THE SCIENTIFIC PERSONALITY OF ANTÓNIO GIÃO

ABSTRACT

This Dissertation aims to be the first biography of a scientist fallen into oblivion, and to explain how he was forgotten. It starts by the postulation of pragmatics of scientific discourse as a methodology, and reviews pertinent literature on scientific biographies.

His career starts as an independent young student, writing to scholars and attending scientific meetings unconcerned with his masters.

Strasbourg and Bergen are instances of his early maturity, linked in the former with early papers in French and in German, some of them as reports of scientific events; in the latter, in the conception of mathematical methods published as three books in Paris. Here, the first major conflict will take place, enacting his isolation.

A fruit of his loneliness will be an inconsequent travel along Phenomenological Physics.

War and"exile" in his native village lead him swiftly towards Fundamental Physics, expressed in his return to Paris and through publication in Portuguese journals. A lifeline suddenly interrupted in 1951, when the rupture with his mentor, Louis de Broglie, occurred.

Gião's start-over in Meteorology begins in 1952 through an invention; the absence of success of this device merges unnoticed among his large scientific production. These are the Italy years, and Piccardi's experiment appears as a new subject in his research.

Return to Portugal in 1960 is the moment of eclectic intervention:

– he teaches two chairs in the Faculty of Sciences;

– there, however, conflicts take place, towards the students and colleagues;

– he heads the"Centro de Cálculo Científico" (Scientific Calculus Center) since 1963, thus being – both the Centre and the Director – the pioneers of Informatics in Portugal;

– the journal of his Centro coincides from there onwards with his scientific profile. Meteorology, with an emphasis in Dynamic Climatology, Mathematical Physics, and Cosmology are main areas of work, as well as particle physics, where he abandons models developed in the forties;

– his 1967 conference may have been the"swan's farewell song", since the next (and last) two years are of residual publishing after a severe kidney disease.

The above topics are treated both chronologically and thematically. The Dissertation reviews a hundred original documents and concludes with a systematic analysis.

0. 1.PREVIEW

The preparation of this Thesis method has evolved over years of research and continuous rewritten. This method stemmed initially from the context - structure and publish the vast existing acquis, never previously studied Casa Antonio Gião.

So I left three basic documents, the first of which had been found in that house for students of History of Thought Mathematician at the University of Évora (* 1) , and corresponded to a handwritten notes, almost illegible, abruptly interrupted, Gião have them will be appreciated written, can guess at the end of life.

It is a founding option in this paper that, contrary to what is the university paradigm par excellence where research is shaped in teaching, an inverse work so made sense in the present investigation.

It is common in much of Anthropology : a field informant may propose to the University data to which this demand to the treatment they are able; so, I try to doctorate me, show me worthy of the students I had.

The second document that structured the work was performed by the literature Gião (93A) , (* 2) , which later in life (the last sixty years) dactilogra¬fado a first document, then successive attempts handwritten, it will tried to complete, as we shall see in the Document Source # 77.

I have been faithful to this bibliography, and always used the numbering of Gião, I sought complete; In doing this, I did not use the reference Almeida Costa (1971) , less extensive. These are numbers that will index the texts referred to above in" Chronology", but also" Power Lines" and" General Hermeneutics."

In this sense, I found some contradiction with the literature prepared with Professor Carlos Fiolhais and its General Library of the team from the University of Coimbra, which I have some support, and include almost verbatim. Not solve this contradiction on a few dates, keeping me true to form as Gião regarded the order of his writings. Deliver, with the Thesis, the Bibliography to the 2008 date; was will of both subscribers give it final form, but this Thesis deserved priority.

The third document is the order of appointment (* 3) in the Government Gazette, which is later presented as Document Source # 74 - signed by Ramos and Costa, Vicente Almeida Gonçalves and Costa. Much of which will be taken up in the obituary Gião (Almeida Costa, 1971). A first version, when taking possession and the second, the obituary is published in the Bulletin of the Faculty of Sciences.

These news refer the issue of tripartite work of Gião, sites where there had been worked and the authors who have made it reviews.

In the final phase of the rewrite, I had access to the Proceedings of the School of the Faculty of Science Council, and find in them a much more accurate version of what these three teachers; I transcribe it, and took it as a source for institutional ties of Gião, matter on which questions remained until then, given the absence of documents on the point.

The method adopted depended on the heterogeneity of accessible elements.

I went for that, forced to define a concept and strategy.

I define pragmatics of scientific discourse as the relationship between the published work and the read / host / consequent behavior of the readers community; is a rarefacta version injunction of bibliometrics, and I stand to be appropriate in the case of Gião because, as we shall see, their texts are rarely mentioned by someone else, and the number of book reviews, quotes or other forms of reaction is less than the amount of securities. Will be the method, in general, the core of this work, which focuses on a chronological list. It is completed whenever there are relevant ite, a discourse analysis, be it scientific, is institutional.

Pragmatics is the semantic opposite, and is a less ambitious art (Recanati, 2003) ; the semantics of a scientific paper is the specification of its internal intelligibility; now, the work of Gião is often tight, rarely understood by others. There are more texts, said he, than scheduled book reviews; rarer still seem to be the quote by someone else; these various modes of interaction - those mentioned, as well as the rare reference Gião by other authors; correspondence; some invitations; reading notes; participation in institutions, when corroborated by documents or contradicted

by words - the case of the"missing" CIRMM; academic actions, thoughts exposed more informally and therefore more intelligible - all these elements, I will articulate and make sense.

From a semantic point of view, only the last; with a pragmatic grid the other. This will attempted a second time, a biography of Gião, with the first being constituted by the autobiographical notes.

