Six calendar systems in the European history from 18^{th} to 20^{th} Century

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Abstract. The following calendar systems, introduced in Europe from 18^{th} to 20^{th} century, which were in use for a shorter or longer period by a larger or smaller community, were reviewed and discussed: The French Revolutionary Calendar, the Theosebic calendar invented by Theophilos Kairis, the Revolutionary Calendar of the Soviet Union (or 'Bolshevik calendar'), the Fascist calendar in Italy and the calendar of the Metaxas dictatorship in Greece before World War II. Also the unique of them, which is still in use, the New Rectified Julian calendar of the Orthodox Church, adopted according to proposition of Milutin Milanković on the Congress of Orthodox Churches in 1923 in Constantinople, is presented and discussed. At the end, difficulties to introduce a new calendar are discussed as well.
Key words: Calendars: French Revolutionary, Theosebic, Italian fascist, of I. Metaxas, Bol'shevik's, New Rectified Julian

Шест календарни системи в европейската история от XVIII до XX век

Ефстатиос Теодосиу, Василиос Маниманис, Милан Димитрийевич

Радгладани са и са обсъдени следните календарни системи, въвеждани в Европа от от XVII до XX век и използвани дълго или кратко от големи или малки общества: Френският революционен календар,Теосебичният календар, измислен от Теофилос Кайрис, Революционният календар на Съветския Съюз (Болшевишкият календар), Фашисткият календар в Италия и календарът на Метакса-диктатурата в Гърция преди Втората световна война. Представен и обсъден е също така и единственият такъв календар, който все още се използва, Новият ректифициран юлиански календар на Източно-православната църква, възприет по предложение на Милутин Миланкович на конгрес на Източно-православната църква през 1923 г в Истанбул. Накрая са дискутирани и трудностите пред въвеждането на нов календар.

Introduction

In the history of calendar reforms the Julian calendar that prevailed for at least 16 centuries was gradually replaced by the Gregorian one, from 1582 onwards. The Gregorian calendar was necessary, because it corrected the Julian one and returned the vernal equinox in its true astronomical date; however, it did not change the months, or the days of the week (their number and names): it just changed the way of calculation of the leap years. After these two calendars, five other political calendar systems and one ecclesiastic were introduced in Europe, but none of political ones prevailed beyond its limited

(in time and place) political environment. In this work the following such unsuccessful calendars are reviewed: The French Revolutionary Calendar, the Theosebic calendar invented by Th. Kairis, the Revolutionary Calendar of the Soviet Union (or 'Bolshevik calendar'), the fascist calendar in Italy and the calendar of the Metaxas dictatorship in Greece before World War II. Also the unique of them which is still in use, the New Rectified Julian calendar of the Orthodox Church is presented and discussed.

Essentially, with the exception of the French Revolutionary Calendar (*Le Calendrier Républicain*), which is well-known and studied in the international bibliography, our effort is centered at the other 5 calendar systems, which are much less known, especially the three of them: the Theosebic calendar, the fascist calendar in Italy and the calendar of the Metaxas dictatorship in Greece (1936-1940). At the end, difficulties to introduce a new calendar are discussed as well.

1 The French Revolutionary Calendar

After the Gregorian calendar, the next step of a calendar reform was taken in France, after the French Revolution of 1789, which resulted in the abolishment of monarchy and the declaration of Democracy. The French revolutionaries, after breaking the bonds of the monarchy wanted to break also their links with the religious-papal (as they perceived it) calendar, by reintroducing its primal basis, the ancient Egyptian calendar. For this reason, they wanted to create a calendar similar with one that would lead to the complete decoupling of Church and the State. The first attacks against the Gregorian calendar, accompanied by the respective calendar propositions for its reformation, took place during the years 1785 to 1788.

The times were ripe, after the fall of Bastille in July 14, 1789, for the French revolutionaries to ask with considerable intensity for a new calendar, having as its starting point the first year of Democracy. So in 1793 the National Assembly entrusted Charles Gilbert Romme, president of the public education committee, with the calendar reform. He in turn assigned to the famous mathematicians Joseph-Louis Lagrange and Gaspar Monge the task to work on the technicalities of the issue. The results of the studies of the two mathematicians were submitted to National Assembly in September 1793 and were accepted immediately. At the same time it was decided that this new calendar system would be applied soon. Indeed, the *Calendrier Républicain de la Rèvolution de 1789*, as it was called, was accepted by the National Assembly on October 5, 1793 and was voted on December 4, 1793. As the starting point of its chronology was set a date of the recent past, namely the September 22, 1792, known in the new calendar as 1 Vendèmiaire, the date of the abolishment of monarchy and the declaration of democracy, which accidentally coincided with the astronomical autumnal (fall) equinox. So the New Year's Day of the 'revolutionary' civil year was the autumnal equinox of each tropical year, with the chronology starting on September 22, 1792 or 1 Vendèmiaire of the Year 1.

The year of this 'democratic' calendar consisted of 12 months of 30 days each, followed by an extra 5 or 6 supplementary days (*jours complémentaires*), which, added at the end of the 12th month, that is between the respective

dates 17 and 22 September, were completing the total number of the days of the year. Thus, the total number of the days of the year was again 365 or 366 for leap years, keeping the tradition of the Julian calendar and its evolution, the Gregorian calendar.

