

150 (\pm) years in 20 (\pm) minutes

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(... of science in Italy)



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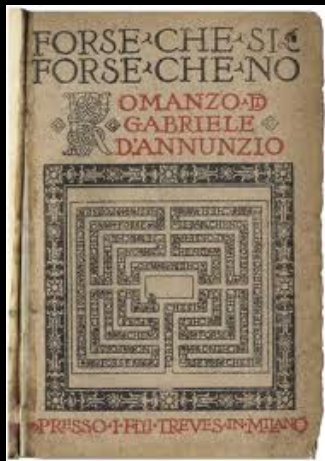
"Torniamo allo Statuto" ?

This presentation is a by-product of ...
...the reading for my paper on the INAF Statute for
[Giornale di Astronomia](#)
... and other readings ...



Should we be proud of `.it` ?

Italiani, vi esorto alle istorie



*Ahi serva Italia, di dolore ostello,
nave senza nocchiere in gran tempesta,
non donna di provincie, ma bordello !*

...
*verso di te, che fai tanto sottili
provvedimenti, ch'a mezzo novembre
non giugne quel che tu d'ottobre fili.*

(Purg. VI, 76-78 142-144)



but we should be proud of *science* !

Italiani, vi esorto alle istorie

We are
standing on the shoulders of giants

(... attributed to Newton but dating
back to middle ages)

We have *historical memory* !



but we should be proud of *science* !

Italiani, vi esorto alle istorie

And since we cannot change the world, we could at least record its history !

"Da giovane pensavo che si potesse e si dovesse cambiare il mondo. Ora penso che il gesto più rivoluzionario che si possa compiere è riuscire a sopportarlo."

(Guess who said . . . and who quoted that ?!)



Before unification

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base map 1843



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base map 1843 Napoleonic period 1800-1815

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base map 1843 the Restauration 1815-1860



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base map 1843 1860 II G.I.



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base map 1843 1861 i Mille



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base map 1843 1866 III G.I.



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base map 1843

1870 Porta Pia



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base map 1843

1870-1918



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after WW I

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base map 1843

after WW II



When scientists were senators

According to art. 33 of the **Statuto Albertino**, members of the **Senate** of the Kingdom (categories 18/19/20) were chosen (also) among

- 18· I membri della Regia Accademia delle Scienze, dopo sette anni di nomina;
- 19· I Membri ordinari del Consiglio superiore d'Istruzione pubblica, dopo sette anni di servizio;
- 20· Coloro che con servizi o meriti eminenti avranno illustrata la Patria;

The (partial ?) [list on the Senate site](#) indicates (1861-1922)

- 1 physicist (Corbino)
- 1 chemist (Cannizzaro)
- 2 "scientists" (Blaserna, Grassi)
- 28 engineers
- 26 medicine doctors
- 87 university professors

Compare that out of 41 "life Senators" of the Republic only 2 were scientists (Castelnuovo and Levi-Montalcini)



When scientists were senators

Among Senators ...

Galileo Ferraris, Pacinotti ...

and also many Milanese known nowadays mainly because of street names mainly here in the surroundings of Città Studi:

Bassini Golgi Saldini Colombo ...

Mangiagalli (also mayor and first University rector) ...

Celoria ...

... and Schiaparelli



see book [\[1\]](#)



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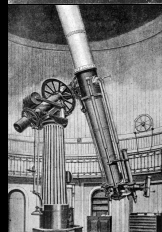
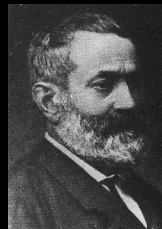


When scientists were senators

Ill-famed Minister of Finance **Quintino Sella**, the man of the stingy "awl policy" (grudging funds for public expenditure) and the author of the unpopular tax on milled flour, was by education **professor of mathematics and mineralogy**, and was esteemed by Volterra and Schiaparelli.