There is a gap between the number of book reviews of authors, listed by Almeida Costa, transcripts of the documents mentioned above, and those found in the research online journals declared by him and the two other subscribers Appointment of Order - *Zentralblatt fur die Mathematick and Mathematical Reviews*. It is a failure that has not had access to the files of that teacher, did not know initially solve. The error would, perhaps, in the name of the journals where authors such as Pascual Jordan (* 4) or Lichnerowicz could have done the book reviews; or in another type of error, the postulate the publication of non-existent book reviews, an analysis that forced the critical carefully the sources accessed. And it was this critical analysis, which prove a major source - Appointment of Order - is incorrect; the proof is in the final paragraph of the thesis, to be listed all the book reviews in magazines above. In any case I completed the book reviews obtained in this way, with others, for there was at that time the systematic recension habit in *Physics Abstracts* journal.

It was a case of serendipity (* 5). Leafing through systematically handwritten records that Gião devoted to book reviews of your work, I found the this publication, that nothing in the previous investigation would suspect - one of the points where the physical and mathematical identities appear to be not communicating vessels...

I managed to find more references to Gião, for example in Meteorology thesis at MIT, and surprisingly a long read note from Professor Suzanne Daveau at the end Gião 's life, which integrates more transdisciplinary fraction of his vast work.

A similar gloom hangs over the institutions where Gião will state, and the times when they did, before returning to Portugal - could not, in any case, confirm the existence of a contractual relationship. These are points where the biography that I let

insufficiently clear, and that may have contributed, during the life of Gião to nimbar its mythical and distant image... certainly with the benevolent consent of the person concerned. Here, the critical comparison of the sources leans the most informative - the Act cited the School Board of the Faculty of Sciences...

By the time I was looking for a historical narrative with continuity, pointed out where I could other scientific instruments, whether they were the chairs, relations with students when documented, quarrels with colleagues, Gião projects and perfectly distinct professional practice of other, more structured its documentation, which was the center of the Scientific Calculation. And in the final stage of rewriting, managed to glean some reports of its activities at the Faculty of Sciences.

Before that, in the first phase of this work sometimes was needed to further examine certain issues in more detail. For suggestions from which want to reveal the opinions of the members of the Jury, meeting 3/3/2011, I was taken to change this part of the initially defined methodology.

So,I chose, for thematic chapters move to what was, until then, a collection of attachments, organize Documentary Sources in the second book

Diferenciei the various time instances - introspective memory, publishing, criticism, and projects. In doing so, a gap emerged in the 30's career, which I interpret as a result of the most striking of the various controversies in which he was involved.

Are structured as non- thematic chapters: first autobiography, for me, today and always the ideal document, that if it had been followed and would accessed from any Thesis little more than a corollary. It was a pretext for a review of the current literature about the biography as a modality within the History of Science.

[Methodology note - number in () refer work treated in" Timeline".]

Next, a timeline that breaks off in the death of Gião, but still somehow in the life of Wife. This chronology begins with the earliest writings, one of which (not designated in the literature (93A) then presented in Acts Room of the School of Évora, would Gião 16 years.

To the item whose number (93) of the texts are almost without exception - his

work at the School of Évora, and (20A) - referenced in this listing. After 1955, it was necessary to search.

Those writings that are marked as A and B, not being scientific publications, were not part of Gião list, I choose to include them on the date that have been printed. This list allows reveal years of interruption of work lead me to understand why.

Mean years as in 1934, 35 and 37, mean the war years, and also in 1952, that did not leave Gião published work. Years of turning point in life options that let explained essentially.

In this chronology Articles are affected by a letter corresponding to the classification made by Gião,(4 themes sistematizavam, in their eyes, the work that left us) , are followed by short, when it is in the text, and a or more book reviews and, in cases judged relevant, subject to comment that I am the author, indicated by [ ].

Next to this annotated bibliography, appear the Gião projects, projects that are in the form of letters written many times to the scientific community. It is worth noting that if no response traits to some of these letters (not found) , the full implementation of these desiderata was not made by Gião. Analyze when you know the how and why.

The ultimate submitted project is the creation within the Gulbenkian Institute of Science, Astrophysics Laboratory. It is in this Institute that Gião come to direct another project his Scientific Data Centre.

Before and after the Timeline, rather as a synthesis of all this published work, I try to see the power lines, that is, the interdependence between texts can be seen very clearly influence each other, and this is more evident for the Gião in other authors, as the bibliographies of this are generous in quotes himself, and meager references to other scientists. A feature leading sometimes to designate Gião as a hermit or scientific autistic.

It will also tell that when and will try to explain the reasons as sometimes a series of texts, a variety of publications, it is seen sharply replaced by other types of themes and / or magazines.

With some conclusions - I called General Hermeneutics, not text, but the body of work - concludes the part of diachronic analysis of this thesis.

Another area of concern - the last that I joined this study - describes the scientific identity at all times of the work of Gião sometimes physical, mathematical other times.

While physical is also, often, reporter and recensor.

However, assume for a moment other postures. I do not, in this work, unless lightly, its interests as a man of art, letters and culture; However, a visit to Casa Antonio Gião, its Library and Art Collection, scheduled this completely by the Portuguese Society of Authors, would be a step in this direction...

But in the two conference" Another Gião" emerges clearly the philosopher; in the same book, reading the novel about microelectrão, we draw up the science historian's profile, a forgotten chapter in which it plays, as the creator, the central role. Seeking present, however, another point of view, making reassemble this" heresy" to Ehrenhaft, author whose name occurs once in a letter to Gião.

At the beginning of Book 2 present two handwritten documents. In the first, the trace is hard to read and was in the care of Professor Stéphane Rouault, who never thanked enough drudgery of the transcribing.

I choose to consider this transcript as a primary source, and opto also to simplify and enhance the translation of this French Portuguese transcription, in order to create, in the first book, a better understanding. Between this translation and the Chronology, there is a interface that includes an analysis of the sites and the time when one ends and the other begins.

In the second text undated I present in French, I think find the source of reflections on causality (which will follow throughout life) at a later form the writings of phenomenological physics (which by then would have stopped). To relieve a single thought on the finiteness of the universe and the beginning of its lasting opposition to the hypotheses that will call physicalists.

Available other documentary sources from which I emphasize :

- The 1959 conferences (# 5) and 1967 (# 6) reveal the philosophizing Gião, brilliant orator of public sessions, largely better designed, I argue, than their scientific instruments, except the remarkable (99). In the analysis of their rhetoric, I present some poetry interpreted by my students, and three texts, and around the Gihon, which I published in Istanbul, in the memorial book to the philosopher Teoman Durali.