The day-and-night time interval, from one midnight to the next, was divided into 10 hours and the 1/100 of such an hour was defined as the 'decimal minute'. I.e. the French democrats abolished the hexadecimal system in time keeping and established the simpler decimal one (each minute had also 100 seconds). The weeks, because they were related to the Jewish calendar, and thus they had been adopted in interconnection with Religion, were abandoned and each month was divided into three *décades*. The names of the days of the week were also abolished and the ten days of each 10-day span were just called with their order: first, second, third,. . . , tenth day (*primidi, duodi, tridi, quartidi, quintidi, sextidi, septidi, octidi, nonidi, décadi*). The last day of each *décade*, the *décadi*, was a day of rest, dedicated to the worship of the Supreme Being. The names of the months had the same ending for each three-month group and they were inspired by nature. They were invented by the member of the National Assembly, poet Philippe Fabre d'Eglantine (1750-1794). This poet and playwright had won (with his work *Étude de la nature*, 1783) in 1783 the first prize in Toulouse's flower festival; the prize was a golden wild rose, which is called *eglantine* in French, and he adopted this word as his nickname, with which he is known in history. Philippe Fabre was a member of Danton's group, and when his friend lost his political power, he was accused of corruption because he had been involved in the scandalous dissolution of the Society of Indies. For this reason he was beheaded together with Danton and his followers on April 5, 1794.

The democratic calendar was permeated by an anti-Christian, rationalistic and nature-loving spirit. The poetic names of the months of the year, together with their meaning and the correlation with our months are as follows (Flammarion, 1955, p. 28):

These Gregorian dates vary slightly because of leap years. Moreover, due to incompatibility of Articles III (Every year begins in the midnight of the day of autumnal equinox for Paris observatory) and X (. . . The fourth year of a *Franciade* is *Sextile*) of *Décret de la Convention nationale sur l'ère, le commencement et l'organisation de l'année, et sur les noms des jours et des mois*, the calendar is not applicable after the year XVIII, since an additional leap day for compatibility with tropical year is not needed for the Year XIX (the fourth year of Franciade) but for Year XX (the fifth year of Franciade). Consequently, exist different systems for the conversion after the year XVIII and the corresponding dates are slightly different for different systems.

The five or six supplementary days were initially called *Sans Culottides*, to honor the revolutionaries who didn't wear the expensive trousers (culottes) of the aristocrats but long hairy pants instead. The French who were using the calendar were saying: the first Sans Culottide, the second Sans Culottide, etc. (*la première sans culottide, la seconde sans culottide*, etc.). The collective name 'supplementary days' (*jours complémentaires*) was given to the Sans Culottides on 7 Fructidor of the Year III, i.e. on August 24, 1795.

Table I: The French Revolutionary Calendar

Season	Month	Meaning	Correlation
Fall	Vendèmiaire	Vintager	Sept. 22 - Oct. 21
	Brumaire	Foggy	Oct. 22 - Nov. 20
	Frimaire	Chilly	Nov. 21 - Dec. 20
Winter	Nivôse	Snowy	Dec. 21 - Jan. 19
	Pluviôse	Rainy	Jan. 20 - Feb. 18
	Ventôse	Windy	Feb. 19 - March 20
Spring	Germinal	Of the sprouts	March 21 - April 19
	Floréal	Flowery	April 20 - May 19
	Prairial	Grassy	May 20 - June 18
Summer	Messidor	Harvester	June 19 - July 18
	Thermidor	Heat-giver	July 19 - Aug. 17
	Fructidor	Fruit-giver	Aug. 18 - Sept. 16
	Jour de la Vertu	Day of Virtue	Sept. 17
	Jour du Génie	Day of Engineering	Sept. 18
	Jour du Travail	Day of Work	Sept. 19
	Jour de l' Opinion	Day of Opinion	Sept. 20
	Jour des Récompenses	Day of Rewards	Sept. 21
	Jour de la Révolution	Day of Revolution	
		(Only in leap years)	Sept.22

The names of the saints associated with each date of the year in the Christian calendars were replaced by names of trees, plants, flowers, fruits and grains, since this calendar was designed to be free of Christian nomenclature (Renouard, A.A., 1822).

The supplementary days, between 17th and 22nd September of the Gregorian calendar, were dedicated: to Virtue (*la Fête de la Vertu*), Engineering (*la Fête du Génie*), to Work (*la Fête du Travail*), to Opinion (*la Fête de l' Opinion*), and to Rewards (*la Fête des Récompenses*).

The Day of the Opinion was especially important for its singular character: on this date, every citizen had the right to freely express his opinion. At a collective level, the citizens were judging publicly, albeit figuratively, all public servants for their deeds. During this day, any kind of satire was permitted, along with cartoons, satirical songs and many other smart jokes, which were freely aimed towards those in power. It was then up to those in power to disprove through its Virtue these humoristic accusations. For this reason, this day was also considered to be dedicated to Actions and Virtue. The sixth supplementary day added in the leap years was dedicated to the celebration of the Revolution (*la Fête de la Rèvolution*). The first leap year of the new calendar was decided to be the Year III. The four-year period between two successive Days of the Revolution was called *Franciade*.

The wonderful French invention of calling the democratic calendar's months with names corresponding closely to the real climate of France was ridiculed by the British (then adversaries of the French) with the following parody:

Fall: *wheezy, sneezy, freezy*
Winter: *slippy, drippy, nippy*
Spring: *showery, flowery, bowery*
Summer: *hoppy, croppy, poppy*

Fig. 1. Colored drawing from 19^{th} century. The person on the right side is wearing short trousers of aristocrats - culottes.

(Wilson P.W., 1937, p. 154). For Summer somewhere is given and: *Wheatty, Heaty, Sweety* (The Historical Maritime Society, Nelson and His Navy - Revolu-tionary Calendar, http://www.hms.org.uk/nelsonsnavyrevcalend.htm,

This rather poetic calendar was functional and efficient for France; however, it was disadvantageous for the working class, as it contained only one day of rest every ten days and not one in seven, as it used to be. Its other major weakness had to do with the fact that it was a calendar of limited use, since it was used only in France, and thus isolated it calendarly, administratively, economically and in international relations issues from the rest European countries.

Fig. 2. French Revolutionary calendar by Louis-Philibert Debucourt 1755-1832.