He funded (for 19440 lire of 1862) the acquisition at Brera of the Merz telescope, the **first scientific instrument of the newly created Kingdom of Italy**

A letter (pag. 99 of [1]) of Sella to Schiaparelli says *Veniamo ora al triviale: quanto costa il refrattore che desideri ?*



Vito Volterra

First met him about integral equations in the context of direct deconvolution of X-ray spectra

... thought he was just a rather obscure mathematician

Many of you may know him as one of the **12 professors** who did not swear the **oath of allegiance** to the fascist regime (12 out of 1250, November 1931)

... or as first President of CNR



see book [2]



Vito Volterra

Born in the ghetto of Ancona in 1860



Vito Volterra

Born in the ghetto of Ancona in 1860

- 3-year old reads and writes
- 12-year old wants to be a mathematician
- 13-year old solves 3-body problem with finite differences
(Verne *From the Earth to the Moon* !)
- 1883 professor at Pisa
- 1895 collaborates with **Schiaparelli on pole motion studies**
- 1905 Senator of the Kingdom
- 1919 vice-president International Research Council
- 1921 president Bureau International Poids et Mesures
- 1923-26 first President of CNR
- 1924 president Accademia dei Lincei



see book [2]



Vito Volterra

- not particularly politically engaged
- admirer of Quintino Sella
- critical of students' protests in 1894
- critical of colonial war in Lybia 1911
- interventist in 1915; volunteer at the Central Aeronautics Institute (how to put a cannon on a dirigible !)
- since 1917 works for Ufficio Invenzioni (Ministry of Weapons)
- collaborates with Hale's NRC (USA) via Abetti
- in post-war . . . works for establishment of CNR



see book [2]



Vito Volterra

Nicknamed "Mr. Italian Science"

- in 1923 talks in Senate against Gentile's school reform, which "*abbassa la cultura scientifica*"
- in 1924 votes in Senate the non-confidence to Mussolini
- in 1925 signs the Croce manifest (despite different ideas)
- in 1926 out of CNR
- in 1931 one of 12 professors refusing to swear
- dies in 1940



see book [2]



Early CNR (1923-26)

Conseil International de Recherches (CRI-IRC)

- first talks London Oct 1918
- "provisional", Paris conference Nov 1918
- established in Bruxelles Nov 1919
- since 1931
ICSU: International Council of Scientific Unions



see book [3]

Among the *international unions* IAU is one of the earliest

- first IAU General Assembly in Rome 1922

1:1 correspondence between
International Unions <> National Committees



Early CNR (1923-26)

Riferimenti di legge

RD 2895 18 Nov 1923	Institution of CNR	[3 I, 43]
RD 1625 24 Ott 1924	First Statute of CNR	[3 I, 47]

In 1923 CNR is created:

Il Consiglio Nazionale di Ricerche aderente al Consiglio Internazionale di Ricerche sedente in Bruxelles

with the purposes of (not just an agency)

- *coordinare ed eccitare l'attività nazionale nei differenti rami della scienza e delle sue applicazioni*
- keep contact with other public bodies
- *if means allow* manage and eventually create laboratories . . .



see book [3]



Early CNR (1923-26)

About astronomy ...

ref. [3,] pag. 312ff

- 1922: 6-member temporary committee c/o SAIt (pres. Cerulli vice Bianchi)
- 1925: Comitato Astronomico Nazionale : 21 members, Observatory directors and university professors + Gen. Vacchelli (IGM)
- CNR pays contribution to IAU and funds observatories
- 1927: pres. Bianchi secr. Abetti
- 1929: proposes grant program (3×6000 , 2×3000) not implemented
- 1929: proposes observatory at Asmara !!
- 1930: opposes creation of Monte Mario but Armellini puts political pressures
- funds Mem.SAIt (1927), Coelum (1930)



see book [\[3\]](#)



Early CNR (1923-26)

Corsi e ricorsi . . .