- Correspondence implicitly declares a selection. In some cases, allows connection between thematic sections seemingly little related.

In the text of Thesis sometimes mention or integrate letters, letters that had a purpose for accompanying scientific production Gião that year; for example, the rejection letters from some magazines, leading Gião to change their style, such as the *Physical Review*. Rarely Gião have written off the Latin environment, which - with the exception of youth in Strasbourg, marked by the German language - has always been his

The study of the Correspondence deepens a perfectly documented theme, the epistolary exchange with Einstein, and this dialogue shows a rare emotional component, in the letters of Gihon, and great caution or reservation by Einstein, who, by not interested objectively by Gião, have the courtesy to respond in technical matters, without echo what Gião said fundamental - the EMNA, or" Mathematical Being Not Random".Is Gião is not sufficiently relativistic to dialogue with Einstein?

Is it a belated response to the Einstein cosmological model 1963 of Gião ?

I can not answer these questions, but to do the first, I follow a suggestion certainly expressed in the letter of Schrödinger (which I did not accede) but that Gião responds arguing against this benevolent charge...

That is, on my part, here and there, I am inclined to act on abduction..

Another part of the correspondence includes the exchange of letters because of a misunderstanding between two Portuguese magazines; the one Maurice de Broglie have submitted a text, which is published in the other. Rare testimony of the tension between two of the most progressive periodicals a nation where to science was a way to resist the oppressive regime.

Remember how his brother, Louis de Broglie was still the patron of Gião in Paris, welcomed him in his seminars and presented their texts to the Académie des Sciences.

Will be to respond to difficulties with a Broglie rise to the removal of the other. It is likely that the issue of microelectrão, spoken in another chapter, may be among the reasons for the separation, but on this hypothesis have not more elements. (One of Gião style characteristics remembered by those interviewed, was to say nothing of the losses.)

The next part of the documented correspondence is time the Faculty of Science deeply affected by the"reorganization" of teachers made in the forties by Salazar, invites Gião integrate it. Region otherwise take a pride wrongly says no in Portugal who can understand his work. Forget, or do not know, Mira Fernandes and Ruy Luís Gomes - who was contemporary in Coimbra, whom he crossed the Luso -Spanish Congress of 1942 - also forgets or ignores Manuel dos Reis and António da Silveira, in any if the invitation comes with otherwise, without contest, ten years later.

The last part of the correspondence presented is the place of a misunderstanding and reconciliation to the most persistent of the co- authors of Gião. Colonel Manuel Ferreira will have you written, and Gião responds explaining the dispute which has for Bossolasco - and that is solved with the cessation of the writings of the Italian magazine Gião by this addressed. Select these episodes allowed, as I say, explain some of the inflections in the life of Gião.

Correspondence with Babcock, Piccardi and Blackett, most abundant in Gião House is also much more technical and detailed, focused on the details and the experience of the research was not considered in this work.

The work of Gião breaks down for several fields of physics and mathematics, culminating in scientific computing. That route treat the final chapters, analyzing its action as an academic and also in the context of the most prestigious Portuguese Foundation.

0. 2.METHODOLOGY

An analysis of the scientific text as linguistic phenomenon can discern three levels :

The semantic, syntactic, pragmatic.

Internalists authors as Koyre favor the semantic view. The conditions for this:

- Clarity and inteligiblidade Author of the study;
- The domain of the issue considered by the scholar.

Nenhuma destas características preexistiu ao meu estudo.

A grid inspiring parsing was developed by Granger with the seductive name of style philosophy. When applied to Gião, such a reading is contrast between the texts apelidarei # 1, # 5 and # 6 (see paragraph 0. 3) and reproduce; and most other hundred and fifty titles, which suffers from the characteristics - that the conclusions nickname" the tower and the breastplate" which depart from the intelligibility and prevent semantic analysis; may have been part of the cast of converging reasons the applicant isolation of the scientist.

There remains the pragmátrica vision - what the text / voice scientific causes like behavior of readers / auditors.

Inspired by the work of Beavin, Jackson, Watzlawicz (1967), this reading gives importance to the context in which the message - in this case science - pervades. A postulate underlies it - is impossible not to communicate. Now when such communication does not happen, relief behavior diagnosed by Bragança Miranda (1985) - the censorship.

I complied because the vast collection of a scientist, which traced internal relations and successive contexts. And emerged a recurring pattern of behavior :

a) visceral way strove to each new subject of study;

b) the sincere search for partners and employees;

c) the primacy of theory on the fact observed;

d) the consequent deafness to criticism;

e) breaks with close;

f) the stoic silence with that have lived;

g) isolation;

h) the start, self-taught, in new fields of knowledge.

It is noted that the pattern essentially once a decade.

The constant theoretical production and financial affluence were free traffic conditions in the scientific community for 4 decades; the institutional environment in Lisbon academy, however, took exactly the same reasons, the consequences - they too pragmatic nature - that will - it took at the end of life, patent bitterness in memories, and oblivion to which are voted those suffering defeat in the academic field.

The text said it, lies in the interpretation of unpublished documents. The absence of parts of them pre-existed the study; Reproduction of others who passed by scanning photocopies, did not improve the quality of the originals. There are documents that were sought in other institutions - for example, the letter of the students to Salazar, is not accessible in the archives of that; Gião the responses to the two bodies of the Faculty not leave traces in the institutional memories of that school. And only the House Gião retained the singularities of this existence, that so few institutional features and memory knew leave.

It would therefore be unlikely remains of the life of a scientist who emerges some originality of such life and work. Advocate at the time of writing these lines, the methodology used, discovery on the way to investigate and write, may be appropriate to other forgotten authors.

The writing of a thesis methodology has consequences in read mode. Since the argument and the proof of the elements of this continuous text and repeatedly relies on documentary sources, it was necessary to list the separate volume, and the reader is invited, every step indicted by #, to corroborate the other volume the evidence

appears.