For these reasons, but mainly for political purposes Napoleon the Great agreed with the Pope in 1801 to restore Sunday in the calendar, as well as the major Christian holidays: Christmas and the Easter. Finally, in 1806 the French Revolutionary Calendar was abolished with the decree of 22 Fructidor XIII signed by Napoleon and France adopted again the Gregorian calendar on 11 Nivôse XIV that is in Gregorian date January 1^{st}, 1806. The Revolutionary Calendar had a short life, less than 13.5 years. However, some decades later, an attempt was made to restore it, which is described below.

In 1870, emperor Napoleon III (1808-1873) lost a war with the Prussians he was responsible for. This defeat had as a result the abdication of the emperor on September 4, 1870 and the declaration of the Second Republic. However, the Prussians advanced and occupied a part of Paris. The end of

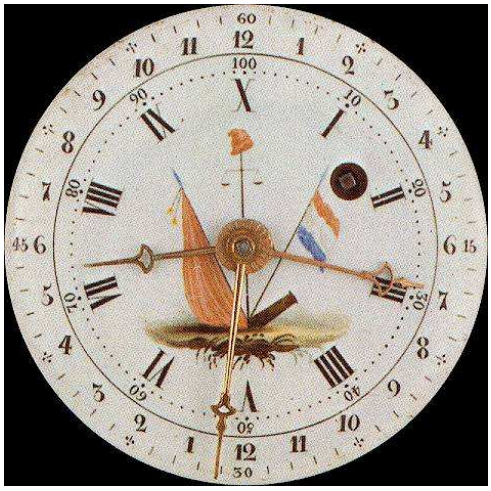

Fig. 3. French republican clock with combined decimal (inside) and traditional (outside)hour-plate.

the war came on March 1^{st}, 1871, when Thierry's government signed the capitulation with the invaders.

The defeat and the humiliating terms of the treaty had as a result a new revolution in Paris, on March 18, 1871. The people of Paris installed in the Town Hall a communal administration, which passed in history under the name "Paris Commune". The revolutionary commission that was formed organized the city's defense. And one of its first actions was the revival of the Revolutionary Calendar, the *Calendrier Républicain de la Rèvolution*, on May 10, 1871, which corresponded to the 18 Floréal of the Year 79. The 'Government of National Salvation' as Thierry's government was known, found refuge in Versailles. It managed to summon 100,000 men and with this army it attacked Paris. After a couple of weeks of battles, in which more than 20,000 people died, the governmental army crushed the revolutionaries in the end of May 1871, aided by the Prussians.

The quick end of this popular uprising brought once again the abolishment of the Revolutionary-Democratic Calendar, this time forever, on May 28, 1871. So, the Commune in Paris restored French Revolutionary Calendar just for a brief period (Wilson, P.W., 1937, p. 155 & p. 334).

Nevertheless, even today the French astronomical almanacs, as a tribute towards the First French Republic, give along with the other calendars (Grego-rian, Julian, Islamic, Jewish and Coptic) the date correlation of the Revolutio-nary Calendar, which in 2009 is at its 217th Year (the first of January 2010 corresponded to 12 Nivôse 218).

2 The Theosebic calendar

The abolishment of the French Revolutionary-Democratic calendar discouraged other regimes from adopting some novel calendar system. Yet, the French calendar inspired the Greek priest and scholar Theophilos Kairis to invent his own 'Theosebic calendar' who was also destined not to prevail at any place. This was a variant of the French Revolutionary calendar, but under a religious cover.

The monk and priest Theophilos Kairis (1784-1853), a thinker and scholar from the island of Andros, who participated in the Greek War of Independence of 1821, and is considered as one of the major 'Teachers of the Nation', had studied in the universities of Pisa and Paris. He was the creator of a cult, 'Theosebism', and for this reason he was persecuted and he died in prison. His original philosophical system was echoing the ideas of Theosophy, positivism and mysticism.

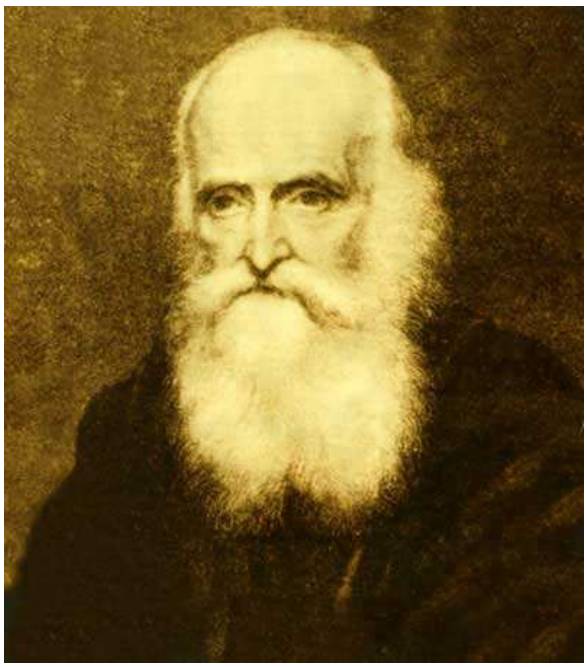

Fig. 4. Theophilos Kairis.

Theophilos Kairis, influenced by the Western Christian-social philosophy, was searching for the 'golden analogy' among religious faith, scientific knowledge and social justice. He did not accept the Christian chronology and, inspired by the French Revolutionary calendar (*Calendrier Républicain de la*

Rèvolution de 1789), he proposed the abandonment of the week and the division of each month in three ten-day intervals: "Twelve '30-day' months in three groups of 10 days each (Theophilos Kairis, Code 53).