Senator Paternò (chemist) at Senate (1925): *the disgrace [. . . of having . . .] two philosophers as ministers. . . . Italy, a strange country, never had any scientists at the Ministry of Public Education.*

(not fully true, O.M.Corbino was Minister in 1921-22 ! and Minister of National Economy in 1923-24 and fought with Gentile about funding to laboratories)

1923 is a black year for the scientific-technical world in Italy: for what administration is concerned, with the De Stefani reform, the "party of accountants" celebrates its more or less final victory [Paoloni, 4]



see book [3]



Early CNR (1923-26)

Curiosities

The first *administrator* of CNR was Bonaldo Stringher, DG of Bank of Italy

The Governor of the Bank of Italy was ex-officio in the board of CNR until the '60s



see book [\[3\]](#)



Semper reformandum ? :-) (1927-37)

CNR is **reformed** *at least* twice (1927 and 1937) and "politically normalized" under President Marconi

Separation between research and teaching (Mussolini to CNR, 1929)

First own research structures ("national institutes")

- 1929: Comitato Talassografico (1910) incorporated in CNR (TA ME TS)
- 1932: Istituto Nazionale Applicazioni del Calcolo
- 1933: Centro Radiotecnico
- 1936: Istituto di Elettroacustica
- 1936: National institutes for Geophysics (ING), Biology, Chemistry
- **1939: Istituto Motori (Napoli)**
- **1940: Centro Psicologia (Gemelli)**



Guglielmo Marconi



Semper reformandum ? :-) (1927-37)

Riferimenti di legge

RD 638 27 Mar 1927	Riordino del CNR	[3 I, 137]
RD 1840 21 Jun 1928	Comitati Nazionali del CNR	[3 I, 137]
RD 2105 23 Oct 1927	Disposizioni per l'istruzione superiore	[3 I, 139]
L 1179 27 Jun 1929	institutes of Talassographic Committee enter CNR	[3 I, 208]
L 298 26 May 1932	CNR exits ICSU	[3 I, 208]
L 1306 24 Aug 1933	CNR as <i>supreme technical council of the State</i>	[3 I, 209]
RD 821 10 Apr 1936	definition of staff <i>ruolo organico</i>	[3 I, 209]
DL 1114 25 Jun 1937	Riordino del CNR ... directly under Prime Minister	[3 I, 211]
DL 1145 8 Aug 1942	stato giuridico personale Osservatori (Bottai contro Comitato)	[3 I, 333]
RD 62 4 Mar 1943	Riordino del CNR	[3 I, 214]



Guglielmo Marconi



Semper reformandum ? :-) (1927-37)

About astronomy ...

- In 1932 merged as "Committee for physics, applied mathematics and astronomy" with three sub-committees (pres. Garbasso, vice-pres. for astronomy Bianchi)
- Starts foreign grant program: Gratton (1933), Zagar (1934) ... following Physics Committee: for cosmic physics Rossi (1930), Occhialini (1931) ...
- Funding support for Asiago (1933-42) and Loiano (1936)
- Discussion about closing down some observatories
- And about colonial observatory
- De-financing with "autarchia"
- In 1937 astronomy moved to Committee for astronomy and geodesy
- In 1942 recreated Committee for physics, applied mathematics and astronomy



Guglielmo Marconi



Semper reformandum ? :-) (1927-37)

Corsi e ricorsi . . .

In 1937 quarrel between Bottai (Minister of National Education) and Marconi about "university as only seat of research". This time Marconi wins.



Guglielmo Marconi



Semper reformandum ? :-) (1927-37)

Curiosities

In 1936 the "palazzaccio" of p.le delle Scienze is inaugurated (built in 3 years)

In 1937-38 CNR should have had

- 1 president 1 vice-president
- 7 consiglieri
- 10 relatori-ricercatori
- 233 dipendenti del ruolo tecnico
- 119 dipendenti del ruolo amministrativo



Guglielmo Marconi



Before (and during) WWII (1937-44)

Guess who was the third president of CNR !



