a problem that is why they kept the maintenance of their canals in high esteem, as well for boat traffic and commerce as for agricultural purposes.

From the Egyptians we all have learned that the Egyptian priest each year had to allot land and restore the properties after the floods of the Nile. Before the Assouan Dam was built in the last quarter of the 20th century, creating a vast water reserve and energy supply, each year the Nile was known to overflow lands along the river

In the *Monumenta Cartographica Africae et Aegyptiae the Prince Youssouf Kamal* – 1926, has studied and reproduced text from the earliest Egyptian Civilizations.

During the FIG-week in Cairo also papers were given about Egyptian measurers and measuring systems and proportions by Prof. Lelgemann from Berlin University and by John Brock, our Australian colleague, who studied the hieroglyphic languages and offered us a remarkable power point presentation about 3 Egyptian colleagues – surveyors from 5000 years ago.

In the texts from Herodotes II 109, we read that Sesostoris distributed the soil of Egypt to the inhabitants, giving each a square part of land of equal area, from where he derived his income from the rents paid by the workers on the land. If the stream (Nile) took part of that land, he comes before the king to explain what happened and the king sends his surveyors to go and see and measure the exact loss of land and from then on he has to pay a reduced taxation in proportion to the remaining land.

Border stones were put at the property boundaries as we read in a document of Amenemhaït (-3578 to – 3548 BC) and so many others. The border fixations had a « divine » connotation and it were the priests with their assistants who gave a sacred role to the border stones.

This hasn't changed over many civilizations and over many centuries where the sacred officialisation of borders was of prime importance and respected by all.

This was sacralised by the Etruscans in Italy before the « Roman civilisation ». Sacrifices were held at the boundaries and the saints of the house, the Penates, were held in high esteem and when a family moved to another property they attached their Penates to the new location. In 1978 for the 100th anniversary of F.I.G. the Italian surveyors association published a remarkable work by Evaristo Luciano : *History of Land-Surveyors and Surveyors from the Origins up to 1900 (in Italy)*.

In Roman times, the agri-mensores : the land measurers, had many titles : metadores, rectores, censitores, inspectores, artifices agentes in rebus, professores, ministeriales imperatorum and arboratores ; depending upon their activities

The limitatores fixed the border stones fixing the boundaries of property.

The mensores fromentari : surveying the crops and wheat distribution.

Aggenus described the land surveyor as « a good man, sobre, modest, uncorruptable, chaste and skilful in his art ».

From the Etruscan history we learn how sacred the defined boundaries were for the population and sacrifices were made by the priests. In Roman times the boundaries were declared sacred by Jupiter, and every year the boundaries were visited and this festivity was called « the Terminales ».

An immense task of fixing boundaries was carried out by the Roman surveyors as the veterans, these were the military men who survived their 40th birthday were allotted land, either from land conquered from enemies or expropriated from previous landlords.

The different units of measures and the complex cadaster was held in double writings, one locally and one was held in Rome on marble tablets.

Of all these documents one of the most remarkable was the text of Roman landsurveying and especially about borders fixing, by many Roman authors which is preserved in Wolfenbüttel in the « Herzog August Library » + Codex Arcerianus A – B – C (cod/ Guele 36.23A)

These Roman texts have been difficult to read or translate by non-surveyors and that was one of the reasons why so many translators have described them as « obscure » or « incomprehensible ».

In German Dr. Mortiz Cantor published *Die Romische Agrimensores in 1875* and in English Dilke published *The Roman Landsurveyors* a century later, in 1971, but they had to rely on translations, in German by Blume, Lackman & Rudorff : *Die Schirften der Romisches Feldmesser in 1848-1852* in 2 volumes.

In France, Choquer and Favory have been editing many texts and translations, and in 2000 Brian Campbell published a first English translation of the writings of the Roman Land Surveyors.

The Roman landsurveyors used a variety of border stones between different types of property, sacred, property of forest and agricultural land, meadows and rivers, leaseholds and full property and gave special names to each of these border stones and in addition they used a secret writing for the distances between border stones only known to surveyors who adopted a « code name ».

This we learn from a rare treatise from Pierre Galland of 1554 : *De Agrorum Conditionibus & Constitutionibus Limitum*, published in Lyon by de Tournes. In fact this book is the printed version of the Roman manuscript that belonged to the library of Boblio where the future Pope Gerbert (Sylvester II) studied the manuscript in 1000 A.D., see Bubnov : *Gerberti, postea Silvestri II pope : Opera Mathematica*. This manuscript was preserved in the 16th century

when Desiderius Erasmus read it in the St-Bertin Abbey in St-Omer (north of France). We had the opportunity to study the printed version but could not find the Manuscript

A lot is to be learnt from this tradition, Luciano and Tonatello had studied the transmission of this rare text in his *Codices Artis Mensurione* (3 vol) (1994-95). Although he mentions the reference to Pierre Galland, he never had the opportunity to find and study this rare text.

We examined in Carpentras a fascinating document : that is the « missing link » between the *Corpus Agrimensorum Romanorum*, better known as the *Codex Arcerianus A*, preserved on the Herzog August Library in Wolfenbüttel of the late 5th early 6th century AD and the first legal texts or professional codes for landsurveyors in Western Europe, translated in English about 500 years later by Brian Campbell in London, in 2000 (Society for the Promotion of Roman Studies) : *The writings of the Roman Land Surveyor*. In this 315 page treatise, translated and illustrated by the surveyor Bertrand Boysset, bourgeois d'Arles, from 1401 to 1405, we see that Maître Arnould de Podio (de Villanova) ordered to write down this treatise (1309-1313) on demand by the King of France. Christ himself, gives the instruments for measuring and the border stones to be used.