He also changed the names of the months, into the following ones (Theodossiou, E., & Danezis, E., 2000, pp. 337-338):

Table II: Month names in the Theosebic calendar, their meaning and equivalence

	Name	Meaning	Correlation*
1	Theosebius	Pius (of respect to God)	11/23 Sept.- 10/22 Oct.
2	Sopharetus	Wise and virtuous (of Wisdom and Virtue)	11/23 Oct.- 10/22 Nov.
3	Dicaeos	Righteous (Just)	11/23 Nov.- 9/21 Dec.
4	Hagios	Holy	10/22 Dec.- 8/20 Jan.
5	Agathius	Good (Benevolent)	9/21 Jan.- 7/19 Feb.
6	Sthenius	Courageous (of Power)	8/20 Feb.- 9/21 March
7	Agapius	Beloved (of Love)	10/22 Mar.- 8/20 April
8	Charisius	Graceful (of Grace)	9/21 April- 8/20 May
9	Macrothymus	Forbearing	9/21 May- 7/19 June
10	Aeonius	Eternal (Perpetual)	8/20 June- 7/19 July
11	Entheus	Divine ('God-in-it')	8/20 July- 6/18 Aug.
12	Sosius	Savior (of Salvation)	7/19 Aug.- 5/17 Sept.

* The first date is according to Julian calendar and the second according to Gregorian one, with a difference of 12 days as was in 19^{th} century. For conversion of dates from 20^{th} and 21^{st} century one should take into account that the difference increased to 13 days. As in the case of French Revolutionary Calendar, dates slightly vary due to leap years (We note that in Portaz (1935, p. 220) Gregorian dates are erroneously increased for one since was taken the difference of 13 days as in 20^{th} century).

The five or six days added for the completion of the tropical year were the dates 18 to 22 September of the Gregorian calendar.

Theophilos Kairis knew that from an astronomical point of view there is no special significance in setting the start of the year on January 1^{st} and that all ancient calendars were starting their year at one of the 4 characteristic points of the solar apparent orbit, which are:

a) The two equinoxes - the vernal on March 21 and the autumnal on September 23 - and

b) The solstices - the summer on June 22 and the winter on December 22.

The calendar system of Kairis, known as the 'Theosebic calendar' had also as its New Year's Day the autumnal equinox. The first year of the Theosebic chronology began on September 23, 1800 (Gregorian calendar). Actually, he chose as the start of his calendar system the autumnal equinox, which used to occur on September 11/23 (the first date refers to the Julian and the second date to the Gregorian calendar, which then had a difference of 12 days between them), like the ancient Greek calendars of the Dorians and

the Macedonians. The Dorian (Spartan) calendar started on the first new moon after the autumnal equinox, in the month Panamos, and the Macedonian calendar started in the holy month Dios. But also his calendar model, the French Revolutionary-Democratic calendar, started at the autumnal equinox (September 22 or equivalently 1^{st} Vendèmiaire of 1792 (Theodossiou & Danezis 2000, p. 338).

Correspondingly, the first year of the Theosebic chronology started on September 11 / 23 (when that year occurred autumnal equinox) of 1800 AD and ended on September 10 / 22 of 1801 AD. As we already noted, the Theosebic year had 12 months of 30 days each (12 x 30 = 360), so that 5 days remained (or 6 for the leap years) for the completion of the solar year of 365 (or 366) days. These extra days, as in the ancient Greek calendars, were called "induced days" and were inserted at the end of the Theosebic year, i.e. before the $11^{th}/23^{th}$ of September of the "Christian" calendars (Julian and Gregorian).

Similarly, as in the ancient Greek calendars, each month was divided into 10-day spans (decans); the first decan of each month was called "starting decan of the month", the second one "middle decan of the month" and the third one "decan of leaving or ending month", or "the decan after the twenty" (Theodossiou & Danezis 1996, vol. I, pp. 360-364).

The specialist on Kairis late scholar Demetrios I. Polemis, director of the Kairian Library in Andros, edited the correspondence of Theophilos Kairis, which was published in three volumes. He divides these three volumes of letters into three periods. The first volume contains the letters up to the closure of the Orphanage (1839), the second volume contains the letters of the period of his persecution and exile up to his return to Greece (1844) and the third one contains letters written in Andros to various receivers until the scholar's death in 1853 (D. Polemis, vol. I, p. 22). In the second volume's introduction Polemis reports that a detailed description of the Theosebic calendar exists in the work *Epitome of the Theosebic teaching and ethics* (London 1852, pp. 102-104) by Kairis. Also, as far as the decans are concerned, Polemis writes the following:

"The decan is divided into ten days, the day into ten hours, the hour into 100 first minutes and the minute into 100 seconds. The days of the decan are named First, Second,... ..., Tenth or Holy". As Kairis writes, "the age of the Theosebists" begins "from the first year of the nineteenth century of the Christians and it is divided into five-year **entheades***". Therefore, the first year of the Theosebic chronology started on September 11 / 23, 1800* [the first year of 19^{th} Century is not 1800 but 1801 - Remark of authors], *and ended on September 10 / 22, 1801. The days of September 6 to 10, 1801, were the* **Epacts** *(induced days).*

A complete Theosebic chronology is exposed in the letter No. 220: "33, or 9^{th} of the entheas 9, to 3^{rd}, the 1^{st} of the middle [decan of] Sopharetus". The year 33 began on September 11 / 23 of 1842 AD, while the 8^{th} entheas was completed on September 10 / 22, 1840 and the next day started the ninth entheas, of which the third year was 1842-1843. Sopharetus is the second month of the Theosebic calendar (October 11 / 23 to November 9 / 21). Therefore,

the first of the middle decan of this month is the October 21st / November 2nd 1842.

Kairis and the followers of his sect were using tables of corresponding dates of the two calendars (Theosebic and Christian), some of which have been preserved.") (Polemis, Introduction, vol. II, pp. 12-13).

Kairis considered the year 1801 'as the year 1' in his Theosebian calendar, essentially a covert variation of the French revolutionary calendar cloaked in religion and, being the after-clap of a calendar that did not survive, Kairis's calendar was also still-born.