Before (and during) WWII (1937-44)

1937-41 Pietro Badoglio !!



O Badoglio, o Pietro Badoglio/
ingrassato dal Fascio Littorio,
col tuo degno compare Vittorio/
ci hai già rotto abbastanza i coglion



Before (and during) WWII (1937-44)

1937-41 Pietro Badoglio !!

1941-43 Giancarlo Vallauri (founder IEN Torino, 1930)

1943-44 Francesco Giordani (chemist)
(delegates Giulio Natta in Venice [RSI])



O Badoglio, o Pietro Badoglio/
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In 1944 Guido Castelnuovo is extraordinary commissioner for CNR.

- proposes to maintain the own research structures *as experiments*
- proposes to assimilate the career of CNR research staff to university assistants, *aiuti* and professors.

Original report in [3, pag. 632]



The reconstruction (1945-60)

1944-1956: Gustavo Colonnetti (-> IMGC), engineer, refugee, DC politician

1956-1960: Francesco Giordani (again)

DLu 82 1945:

- CNR directly under Prime Minister
- renounces **own structures** (ING detaches)
- **Centres** (c/o Universities) linked to chair holder, 5-year convention
- **National Consultative Committees**
 - 24 elected by university faculties
 - 24 elected among technicians and experts
 - 24 designated by ministries and administrations
- Soon changed (DLCPS 737 1947) to
 - 40 university professors
 - 12 experts *also* outside universities but by professors
 - 20 chosen by president among proposal by ministries and administrations

In 1945 there were 21 Centres

In 1950 there were 61 Centres

Since DL 1167 1948 CNR can have own structures again :

- INAC, Istituto Motori, Istituto di Ultracustica
- INB -> Istituto Nazionale della Nutrizione
- 1950 Istituto Nazionale di Psicologia
- 1951 INFN



The reconstruction (1945-60)

Riferimenti di legge

<p>DLu 82 1 Mar 1945 DLCPS 732 17 Jul 1947 DL 481 16 Apr 1948 DL 1167 7 May 1948 L 276 18 Mar 1958 L 933 11 Aug 1960</p>	<p>Riordinamento del Consiglio nazionale delle ricerche Elezione dei membri dei Comitati nazionali del Consiglio nazionale delle ricerche Aggregazione dell'Osservatorio [...] di Monte Porzio all'Osservatorio [...] di Monte Mario Modificazioni al <i>DL 82 1945</i>, relativo al riordinamento del Consiglio nazionale delle ricerche Ordinamento delle carriere del personale scientifico degli Osservatori astronomici e dell'Osservatorio vesuviano Istituzione del Comitato nazionale per l'energia nucleare ("CNEN")</p>	[3 II, 9]
<p>L 293 2 Mar 1963 L 70 20 Mar 1975 DPR 411 26 May 1976</p>	<p>Organizzazione e sviluppo della ricerca scientifica in Italia ("riordino CNR") Disposizioni sul riordinamento degli enti pubblici e del rapporto di lavoro del personale dipendente ("parastato") Disciplina del rapporto di lavoro del personale degli enti pubblici di cui alla <i>L 70 1975</i></p>	
<p>L 28 21 Feb 1980 DPR 382 11 Jul 1980 DPR 163 10 Mar 1982 L 93 29 Mar 1983 DPR 68 5 Mar 1986 L 360 8 Jul 1986 DPR 568 28 Sep 1987 L 168 9 May 1989 D L 159 25 Mar 1996 L 59 15 Mar 1997 DL 204 5 Jun 1998 DL 19 30 Jan 1999 DL 296 23 Jul 1999 DL 127 4 Jun 2003 DL 138 4 Jun 2003 L 165 27 Sep 2007 DL 213 31 Dec 2009</p>	<p>Legge delega riordinamento della docenza universitaria ... ("tre fasce") Riordinamento della docenza universitaria ... Riordinamento degli osservatori astronomici, astrofisici e vesuviano (+ CRA) Legge quadro sul pubblico impiego ("comparti") Determinazione e composizione dei comparti di contrattazione collettiva ... Modificazioni alla <i>L 283 1963</i>, concernente organizzazione e sviluppo della ricerca ... ("elezione comitati") Recepimento ... <i>dell'accordo sindacale</i> per il personale della ricerca ... ("primo CCNL") Istituzione del Ministero dell'università e della ricerca scientifica e tecnologica Disposizioni urgenti per il settore della ricerca (CNAA ?) Delega al Governo [...] per la riforma della pubblica amministrazione e per la semplificazione amministrativa. Disposizioni per [...] la politica nazionale relativa alla ricerca scientifica e tecnologica Riordino del Consiglio nazionale delle ricerche Istituzione dell'Istituto nazionale di astrofisica ("INAF I") e norme relative all'Osservatorio vesuviano Riordino del Consiglio nazionale delle ricerche Riordino dell'Istituto nazionale di astrofisica ("INAF II") Delega al Governo in materia di riordino degli enti di ricerca Riordino degli enti di ricerca in attuazione ... <i>della L 165 2007</i> ("statuti") verificare e poi spostare</p>	