0. 3.CONVENTIONS AND RATINGS

EMNA – Être Mathématique Non Arbitraire. Em português, Ente (ou Ser) Matemático Não Arbitrário. Conceito central no pensamento de Gião no pós-guerra, assim como na disciplina de Física Matemática. (Mathematical Being Not Arbitrary. Central concept in thinking Gião after the war, as well as in mathematics discipline of physics).

CRAS – Comptes Rendus hebdomadaires de l'Académie des Sciences de Paris (Weekly Rendus of the Academy of Sciences of Paris)

MNRAS – Monthly Notices of the Royal Astronomical Society

AHMCUL – Arquivo Histórico do Museu da Ciência da Universidade de Lisboa (Science Museum Historical Archive of the University of Lisbon)

RUL – Reitoria da Universidade de Lisboa (Rectory of the University of Lisbon)

CIRMM – Centre International de Recherches sur la Météorologie de la Méditerranée (International Agency for Research on Meteorology of the Mediterranean)

CCC – Centro de Cálculo Científico (Scientific Data Centre)

FCUL – Faculdade de Ciências da Universidade de Lisboa (Center for Philosophy of Sciences of the University of Lisbon)

UGGI– Union Géodosique et Géophysique Internationale (Union Géodosique and

Geophysics)

[ ] – Comentários de autor (Author Comment)

(*N) – Reference to text notes

(#N) –Reference to documents listed in Book 2

In these documents, when paged, the word p. M indicates the page of that book.

(N) – numbering by Gião of his texts

{N} – numbering in Almeida Costa (1971)

0. 4.STATE OF THE ART

0. 4. 1.SCIENTIFICBIOGRAPHIES

Consensual paradigm of what can and should be the biography of a mathematician, is the study of Constance Reid (1996) on David Hilbert. However, this work is the history of mathematics, a mixture of testimony and documentation, synchronizing the evolution of the scientist with the company, without penetrating the thought that is studied. To this end, more technical chapter authored by Hermann Weyl, it became necessary.

Is this difficult balance between a narrated story, mixed memories and documents; and the scientific content, which was treated by Henrique Leitão (2011).

Summary some of the themes of his speech, that guide sometimes reading relevados texts in this chapter :

a) The biography is systematically said lower gender within the historiography of science;

b) However, it is one who knows more readers;

c) The biographer of speech is dense in materials research;

d) However, it is commonly lightened with intermezzos of contextualization;

e) The biography tends to hagiography;

f) Being the typical narrative of this the wise that hard fight against the consensus;

g) To the end, to see recognized their ideas;

h) In this paradigm, was opposed to the study of the subject of Henrique Leitão;

i) For Pedro Nunes was, for example, Family of the Holy Office...;

j) other narrative may therefore be more appropriate;

k) [as we shall see, so you have to be with Gião].

Consider therefore in the light of what was said by Leitão, some recent studies.

In his study in defense of biography, T. Hankins (1979) warned of the use of this kind as a pretext for a”history of prefaces", ensuring that they give to be intelligible. In this brilliant defensive libel, with which I agree in essence, contraponho some arguments:

a) The preface is usually part of a hagiography.

b) In the twentieth century emerge three other possible history not treated by Hankins, and rarely taken:

c) the history of the opinions of the referees, which would be an internalist or semantic view. But difficult to achieve, because, by definition, those opinions are reserved.

d) And the way I chose to Gião with a history of reading, embroidered around its reviews, the pragmatic analysis of scientific discourse that Author.

e) Finally, in the same direction, the method advocated by Bourdieu and implemented, for example, by Gingras and Bontems - analysis of quotes, which brings together the semantic relevance to the reading of the act, but decreasing the opinionated component d).

Always defending himself be less so in the history of science, biography was the subject of a debate in the pages of ISIS (1997) , as in”Telling Lives in science" (1996) and”The history and poetics of scientific biography" (2007). The defense of the merit of this literary genre is assumed by Thomas Söderqvist, in such a volume editor.

But it is this one of the authors that puts strong reservations to autobiography as” scientific unit”, to quote the term of Theodore Porter, part of the debate on the ISIS. This would, according Söderqvist, the autobiography a smaller gender, insufficiently self- critical to be a form of” cultural history” (using the fear of Mary Terrall in the same journal) , and difficult to apply to science ?

Söderqvist regards the concept of” biographically organized life," as the those scientists who collect all of their works and motivations, allowing the biographer

future work whose main lines are implicitly treated by them. In this case, Casa Antonio Gião seems rather the opposite - it is an example of a disorganized file until biographically, but with superlatives documents in some major areas - for example, correspondence around the magnetism of bodies in rotation and microelectrão.

Not going here refute the above reasons to be suspicious of autobiographies, I was taken, ab initio, in this work to take the opposite stance. So the" Notes autobiographiques pour les raisons éclaircir mon échec" are chosen as the centerpiece of this study. Prevaleço me of illustrious examples to do this, that Pantheon retreat of mathematics :

- A counterfactual that I believe relevant : Evariste Galois if it had not, on the final night, wrote her letter / will (or this is astray) , his thought does not appear structured enough for the next generation of mathematicians work; there have been some loose texts, the interval your romantic destination; and the overall effect would be lost.

- An author whose cognitive process has not been reviewed consistently : the form emicamente more understandable to access as Ramanujan got their results, listen to him, to say that you were reported by Namajiri, a goddess..

- Mandelbrot (1982) , to make the prehistory possible of fractals, focuses brief biographical essays about Louis Bachelier and Paul Lévy in this autobiographical account (Lévy, 1970) , mingling in the book, the half parts, memory Mandelbrot with the only text whom he called Master. (* 6)

In another branch of knowledge, is Pierre Bourdieu (2004) in" Esquisse pour une self -analyze" which defends the epigraph (" This is not an autobiography," the Portuguese translation; judge would hear Magritte" ceci n ' est pas une pipe"...)