Table III: The "Times" of the day in the Theosebic calendar

Ecclesiastical "Hours"	Kairian "Times"
Matins	Time of prayer
Hours	Time of studying and reading
Evensong	Time of own profession
Compline	Time of charity work
Midnight	Time of irrevocable comfort (repose)

The nineteenth century is the first century of the Kairian measuring of time. In his calendar he used the ancient Greek numbering; so in the year $\mu\lambda$ of the Kairian chronology (corresponding to 1852) the "Compendium of Theosebian Doctrine and Ethics" was published in London. In this book, the doctrinal background of Theosebism and the Kairian calendar are described in detail. According to his ecclesiastical calendar, Kairis divided the 'night and day' -and not 'day and night'- into five periods "Times" of two hours (ten hours in total divided in 100 minutes and each minute in 100 seconds - Portaz, 1935, p. 220).

In his calendar, Kairis abolishes all Christian feasts (those of Jesus Christ, of the Holy Mother, of Saints, etc.). He also replaces Sunday -the day of the Lord- with the 'Tithe' (the tenth day), i.e. since he does not accept the divine nature of Jesus Christ he abolishes also the day devoted to Him.

According to the principles of Theosebism, the believers, the God-pious people, were gathering at the middle of the four seasons of the year, beginning at the corresponding autumnal middle, celebrating the following: Entheogona, Entheagona, Entheobia and Entheondia.

All these -untranslatable- terms were invented by Kairis. Their meanings are difficult even in Greek and each one includes the word God (Theo, in Greek).

We conclude that Kairis created his calendar with the new chronology in order to use it in the religion or sect he introduced, in the ritual of which he adds new prayers, new hymns and a new worship, thus creating his own special theoretical and worshipping ritual, written in the ancient Dorian dialect.

Indeed, Kairis, among other things, being an admirer of the ancient Greek spirit, formulated in the ancient Doric dialect of the Greek language a fully operational hymnbook. He called the corresponding workers 'God's ministers' (Theagi). These Theagi or Hieragoi (Holy priests) were classified into five orders: Deans, Readers, Hymnodists, Preachers and Ministers.

Of course, this calendar, unknown to the international literature as far as we know, was never put in real use and became extinct with the death of its inventor, together with the Theosebism cult (Theodossiou et al., 2007, p. 117).

3 The Revolutionary Calendar of the Soviet Union ('Bolshevik calendar')

The last major attempt for a calendar reform took place in 1929 by the government of the Soviet Union (USSR), which adopted the Revolutionary calendar (or 'Bolshevik calendar').

To begin with, in 1918, the government formed after the October Revolution replaced the Julian calendar with the Gregorian one, thus actually harmonizing Russia with Western Europe from a calendar point of view; this is why the celebration of the anniversary of the 'October Revolution' was taking place on November 7 in the Soviet Union. However, the Russian Orthodox Church never accepted the Gregorian calendar.

ТАБЕЛЬ-КАЛЕНДАРЬ НА 1931 ГОД.

	ЯНВАРЬ							ФЕВРАЛЬ							МАРТ							АПРЕЛЬ						
I день	1	6	11	16	21	27		1	6	11	16	21	26			3	8	13	18	23	28		2	7	12	17	22	27
II день	2	7	12	17	23	28		2	7	12	17	22	27			4	9	14	19	24	29		3	8	13	18	23	28
III день	3	8	13	18	24	29		3	8	13	18	23	28			5	10	15	20	25	30		4	9	14	19	24	29
IV день	4	9	14	19	25	30		4	9	14	19	24			1	6	11	16	21	26	31		5	10	15	20	25	30
V день	5	10	15	20	26	31		5	10	15	20	25			2	7	12	17	22	27		1	6	11	16	21	26	

	МАЙ							ИЮНЬ							ИЮЛЬ							АВГУСТ						
I день		4	9	14	19	24	29		3	8	13	18	23	28		3	8	13	18	23	28		2	7	12	17	22	27
II день		5	10	15	20	25	30		4	9	14	19	24	29		4	9	14	19	24	29		3	8	13	18	23	28
III день		6	11	16	21	26	31		5	10	15	20	25	30		5	10	15	20	25	30		4	9	14	19	24	29
IV день		7	12	17	22	27		1	6	11	16	21	26		1	6	11	16	21	26	31		5	10	15	20	25	30
V день	3	8	13	18	23	28		2	7	12	17	22	27		2	7	12	17	22	27		1	6	11	16	21	26	31

	СЕНТЯБРЬ							ОКТЯБРЬ							НОЯБРЬ							ДЕКАБРЬ						
I день	1	6	11	16	21	26		1	6	11	16	21	26	31		5	12	17	22	27			2	7	12	17	22	27
II день	2	7	12	17	22	27		2	7	12	17	22	27		1	6	13	18	23	28			3	8	13	18	23	28
III день	3	8	13	18	23	28		3	8	13	18	23	28		2	9	14	19	24	29			4	9	14	19	24	29
IV день	4	9	14	19	24	29		4	9	14	19	24	29		3	10	15	20	25	30			5	10	15	20	25	30
V день	5	10	15	20	25	30		5	10	15	20	25	30		4	11	16	21	26			1	6	11	16	21	26	31

ЯНВАРЬ. 22 — день 9 янв. 1905 г. и памяти вождя пролетар. В. И. Ленина.
МАЙ. 1-2 дни Интернац. **НОЯБРЬ 7-8** — дни праздн. Пролетарск. революции.

Fig. 5. Schema of Soviet pocket calendar for 1931. On Gregorian calendar are denoted days of five days continuous production week. Five non-working days, January 22 Day of memory on 9 January 1905, and Lenin, May 1-2, Days of International and November 7-8, Days of Proletarian Revolution are excluded (http://ru.wikipedia.org/wiki/Файл:Soviet_calendar_1931_pocket_2.jpg)

Different, much more radical change occurred in 1929. The idea was to abolish Sunday as a rest day and to introduce a continuous production week (nepereryvka). So in production, from the autumn of 1929 until near the end of 1931, in parallel with Gregorian one, was introduced the calendar divided into 72 five-day weeks (=360 days), three of which were split into two partial weeks by five days of national holidays, but holidays were not a part of the week so that each split week still had also five days. Each day of the five-day week (pyatidnevka) was labeled by either one of five different colors or with a Roman numeral from I to V or with the the names The First (pervyj), The Second (vtoroj), The Third (tretij), The Fourth (chetvertyj) and the Fifth (pyatyj). In fact, each worker obtained a color or a number to identify his or her day of rest, so that every day, 80% of each factory's staff worked, while 20% were resting.