The reconstruction (1945-60)

About astronomy ...

- under National Committee for physics, geophysics, geodesy, mathematics and astronomy
- In 1956 split into 2 Committees: for physics and for mathematics (Zagar in both)
- 1947-1951 Centre for Solar Physics (Arcetri)
- 1947-1951 Centre for Stellar Physics (Merate Padova Asiago)
- 1948 Laboratory at Testa Grigia
- 1951 Centre for Astrophysics (Arcetri Asiago 1953 Padova 1962 Monteporzio) reaches 6 sections in 1968

ref. [3,11 pag. 167ff]



The reconstruction (1945-60)

Corsi e ricorsi . . .

Speech of Colonnetti, 1949

The truth is that the Research Council needs only one reform: that is a reform of its budget. Just before the war the ill-famed fascist government (famigerato governo fascista) gave to the Council 25 millions per year [0.75 % of the state budget] equivalent as purchasing power to 1250 millions lire at current values. Today we receive only one fifth of such amount.



The reconstruction (1945-60)

Curiosities

According to DL 1167 1948 the entire CNR scientific staff complement included:

- 1 research director (*direttore di ricerca*)
- 8 senior scientists (*primo ricercatore*)
- 32 scientists (*ricercatore*)

According to L 276 1958 the *directive career of scientific staff* of astronomical observatories was organized as:

- assistant astronomer (*aiuto astronomo*)
- astronomer (*astronomo*)
- senior astronomer (*primo astronomo*)
- chief astronomer (*astronomo capo*)

At Osservatorio Vesuviano the career was parallel, but *ricercatore* instead of *astronomo*

Could not find details about career at CNR in 1963 and anyhow before 1975, but similar



The age of the economic boom (1960-70)

1960-65 Giovanni Polvani

1965-72 Vincenzo Caglioti

CNR "coordinated enterprises" (special projects)

revision of centres

1963 reform : new committees for human sciences and transversal technology committee

1963-64 the Ippolito and Marotta affairs

1967 new regulations

- Institutes (permanent own structures)
- Laboratories (temporary own structures)
- Centres (*centri di studio*, 5-year renewable c/o universities)
- Research groups (temporary, coordination)

1969 CNR own structures (*organi*) are 90



The age of the economic boom (1960-70)