This solemnity is quite significant for the role of the landsurveyor to protect property and to enforce it with solemnity as it used to be under the Egyptian priests and in other civilizations. The transmission of the « surveyors » art has been studied in the Middle Ages and Renaissance period. Jean Mosselmans and myself have studied this period and published 2 catalogues in the Royal Library of Brussels : *Des Agrimenseurs Romains aux Arpenteurs du XVIe siècle* (2001) and *Les Géomètres-Arpenteurs du XVIe to XVIIIe siècle* (Mosselmans and Schonaerts).

Surveying has been applied worldwide as for instance in China : from the Chinese world the K'iu-Chang Suan Shu relates to local landsurveying practice, calculating areas correctly for triangles, circles and trapezia as we learn from the history of mathematics by David Eugène Smith.

We can agree with what J.K. Finch has stated : « All through the ages the surveyor has been not only an essential figure to the progress of civilization, the maintenance of property rights and the building of engineering works, but due to the fact that he dealt with careful measurements and facts, he has had a steadying influence on man's efforts to advance ». (J.K. Finch : « Our indebtedness to the Old Surveyor »).

After this historical survey, we can refer to the Congress of Rome in 1933 or London 1964 where the surveyor was defined. The definition identified the PERSON as a qualified practitioner, with a legal diploma or certificate who was chartered by law and who is entitled to identify, delimit, measure and value all real estate, private or public, and the buildings there upon or in the underground, and the works on it, and who organises the registration of legal rights attached to property. By extension he studies, projects and executes, etc. ... describing many of the activities he does (but other professionals too).

Due to extension of activities in many countries, this Rome definition was extended in the Sofia General Assembly under Jacques Tassou who published it, after +/- 20 years of discussion, with delegates of all F.I.G. member countries.

Since Helsinki the functions of the surveyor have been published in Brochure no 2 of FIG. Evolution of techniques, the language and the way in which the surveyor performs his duties and activities have been very different in the « English » environment from the rest of the Continent and by extension of the rest of the world outside the English Empire and the Commonwealth.

In the U.K. a landsurveyor very rarely work as an individual or private person. They are organised in associations, small firms, limited companies or in larger juridical entities where they often work together with other disciplines. Their activities are recognised as « function ». they are not recognised as a « person ». Border disputes are rather rare in England as there was no cadastral survey. So the public does not identify the landsurveyor as THE GEOMETRE who settles this problems of property rights which are in U.K. often dealt with by lawyers.

Also the Royal Institution of Chartered Surveyors groups many disciplines where the landsurveyors are a small, although highly qualified and respected group, but they are under the umbrella organisation with commercial activities, general practitioners, many estate agents, lots of buildingsurveyors and quantity surveyors (actually represented in Commission 10), economists of the building activities, etc. ...

A mixture of commercial and non commercial, qualified as intellectual activities. Most of the European (land)surveyors associations do not agree with the mixture of these commercial activities of estate agencies under all forms, with the typical surveyors' activities and different approaches to clients, estate-agents advertise a lot, offer free valuations, etc. ... all in contradiction with internal rules of landsurveyors often representing officers or surveyors guaranteeing public interests.

It is a totally different philosophical approach.

Since F.I.G. has become an « English only » association, it is difficult for countries with a different background to make their point of view, clear in English. For terminology does not fit with the profession. The main function of the surveyor is not identified with the professional person.

For the Germans, the « Vermessungsingenieur » is a well defined person working in private practise or as a civil servant in other Länder, but both perform the function of public interest : to survey.

In the French speaking world, « un géomètre – expert » is understood by all the population, because the terminology identifies the person with his function of public utility.

TO IDENTIFY, TO DEFINE, TO MEASURE AND TO VALUE ALL REAL ESTATE WHETHER PRIVATE OR PUBLIC : THIS IS THE PUBLIC FUNCTION IN SOCIETY OF THE LANDSURVEYOR,

as the doctor cures the ill,
as the lawyer assists their client,
as the midwife gives birth,
so the surveyor identifies, delimitates, measures and values all property.

For the private practitioners they are controlled by a national « Ordre des Géomètres » and in other countries, where they work as civil servants, they are controlled by their hierarchy.

The practices of the surveyors have been focussed upon the function of public utility in private practice or as a civil servant gets forgotten. We have to focus on our duty, that is why we are there. It might be the right opportunity to reprint the code of Ethics adapted in Montreux 1981 by the General Assembly chaired by Prof. H. Matthias.

It will be a challenge for the future to get this message through worldwide, give the right image of the surveyor to the local population, give him other the convenient definition the Code of Conduct with his function of general- or public interest to society.

This is the message I want to give in this opening address.

BIOGRAPHICAL NOTES

Jan De Graeve, born in Bruges 20/7/1945, is a chartered landsurveyor in Belgium.
Past-president of local, national and European groups of Surveyors : CLGEE.
He is a honorary member of F.I.G.

He first attended the FIG meeting in Paris (1978) and since he attended most of the congresses since. He gave an opening address in 2003 for the 125th anniversary and has been active in commissions 1 (Ethics) and 9 (Valuation). He is honorary director the International Institution for the History of Surveying & Measurement, who prepared the inscription of the Struve Geodetic Arc at the UNESCO World Heritage List.

He prepared the catalogue for the exhibition at the Deutsches Museum Library during the FIG-congress 2006 Munich.

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