In 1930 was proposed the Soviet Revolutionary Calendar with 12 months of 30 days and five national holidays, not belonging to any month. It was rejected and never introduced but in many western sources is erroneously stated that the 72 five day weeks were organized in 12 months of 30 days, for example in Parry Albert (1940, "The Soviet calendar", *Journal of Calendar Reform* **10**, p. 68).

However, the attempt to change the week was unsuccessful, and on November 21^{st}, Sovet Narodnykh Komissarov (Sovnarkom) SSSR replaced the five-day intervals with six-day intervals (shestidnevka), so that the year of 360 days consisted of 60 such intervals. This week was not with continuous production, but 6, 12, 18, 24, and 30 day of a month were the days of rest. At the end of February the last day was the day of rest or it was the 1^{st} of March. In months with 31 days, the work on this day was assumed as a surplus and paid additionally. But neither system could take roots in the people's conscience. Therefore, in 1940 the Soviet government restored the use of the initial Gregorian calendar in factories and enterprises and the ancient seven-day week, with its Saturdays and Sundays. It is interesting as well that in addition to the Gregorian years, in some cases an additional date was given as e.g. in Fig. 6: *Twenty first year of the Socialist Revolution*, where this chronology was counted from the 7th November 1917. This was present until the disintegration of Soviet Union in 1991 (see e.g. Shcherbinin 2008, p. 58).

The Revolutionary Calendar of the Soviet Union ('Bolshevik calendar') is described in detail in our published paper: Theodossiou, E., Manimanis, V. N. and Danezis, E, 2002, "The Russians Calendars after the Christianization of the country", *JAAT* **21**, No. 1-3, June, pp. 149-153.

4 The Fascist calendar of Mussolini

The so-called 'Fascist calendar' appeared (and ended) in fascist Italy. However, it was not really a different calendar, but merely the setting of a new start for chronology, after the famous 'March towards Rome' of the 'black-shirted' fascists, on October 28, 1922, which brought Mussolini on power.

Actually, according to Marla Stone: *Using the French example, fascism retroactively restarted the calendar in 1927, making 28 October 1922, the first*

Fig. 6. From Soviet calendar for 1937 Translation of calendar page: Twenty first year of the Socialist Revolution / 1937 DECEMBER 1937 / 12 / sixth day of the six-day week / Day of elections to the Supreme Soviet of the USSR (http://ru.wikipedia.org/wiki/Файл::Revolution_kalendar.jpg)

day of the first year of the new calendar I.I.I. Fascism declared it would replace old allegiances and collective history. In this way, 'fascistization' was inextricably bound to 'nationalization' (1993, p. 230).

So, the Fascist calendar started on 28 October 1922. The date in the Fascist Era was written in Roman numerals. Thus, beginning in November, the year 1922-1923 was set as fascist year I (or year I *"di era fascista"* - of the Fascist Age). This year was written in Italian diaries *together* with the normal year A.D.: next to the Christian year there was a Roman numeral indicating

Fig. 7. Plate at the Stock exchange in Milano with date according to fascist calendar. Photo of Giovanni Dall'Orto.

the corresponding fascist year. For example, the day of Italy's war declaration against Greece was written as: 28 October 1940 - XIX (the number 19 written as a Roman numeral).

According to Mark Antliff: *The most dramatic instance of such social engineering was the 'superimposition over the Gregorian Calendar' of a fascist time frame, in which 1922 became 'Year I' of the fascist era, signaling a regenerative break from the plutocratic decadence of the immediate past. The new calendar was then punctuated with certain days of national celebration, each with a 'two fold mythical significance'. Thus March 23, Youth Day, commemorated the founding of Fasci; April 21, Labour Day, the founding of Rome; May 24, Empire Day, the entry of Italy into the First World War; September 20, Italian Unity, the incorporation of Rome into the Kingdom of Italy; October 28, the fascist Revolution, the March of Rome... In this way ordinary Italians were encouraged to experience the unfolding of time as a phenomenon with a transcendental core on a par with metaphysical reality which underlay Christianity* (2004, pp. 149-150).

The year 1922 (October) to 1923 was considered the fascist year 1 - with Latin digits: I. It was part of a date that was functioning in parallel with the Gregorian calendar in all fascist documents and other printed material. For example, the first of May of 1934 AD was accompanied by the fascist year XII, while December 25, 1938, was accompanied by the fascist year XVII,