About astronomy . . . and space

- 1964 creation of GIFCO
- 1969 GNA supersedes Centre for Astrophysics
- 1969 GIFCO sections in Turin, Milan, Bologna, Frascati, Palermo spawns CNR Laboratories (Institutes since late '70s: ICGF IFCTR TESRE LAS LFSI IFCAI)
- IRA (1970) has a [separate history](#)
 - 1953 CERN
 - 1962 ESRO ELDO
 - 1964 ESO
 - 1975 ESA
 - 1980 CNR participates to VLBI
- 1959 CRS (Space Research Commission, Broglio, Amaldi) c/o CNR with 5 sub-committees
 - physics and astrophysics (Occhialini) included Uni (Physics) MI BO RM BA, (Mechanics) PD observatories Arcetri Asiago TS, Lab. Frascati
 - astronomy, geophysics and geodesy included obs. Brera Padova. Centre for microwaves FI, et al.
 - vehicles, propulsion and guidance
 - electronics
 - biology

ref. [3,11 pag. 187,388,404]



The age of the economic boom (1960-70)

Curiosities

[3,II pag. 89 note 36]

quotes a letter of complaint about funding in 1961-62 signed, among others by Occhialini, Dilworth, Boella

[3,II pag. 72 and note 39]

quotes a letter of 1964 *non privata nè confidenziale* by Occhialini to CNR President Polvani complaining for the choice of the location of ESRIN.



Some of us lived through this (1970-...)

In 1976 215 structures (94 institutes 121 centres)

In 1984 277 structures (115 institutes 112 centres)

In 1999 CNR reform with merging ... and splitting

Finalized projects and strategic project policy

(astronomy and astrophysics and space are not strategic ... but there is an explanation)

"infamous" L 70 1975: CNR enters parastato

introduces the famous Art. 36 (temporary contracts)

Art. 15 and 38 : all *research staff of the directive career* are reclassified in the unique level of *collaborators of the technical-professional role*

in 1980 **university reform** (DPR 382) creates the three tiers of researchers, associate professors and full professors

and 1982 this is extended to **observatory staff**

Parastato ends in 1983,

"research compartment" constituted in 1986,

first labour agreement in 1987 with equivalent three tier structure for R&T



Some of us lived through this (1970-...)

Curiosities

Children eat their fathers ?

- in 1960-61 CNR budget is 4 GL while CNEN budget is 20 GL
ref. [3,II pag. 41]
- in 1987 space activities within CNR have a budget of 400 GL, much higher than any other Committee and double of finalized projects
ref. [3,II pag. 357]



Some of us lived through this (1970-...)

About astronomy ... and space

- ref. [3,II pag. 394ff]
CRS dissolved in 1969, replaced by CISPS (Puppi) and SAS
- in 1979 PSN
- finally in 1988 ASI

- in 1982 (DPR 163) coordination of observatories in CRA (separate council outside CNR)
at same time their staff acquires university status
- in 1996 (L 159) consortium in CNAA
- in 1999 created first INAF (only observatories)
at same time CNR reform merges 7 institutes and 1 centre as sections of 3 nationwide
institutes (IASF IFSI IRA)

- in 2003 final merging in new INAF ...



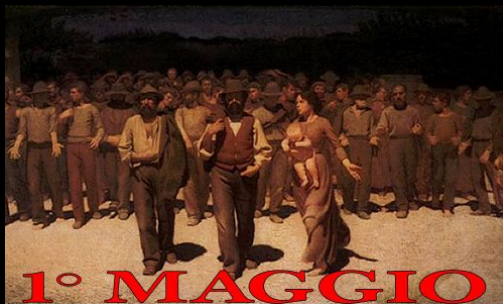
and wither then? we cannot say!



non entrano in vigore gli statuti



and wither then? we cannot say!