Relief of these readings the text of Thomas Hankins (2007) identifying the intent and effectiveness identical biography and registration of patents, as forms of comparable reward - social reward, that is, assigning value to the patented device as the biography one. I see the essaa light, my work as the registration of a scientific value forgotten, so often denigrated in the last half century.

In the same anthology around the biographies of scientists, are made relevant

comments to what can be unwanted biographies (such as Gião ?) ,” La mauvaise herbe” by Jacalyn Duffin, and the suspicion that hangs over the autobiographers, the”Primary suspects” the ironic title of René Selya.

Unlike authors as Bernadette Bensaude-Vincent (2007) , which focuses on the social memory as the subject of counterpoint / correction by the scientist's biography (eg the”urban myths" associated with place names..) ; and Mary Jo Nye, Porter and Terrall (2006) - the latter as a result of having biography scientists whose social intervention has the atypical - respectively Patrick Blackett, the correspondent of Gihon, which is one of the most iconic characters of the century - cadet in the Navy, veteran of the battles of Jutland and the Falklands, merges his physical career with involvement in the war effort, beating at the end of long life, after the Nobel, for disarmament; Maupertuis, always involved in discussions with Cassini, who came to measure the meridian in Lapland, while more in relief aspect of his work focused on principles of optimality; Karl Pearson (the socialist option - one engagé term in the US A - going next door to the creation in Statistics) , and that made these, therefore, History of interlocutors while applied mathematicians - with one of them, Blackett is its Admiralty a scientist leading the active part he had in the development of operational research; unlike these, livelihood, is a distant author of the great causes of his time (the same time Blackett) who claim that my work can bring innovative:

- The review / comparison of autobiographical notes with acts which fall within a Curriculum Vitae (the part that Gião never have written) , inserted as spatial discontinuities (large numbers of traveling) , temporal (some poorly made gaps) , but above themes; ideally, there would be a document or witness to explain or frame each of these new matches ahead. Some of these ages have had witnesses.

I mention, for example, George White of the testimonials - featuring the distant and gentle contact with a Director and co-author - and that of Antonio Cadet - counting, the interior, the work in the Science Data Centre - are written. Both alluded, without explaining, the successful drama with Egidio Boyfriend (the official information in this regard, is reserved). These documents and other oral testimony -

the relief of acute Days - explaining what was never written, to intervene to help a Veiga de Oliveira critical; Furtado Coelho - the atmosphere in the classes, where free auditors IST, thanks to the preparation arising Mira Fernandes, showed an impossible understanding to co-Sciences, which is an important element to understand the letter to Salazar; and the Luis Pires Gonçalves, where there was talk of scientific evenings end-of-week and summer in Reguengos - allow understand missing links that documentation not only lead to even guess.

Justified that is, I believe, in view of what has been some debate on the scientific biography in the recent literature, the route to follow, must now see the other component, more modest, the State of the Art - the studies so far made around the region. In which we find the beginnings of some of the issues that concerned Bensaude-Vincent, the study of biographies and history as complementary to the myth - Gião is clearly released as figure foreground the press; and the historical circumstances of this process is the lenbrar analyzed by Dorinda Outram (1996) - the elimination of an elite and the hasty attempt to replace it with another. In the case of Outram, autobiography and the academic praise as emerging genres in the French Revolution, in Gião time, these same accolades at the local level - Alentejo - and national. It will not be the last time that Portugal will try to find her the most emblematic intellectual figure among estrangeirados the moment.

In the case of Gião, the Bensaude-Vincent thesis won an eloquent illustration; thus the myth permeated by social memory came to join an unexpected connection to science, through place names, as Rua Professor Antonio Gião, the Monte da Caparica, is home to the Portuguese Institute for Quality.

0. 4. 2. OS ESTUDOS EM TORNO A GIÃO

It is certainly a portuguese circumstance that thinkers with an institutional path interrupted leave a void in history and simultaneously an excess of contradiction in memory.

Occurs - without developing - remember Father Himalaya, pioneer of alternative

energy, inventor of Pyrhelioptero, member of the Academy of Sciences of forgotten Portugal; and Lucio Alberto Pinheiro dos Santos, made famous by Bachelard as inventor of Ritmanálise, and whose work is lost by fire at the door of the National Press, to the despair of the widow to not get the support of the editor...

Both these Authors - studied respectively by Jacinto Rodrigues (2000) Sobral Cunha (2010) - suffer from serendipity, that is, to wander the world and in the process find unexpected intersections of ideas, and research around them has been also of wandering, geographical and methodological.

It was not so far my approach to Gião, since the bulk of research took place in his house in Reguengos, and there were only opportunity to research in another city - Genoa, where memories of Bossolasco and CIRMM were not preserved.

The bibliography, seven titles only focus on Antonio Gião. They are:

- Carvalho Brandão (1931) where, in the context of an overview of climate science, Gião is presented as the pioneer of Norwegian doctrines and mathematization of atmospheric phenomenology;

- The brief article, but as informative, an Encyclopedia, which I reproduce in # 60, guessing to be written by the...;

- The 1960 appointment of diploma, stretched monograph Almeida Costa (1971) realizing the various stages of Gião work, then classified into three scientific areas; this classification is one of the views I propose tinting greater detail;

- The booklet published by the Portuguese Society of Authors in 1981, anonymous but whose humanist style seems to Pires Gonçalves, showing the other Gião, the culture of man transcending science:

- After the two students work at the University of Évora that, with them be deprived of close, very encouraged me and continue to inspire the rediscovery of Gião due to Fiolhais (2008) a text where the emphases are put in isolation a scientist in Portugal, vesting conditions to investigate the years of Salazar, and the consequent persistence in successive errors of a wise as well formed as Gião knew it to be.

Given the shortage of history, memory remains, 40 years after the passing of Gião.

Such disparate memories as the teachers and students of the Faculty of Science, whose criticisms sometimes rough, will transpire in the pages devoted to that school; Scientific researchers from computer center, on the contrary, expressed in general in an interview with hard and perfectionist working memory, and in a respectful and distant relationship with the then Director; but the memory becomes rich and affectionate, when collated with contemporary in Reguengos de Monsaraz.