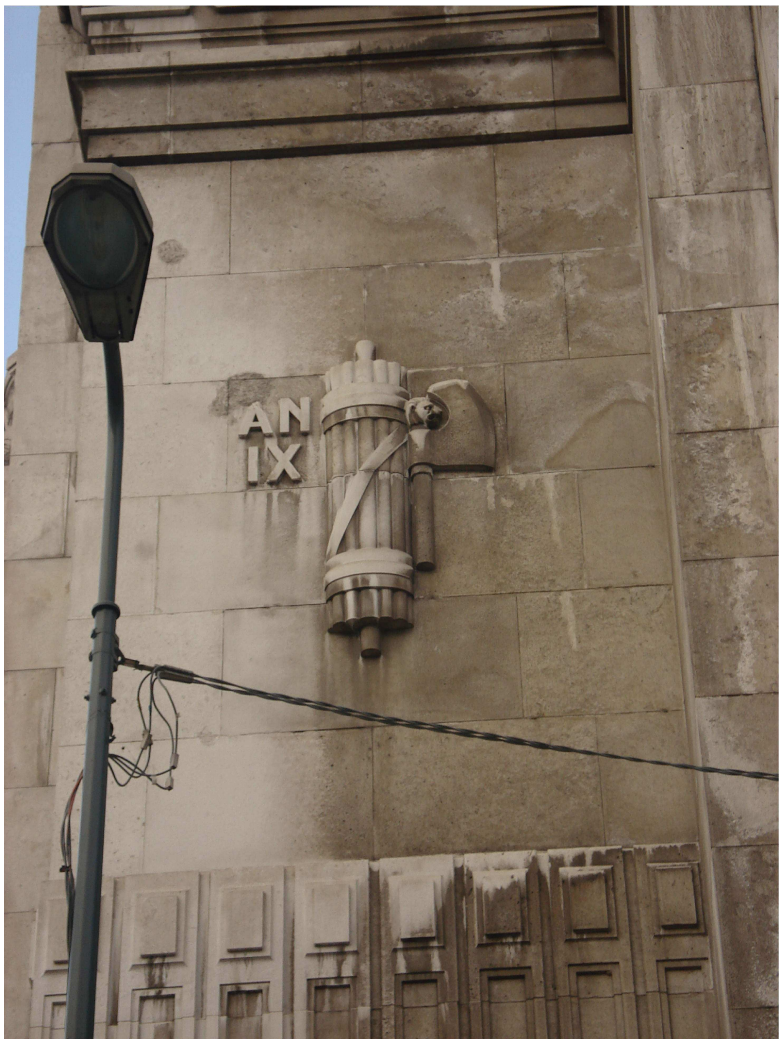

Fig. 8. Year IX of fascist era on the Milano central railway station. Photo of Giovanni Dall'Orto.

since December is after October and thus the fascist year had changed. As it should be expected, the overthrowing of the fascist regime in Italy brought with it the abolishment of this trivial calendar change.

5 The calendar of Metaxas dictatorship in Greece

It is interesting to note that Mussolini's chronology was imitated in Greece by the Ioannis Metaxas dictatorship (1936-1940), considering in turn 1936,

the year of its start, as 'year A'', written with Greek numeral. In all official papers of the Greek dictatorship there were two chronologies: the Christian year AD and the corresponding year of the dictatorship. For example, the day of Italy's war declaration against Greece was written as: 28 October 1940 - year E'.


ΠΡΩΤΗ ΔΙΑΣΚΕΨΙΣ

ΠΡΑΚΤΙΚΑ ΣΥΝΕΔΡΙΑΣΕΩΝ

Fig. 9. The proceedings of the First Conference of Regional Administrators of the National Youth Organization of 1939, where the year Delta (Δ') of the Metaxas dictatorship appears.

Needless to say, this way of year enumeration died together with the respective regimes. Moreover, this action of the dictatorship is virtually unknown to modern Greek society. It is not mentioned and has not been recorded anywhere, with the exception of certain official documents and state archives from that period, such as the proceedings of the First Conference of Regional Administrators of the National Youth Organization of 1939, year Delta (Δ'), from where we learned about it.

6 The New Rectified Julian calendar of the Orthodox Churches

Patriarch Meletios IV (1922-1923), head of the Orthodox Churches, convened an Ecumenical Congress in Constantinople in May 1923, where one of the principal topics of discussion was the reform of the Julian calendar. In the Serbian delegation were Gavrilo Dožić and Milutin Milanković. At that time, Dožić was the Metropolitan of Crna Gora and Primorje (Montenegro and the Littoral), and later become Patriarch of the Serbian Orthodox Church. Milutin Milanković (Dalj, May 28, 1879-Belgrade, December 12, 1958) is worldwide known for his groundbreaking work on the causal relationship of solar heating to the phenomenon of the occurrence of the Ice Ages in Europe during the Quaternary Period. He developed an astronomical theory for the evolution of planetary climates and explained the phenomenon of the Earth's Ice Ages and polar motion.

Milutin Milanković, was the vice president of the Serbian Academy of Sciences and Arts and director of the Belgrade Astronomical Observatory (1948-1951). To honor to his scientific achievements in astronomy, a crater on the far side of the Moon (coordinates $+170^o$, $+77^o$) was given his name at the 14^{th} I.A.U. General Assembly in Brighton in 1970. His name was also given to a crater on Mars (coordinates $+147^o$, $+55^o$) at the 15^{th} I.A.U. General Assembly in Sidney in 1973. In 1982, a small planet, discovered in 1930 by Milorad Protić and Pero Djurković and provisionally designated 1936 GA, received its permanent name: 1605 Milanković (Dimitrijević, 2002).

At the Ecumenical Congress representatives of Serbian and Romanian Orthodox Churches submitted two elaborate propositions (detailed description of the calendar reform and of the Pan Orthodox Congress in Constantinople is given in Milanković 1923, 1995, 1997, see also Dimitrijević 2002, Dimitrijević, Theodossiou 2002, Dimitrijević, Theodossiou, Mantarakis, 2008). The propo-sition of Serbian delegation, formulated by Maksim Trpković, was to introduce the intercalation rule that the secular years in centuries which when divided by 9 have remainders of 0 or 4 will be leap years. Consequently, 7 days will be omitted from 9 centuries, and the calendar will be closer to the tropical year than the Gregorian one, where the intercalation rule is that leap years are only secular years where the number of centuries is divisible by four. Moreover, the vernal equinox will always fall on March 21 or very close to it.