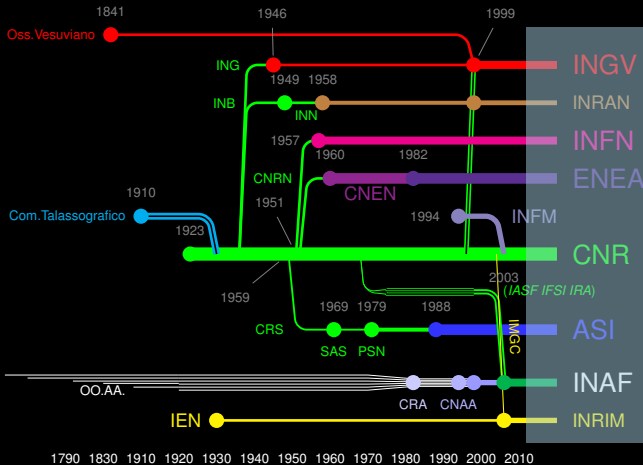


entrano in vigore gli statuti



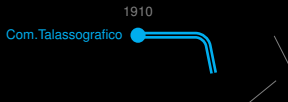
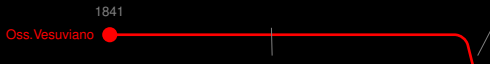
Genealogical tree

Quant'è bella giovinezza, che si fugge tuttavia ! Chi vuol esser lieto sia, di doman non c'è certezza.



Genealogical tree

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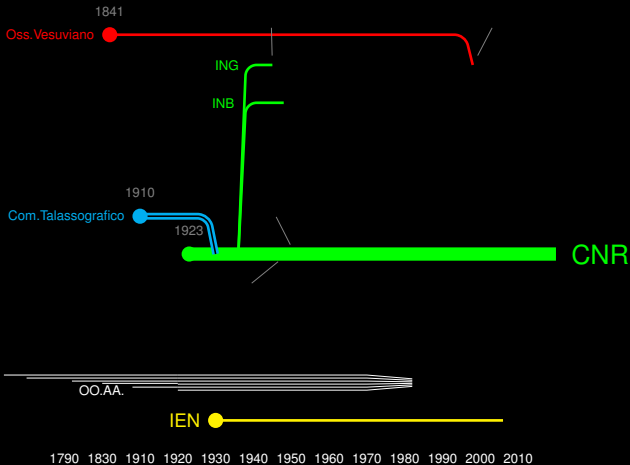
OO.AA.