Who today visit this metropolis not suspect the rich intellectual environment in the summers of Years 50 and 60. Examples are summer afternoons reported by Dr. Luis Pires Gonçalves, where, after collection of animal and plant species, these were observed microscopically and confronted with a systematic and was thus recognized a new species, named Piresis, in honor of his father...

Let's mention some dramatis personae who attended Gião mansion in Reguengos by these sixties:

- Two cousins of Gião that were Rectors, Rosado Fernandes and Toscano Rico;

- Jose Cutileiro, then a doctoral student in Social Anthropology from Oxford; thesis that originated the book”Rich and poor Alentejo", signed by the current Ambassador;

- José Pires Gonçalves, medical and archaeologist.

It is above all the memories of these three places - Faculty Foundation, Reguengos - that appear in the press. Of which I shall treat, not without remembering other references - 30s - the then very strong personality of the brilliant young Gião.

This is the preface by General Delcambre, and the introduction by Bjerknes, his book (13) of 1929, as well as the Wehrlé another volume published in 1930 - the book (14).

In the texts of Delcambre and Bjerknes, Gião is presented as the author summarizes the French theories (evolution of pressure cores) and Norwegian (fronts and waves) through its”spontaneous disturbance" and its mathematical formalization.

The three prefaciadores are unanimous in recognizing the two complementary

qualities - discipleship and theoretical innovation. It will be the usual hagiography of prefaces, reported by Hankins (2007) ? Maybe not.

You can not, in this reading, even guess the separation with Bjerknes, taken in 1935, and the painful conflict with Wehrlé that the publication of volume 3, immediately following that prefaciara that will lead us sequent years. Episode documenting the tough text # 16.

In 1938, an important source - the marriage certificate with Sophie Spira, translated in Doc No.. No. 86 in the Notary of Lisbon, March 14, 1939 (# 95) , declares something unexpected on both spouses -”unprofessional". And this suggests that the fortune of the Farm House of Gião family - whose accounting is kept half walls with books, manuscripts and correspondence - was responsible for completely unobscured life of the couple. But did not analyze these accounts (know or do it). It is, however, current voice Reguengos that most of the couple's fortune would be Sophie; and that the large Gião family, was then the sole heir Antonio (could not confirm any of these alleged facts).

The absence of institutions documents where Gião will last keeps the doubt - visiting scientist, or auditor / investigator free?

Missed, unfortunately, the opportunity to clarify this point in the eventual institutional sage serendipity that I studied.

However, references to that his wandering abound. Commanding them in time:

- News of the”Diário de Lisboa" reporting his arrival in Sintra in 1942 (cited in correspondence with Aunt; but I was not able to locate this newspaper) ;

- Undated, but probably 1945, Article # 60 of the Luso-Brazilian Encyclopedia I play (certainly the Gião itself - more like text with a curriculum that have written) ;

- Interview”L'Algèbre du Monde" to André Verdet - author Gião come to honor - the newspaper Tribune des Nations in 1949, reproduced at # 63;

- News in”The Defense", of 01.31.1959, ("Catholic Weekly and Regionalist") from”very remarkable Conference", which reproduce - # 5 - because it is indeed remarkable;

- Tribute Diploma (02/04/1959) Reguengos de Monsaraz and Pires Gonçalves speech at a ceremony attended by Manuel Salgueiro Trinity, Archbishop of Évora and comrade in Strasbourg;

-”Journal of Évora" 04/05/1960”Prof. António Gião teaches at the Faculty of Sciences of Lisbon”;

- In such a date, a national expression of paper that can not identify the cutout, that i decided in the House Gião; in this period, the emphasis is science - the a priori physics.

-”Daily News" - 08.11.1962,”The Scientific Calculation Centre was inaugurated yesterday";

- The 1967 conference (preceded by deep Pires Gonçalves analysis) , # 6, is front page theme in”News of Évora" 9,”Journal of Évora" 11, and”The Defense" of 15 April; Jornal de Évora has the most eloquent title”Unforgettable conference to Sage-class" - signed by MP

- The 13/06/1969, in”The Word", obituary, # 82, by Pires Gonçalves;

- Exactly one year later, the same newspaper,”Tribute to Prof. Antonio Gião”stating that a ceremony where he was, among other Hernani City, transcribing the speech" former Professor of the Faculty of Arts”Raul Miguel Rosado Fernandes, then farmer because exonerated by the University that would become Rector.

- Finally, in the Encyclopedia Word, one Jorge White text entitled”António Lopes Gião". [Confusion possibly due to the existence of a car running, Manuel Lopes Gião, whose kinship any missing references].

Is this sparse set that I want, in this work, unify to make possible synthesis of history and memory, so that it can be the existence of the latter to correct an innocent interpretation of the documents that prove the assertions of this work.

A view of synthesis of the young Gião while meteorologist is part of the thesis in course of António José Leonardo and can read up interesting stages of its research into Leonardo Martins, Fiolhais (2011) , which gives much more comprehensive account of environment of geophysical sciences in Portugal then.

0.5. HYPOTHESIS NON FINGO

The structure of this Dissertation results not from an a priori choice but unlikely combination of some facts :

1) enviable conservation state of the home Antonio Gião in Reguengos Monsaraz, with respect to the archive and library, although not inventoried were carefully scrutinized;

2) Access to more than half the author of the texts in question;

3) The fragmented way you structure the remaining information, and correspondence often accessed the unilaterally, much of incomplete manuscripts and undated, remaining few years of life not documented;

4) The lack of a Curriculum Vitae, which led to its structure from a scientific literature from 1955, whose numbers was scrupulously respected;

To these facts adds a contextual element :

The will of two groups of students, related by blood, by land, and work to Reguengos de Monsaraz, who dared open the rich house doors and the vast work of Gião usually experienced as an"institutional taboo" for scientists college who taught; such students dedicated this work, which aims to continue to fight such a taboo.

The objective hit was writing the biography of a scientist who glimpsed the soul, but whose secrets not penetrated.