The Romanian delegation consisted of Archimandrite Julius Scriban and Senator Dragici. They came with the following proposal for calendar reform (Milanković 1923, 1997, Trajkovska, Ninković 2008): Each year is to have 364 days (exactly 52 weeks) so that every date has a fixed day in the week. March, June, September and December have 31 days, and other months 30 days. An additional week is added every 5 years between June 31 and July 1, whose number of days corrects the difference with the tropical year. The first day of Easter is fixed at April 29, and all other holidays become fixed. This proposition was presented to the Congress by Senator Dragici, but he told to Milanković that the author was actually baron Gustav Bedeus from Sibiu, who was not an Orthodox Christian so that it is not convenient to put his name on the proposal. However, according to investigations of Trajkovska and Ninković (2008), "A Resolution Concept for Conference of the Calendar of

Orthodox Churches in Constantinople on May 1, 1923", published in German by Bedeus in *Siebenbuergisch-Deutschen Tagesblatt* (Daily of Germans from Siebenburger - Seven towns or Transilvania in Romanian) differs from the proposition of Senator Dragici.

Congress rejected both propositions. The Serbian, authored by Trpković, since the year 2000 would not be a leap one as in the Gregorian calendar, and after only 77 years a difference of one day between the Gregorian and New Rectified Julian calendars would appear. The Congress concluded that the better solution is to delete thirteen days in Julian calendar in order to put it into line with Gregorian one, until 2100, when the one-day difference would appear.

Milutin Milanković obtained the task to develop a new proposal. He concluded that the wish of the majority of participants was that calendar of the Eastern Orthodox Church should not be identical with the Gregorian one, but that the two should parallel one another as far as possible. Consequently, instead to try to fix the date of the vernal equinox to March 21st, as in the Trpković's proposal, he tried to obtain the longest possible consonance of the two calendars. He elaborated a new intercalation rule, that secular years are leap years only provided that the number of centuries they belong to, when divided by 9 yields the remainder 2 or 6. In such a way the new calendar is more precise than the Gregorian one but consistent with it up to 2800, i.e. for 877 years after the Ecumenical Congress in Constantinople. Another advantage is that New Rectified Julian calendar of Orthodox Church will be in better agreement with nature than Gregorian calendar. A disagreement of one day with the tropical year will accumulate after almost 30,000 years!

Milanković presented to the Congress his new proposal signed by him and Gavrilo Dožić, as the new proposition of the Serbian Orthodox Church, on the session of May 23, 1923. In his historic speech to the Congress, he told the delegates that if they only adopted to delete 13 days from Julian calendar, the Orthodox Church would be in an inferior position in any future discussion on the calendar question. With the proposition of the Serbian delegation, the Orthodox Church could confidently enter into any negotiation on the calendar question with Western Churches since they would have the most precise and most scientific calendar in the Christian world. He underlined also that with such a decision, the Orthodox Church would not be accepting the calendar of the Roman-Catholic Church, but would be obtaining a better one.

Also at the Congress, Anthimos Metropolitan of Viziys proposed to determine the exact date of Easter by astronomical methods with the help of Observatories and Universities in Athens, Belgrade, Bucharest and Pulkovo.

Milutin Milanković formulated the final version of the calendar reform that was adopted by the Congress, and signed on June 8th, 1923, by Patriarch Meletios IV, Metropolitan of Kyzikos, Kalinikos, Archbishop of North America, Alexander, Metropolitan of Montenegro and Littoral Gavrilo Dožić, Metropo-litan of Nicaea, Vasilios, Metropolitan of Durachion, Jakub, Archimandrite Julius Scriban, and Professors E. Antoniadis and Milutin Milanković.

The date of the official inception of the New Julian calendar was originally set for October 1st, 1923, which will become October 14th, in order to omit the 13 days of difference between Julian calendar and Tropical year. This was the date when the calendar reform would be introduced in the Ecumenical Patri-

archate and in the Greek Churches, but without the part concerning the Easter determination, where the old Julian calendar was retained, until all Orthodox Churches introduce the reform. Today, Patriarchates of Constanti-nople, Alexandria and Antioch, Churches of Greece, Cyprus, Romania, Poland, Finland, Bulgaria (from 1968) and Orthodox Church in America (September 1, 1983, see e.g. http://www.holy-trinity.org/modern/calen2.html) use the "New", "Revised" or "Rectified" Julian calendar. On the other hand, the Patriarchate of Jerusalem, and Churches of Russia and Serbia, along with the monasteries on Mt. Athos, all continue to adhere to the Julian or Old Calendar (see e.g. http://www.yalchicago.org/paschacalculation.html).

7 Conclusions

From these six calendar systems that were devised from the late 18^{th} to the middle of the 20^{th} century, survived up to now only New Julian calendar of Orthodox Churches. This should be expected, since history History has shown that calendar changes are accepted with great difficulty by the people, who do not want to change calendar they are used to and the social and religious habits that are associated with it. Even in the case of New Julian Calendar, which dates are at that moment identical with Gregorian one, and only dates of movable eclesiastic feasts are changed, the great resistance against it exist. In Orthodox Churches which accepted it, sects of Old calendarians, refusing its usage, were created.

From these 6 calendar systems, which were devised centuries after the Gregorian calendar, the most discussed about in the international literature is the French Revolutionary Calendar (*Le Calendrier Républicain*), since it is associated with the famous French Revolution of 1789, which still moves and influences European thought.

About New Julian Calendar was also written, in particular in Orthodox sources. Then comes the Revolutionary Calendar of the Soviet Union ('Bolshevik calendar'), interwoven with a special period of the Soviet history, while the Theosebic calendar of Th. Kairis is totally unknown internationally, since only a few scholars or astronomers know about it in Greece.

Mussolini's Fascist calendar is mentioned in the international literature, but both it and the totally unheard of calendar of Metaxas dictatorship in Greece are not separate calendar systems; they are rather a parallel writing of the years next to the Gregorian calendar date that denoted the length of these dictatorships, while in the case of Mussolini's Fascist calendar some important holidays are also mentioned. They essentially represented, as professor Sterios Fassoulakis of the University of Athens writes, calendar systems of political ideology (Istorica, 2001).

These cases strengthen the conclusion that it is difficult for a calendar reform to prevail or even to survive for long. If they are not accepted by several states, Church or some organization existing in a number of different communities, the end of regime which implemented them is usually also the end of such calendar systems

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