1790 1830 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000 2010



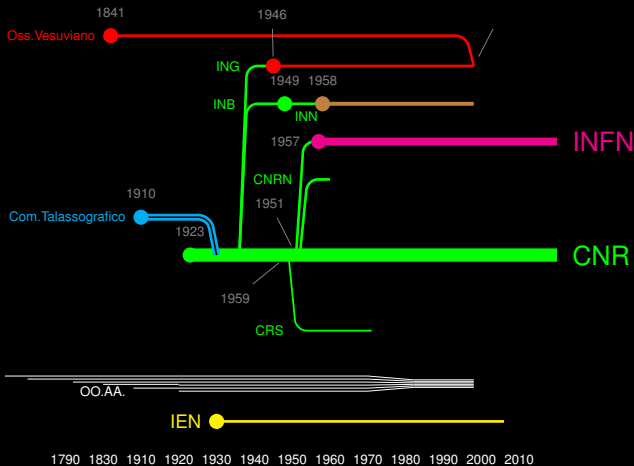
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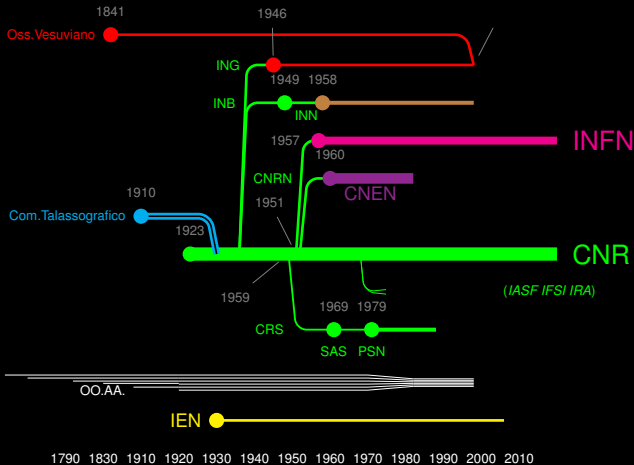
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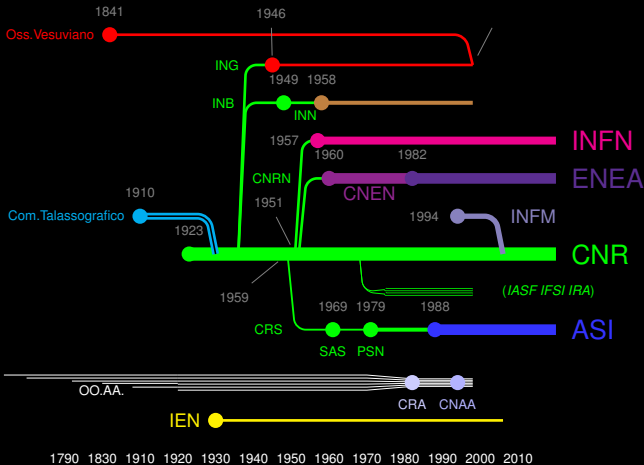
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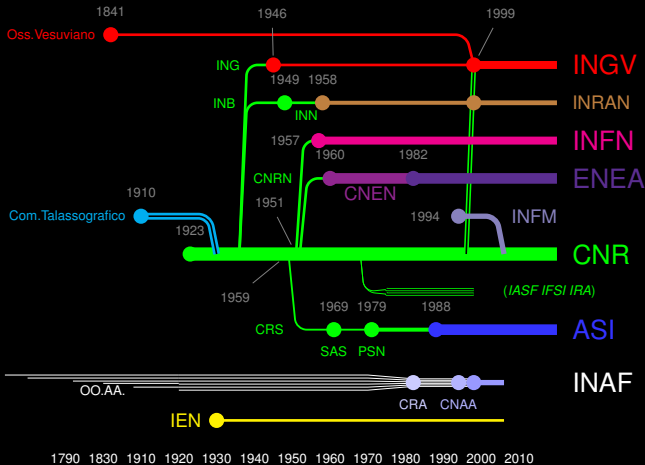
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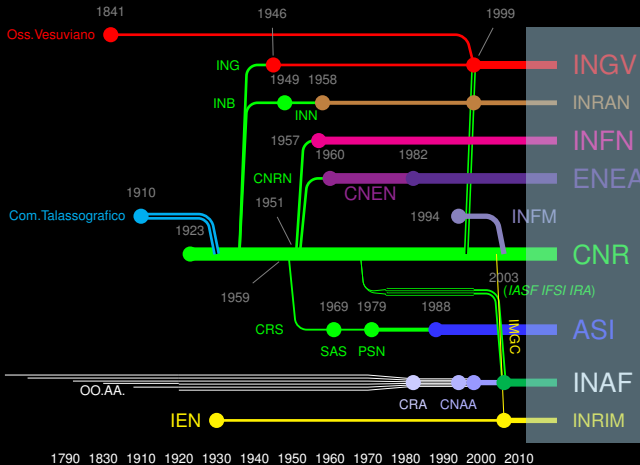
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- [3] [Simili R. & Paoloni G. \(a cura di\), Per una storia del Consiglio Nazionale delle Ricerche \(2 voll.\), 2001, Laterza](#)
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- [5] [Bonoli F., Fusi Pecci F. & Poppi F., Dall'Osservatorio Astronomico Universitario all'Osservatorio Astronomico di Bologna: 1957-1985, in press](#)
- [6] Brochure Polvere di stelle a cura dell'INAF (see also [the INAF archives site](#))

For the Italian laws (after 1945) consult also www.normattiva.it using the advanced search form (can search for ordinary act, act valid at a date, ordinary act with updates) particularly if the links given in the pages above seem to lead to a cancelled law.



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