Follow a personal path, developed in another book - JC Tiago de Oliveira (1993) , which widened successive Curricula Vitarum to compose from them a life story. Here I left less structured fragments that a Curriculum in this case non-existent, but went further in deepening theme - and far less in the soul and secrets.

"Solar Conspiracy The Padre Himalaya", Jacinto Rodrigues (2003) provided the

paradigm of what longed to do. His style retained:

- The role of the original document - that systematically use - and the graphics - which was not as successful - in support of exposure;

- The way to relieve silent / silenced facts;

- Having contributed to the work of Jacinto Rodrigues, I met again, an unresolved difficulty, the interpretation of patents.

Jacinto Rodrigues signed a passionate biography; I approach it, to feel sympathy for the person - but not empathy with the views - the author study.

The chronological narrative is syncopated by excessive information in some cases, and many more by their absence; I try to fill some gaps in the projects and thematic chapters, and then give the floor again to the documents, many of them unpublished, from and about Gião. In so doing, assume the role of architect, giving the information a relational structure, with a smaller collection of documents, was neither apparent nor demonstrable.

Once argued that there would be an essential problem which the scientific life of Gião is a party. So, what more are problematic in that Gião participates in superlative form.

Exemplify. A Portuguese sailing the branches of twentieth-century physics - but there were clearly other nationals disembarked in these 63 years, in so many disjoint continents of this science; will speak up-dum scientist without success, and in doing so to ignore the first 30 years and part of the work of the 40 that did not involve particle physics, where respectively, an invitation by MIT or the exchange of letters in real time with leading authors was accompanied by communication to the Academy of Paris; as in so many other humans in which ideas do not succeed, the story of Gião not end with a moral - and so far, this author is a case out of the ordinary. Maybe that's why I was able to not run the risk of hagiographic biography...

In this sense only is in my view, can display your personality and path in the form of reviews - the pragmatic reading, reiterated Thus the thesis - the original sources that were never collected. The thesis structure is therefore essentially the gloss to a

set of texts that, without their co-presence in the House Gião and the corollary that became the present investigation, would remain unconnected. Now these texts form a consistent system, but quite isolated from the rest of the scientific community. The mission of interpreting went for the long stage to identify and structure the relationships between them. I think at that point acted promptly. Also argue that with less production of documents, there would be intelligible.

Exposed conditioned sources, from those who finishes his work to rewrite these lines, a selection. It will be up to the reader to determine whether the selected items are the most relevant. This can be corroborated or refuted after a systematic cataloging of the numerous items of Casa Antonio Gião, which will certainly fit the public interest entities. I think indeed that an investigation in Library is the proper place to do so.

I can only state the two fundamental criteria that informed my choice:

- The lowest technicality, choosing always the most intelligible texts;

- The diversity, tackling at least one item at a great theme, aiming no exclusions in the final result;

- The reader who can not access the Home Gião statutorily reserved for members of the Portuguese Society of Authors, you can read a wide selection of relevant texts, this collection on deposit at the University of Évora.

Some of the scientific contexts in which the thesis should be inserted:

a) Bottom -up as opposed to top-down;

b) A comparative epistemology;

c) A pragmatic scientific discourse;

d) An institutional research practice;

Explicitemos :

a) The founding myth at the University is that research is shaped in teaching. It is the opposite that culminates in this work - the repeated labor of Mathematical Thought History students was the engine, the level of degree, research

involving all above dramatis personae and aims to be the possible PhD, 42 after the passing of Gião;

b) A comparative epistemology part, unlike the social and cultural histories of science, the stylistic and psychological factors;

So without to list references, paradigmatic authors of social history in mathematics remain Struik, more currently Sal Restivo; Eric Temple Bell and Grattan - Guinness cater better to cultural factors; the other historiographical translation, internalist, loom large names like Dhombres and, more radically (the emic point of view) - Paulus Gerdes; conversely, look here to place me on the path of Dauben and Granger, a vision focused on epigenetic psychosocial circumstances that shape the scientific practice of the author in question.

c) the style and pragmatics of scientific discourse.

Could it will, in summary form, use the communication theory of categories to compare some of the approaches to the history of science.

In short, the internalist approach and a semantic view can be said to be equivalent. And a syntactic approach is stylistic.

The style category Granger (put into context by Paolo Mancosu, 2009) , to include the personal forms, conscious or not, to structure the scientific writing; vocabulary; The ranking of the major themes / chapters / texts; emphasizing the singularities systematically put into relief as production and personal work modes.

Such singularities, studied in each author, are linked to the draft Epistemology comparative point of view that does not give a possible epistemologies central or predominant.

I am faithful to Granger School in the pages of my study. Why the themes of Gião will find themselves faced with the much larger scientists (the Nobel holders, Sebastião e Silva, p. Ex.) Without the higher degree of consensus or verifiability around the other allows outright exclude such a comparison.

In Gilles- Gaston Granger is repeated practice analyze scientific works and their authors in terms of style more than paradigm or school. This methodology to which I now associate the pragmatic component as epistemology - focused on the semantics of science - Granger 's stylistic had attached the syntactic component, present in scientific writing.

Around the Gião occurs reveal some stylistic traits :

a) 1) The autobiographical notes of uncertain dating, interrupted at one-third of life.

I am inclined to think that, having been written at the end of life and the corresponding pages accessed, this thesis, as have curriculum interpretation, would be superfluous, or at best, an appropriate critical commentary. This judgment involves a parti-pris that already mentioned - the belief in Gião in good faith, and the option that tiller to be the autobiography one of the largest genera of the history of science (* 2).

2) The systematic conflict. The unique relationship of co-authorship, or labor, which is not paid off by insoluble rupture have been with Manuel Ferreira; (Documentary Source # 14 shows an outdated crisis). Perhaps because there never exercised a documented occupation (except perhaps in the Office National météorologique in Paris) , until 1960, Gião through several chapters of science almost without dialogue, and when it does, it expected the break. The less well documented in this work is the separation with Louis de Broglie.

3) The isolation often expressed in texts without references to other authors; conversely, the rare excerpts of which is the subject; unintelligibility in argument, often mentioned by Reviewers. According Fiolhais (2008) such solitude is the condition of the persistence of their beliefs.

4) The irrelevance of his texts on the Phenomenological Physics (an extinct current scientific). But the belief that your stand is implicit in its course # 92, 1961 and frontispicial page report # 50 to the Gulbenkian Foundation in 1964. Additional factor isolation, his Phenomenology presents independent authors such as Edmund Husserl and Ernst Mach, never mentioned, and perhaps most important, whose books are so absent from Gião House as the bibliographic background of the catalog of the Scientific Data Centre, the legacy IST

5) The thematic discontinuity between the Fundamental Physics texts 1946-1951 (numbering between (38) and (83) , including Emna and microelectrão) and subsequent to 1960, where the continuity link seems to be mainly the issue of space absolute. Silence is the constant between these thematic changes. Not found in its publications, example of self-criticism.

Little could find out about the reasons why Gião, isolated in Reguengos, changed themes in the war years. I do not know also narrate what he did in 1934, 35, 37 (only the project # 86) and 1952 (only the patented invention # 44).

6) In contrast, in Meteorology, area of your training, with the exception of analog calculating device that patented, success followed almost all of his career, including the years before the break regarded in 1933/35, which left long isolated. This change in the integration of the community of meteorologists is at the root of a style change - the project # 89, unified, internally consistent and mathematically demanding, written in 1939, succeeds dispersion ring-fenced projects listed and repeated between # 47 and # 50 as Director of a computer center. It will tell the triumph of a reality principle...

7) Anyway, the fact of being" always beginning" - for example, the bibliography (93A) , course content of Mathematical Physics, and until the last text I

discovered - (122A) have the epithet" Part 1" there never, in any of them, been writing the 2nd (in the course of this Mathematical Physics part 2 came into being, addressing the Emna - testimony of Professor John Corte-Real - but not in your program; this is part not present in programs or absent in teaching that is # 92.

8) The difficulty of reading of his texts - hundred and fifty titles, just over half that number of book reviews - comes the difficulty of a reading" semantics." However, it is feasible to correlate this difficulty with the consequent self-study to the inflections of an unusually busy intellectual life - and this will be the implementation of a pragmatic reading under the consequences of a scientist of labor.

9) The possible interpretations (pragmatics of speech vs. institutional practices).

Estruturo this paragraph in the form of epistemic content of questions :

1) What are the cleavage points of controversy that has evolved Gião ? A non-exhaustive list includes:

I) The determinism that has always defended against probabilismos, including interpretations of Quantum Mechanics, and also the Random Dedebant of Mechanical and Wehrlé, who was co -author, with whom he corresponded since the 20s, and who broke so unkind; whose name deleted together text quotes, and whose presence in Portugal ignored, even when published in the same journal, the *Portugaliae Physica.*

II) The non- acceptance of the concept of neutrino, by Gião, have been part of the cause of scientific adventures started with microelectrão (which was the focus of attention in Thibaud, de Broglie, trial subject for Glaphyra Vieira, as we read in # 25) and culminated in the description of" Emmon" and" hyperermmon"(totally ignored by all recensores)

Perhaps by not having formal mathematical education, Gião have not recognized the group theory the way for particle physics.

III) The philosophical conception of" Ungrund" - the unfounded, inspired by Jakob Böhme, who liked to read, have it would led to the postulation not arbitrary mathematical entity (Emna in Portuguese and French) who thought recognize the tensor structure of general relativity, but not in the scientific revolution involved in relativity. Which never accepted, defending,(following the critical repeated Piccard the Michelson -Morley experiment) , a"small ether wind" - and an absolute time. In # 29 and # 30 is a moment of evolution that point of view, however overlooked by the Academy.

IV) Of the nearly identical 1949 texts (67) and 1950 (70) , appreciated one by Truesdell but criticized the other for Synge - Critical # 69 that Gião manuscreveu and that, to be ignored, showed disagree - which culminated in 1965 in 2 Simões Pereira jobs, these texts favorably reported by Ames and Corduneanu (respectively # 34 and # 33) , and demolished in the pages of the Journal of FCUL- # 37- by Professors immediate generation of the Faculty of Sciences of Lisbon (Sebastian and Silva- # 38 and # 39-, Veiga de Oliveira, and implicitly Tiago de Oliveira Dias and acute).

2) Where lies the controversies mentioned above, the border between Gião and colleagues ?

This is the eternal debate between physicists and mathematicians ? Or between two intellectual generations separated by Bourbaki ? Would be insoluble institutional problems at the time ?

To answer questions like this, I had access to the memory of institutes attended in France (contacts tempted with the University of Strasbourg and the Institut Henri

Poincaré had no answer; Georges Lochak said never heard of Gião) however dare attempting to describe the aspects of internal sociability in Portuguese organizations that worked.

I) Daring is the appropriate expression to those seeking to recover a lost memory...
II)The analysis to be done, I repeat, is not internalist. Most of the time, by isolation, the thought of Gião seems unclear, and if it is, is not understood. Not looking for interpreting the ideas, but the impact of words; and, never justify the mistakes - only probe the causes and consequences of these and those. Analyses therefore this difficult scientific discourse. Embarrassment arising from the little intelligibility of patent texts in as many book reviews, the pragmatic attitude as opposed to semantics is a methodological innovation that can be in relief in this Thesis.

III) The boundaries between scientific domains were moving along the life and career of some, and Gião have paid dearly to cross them.
A university such as the Portuguese, some of the consensus violations:
- Among styles - for example, the introduction of modern mathematics - that seems Gião ignore or undervalue, as in that Act that raises doubts about the Thesis J. Santos Warrior;
- Between schools - the example of the current and systematic discord between Mathematics Teacher Asssociação and the Portuguese Mathematical Society (to be in the public domain, not the'll document) ;
- Between rigorous standards - has been widely held in the Departments of Mathematics is that the calculations made by physicists are right, but not substantiated (the classic example is the Dirac delta) , an idea that has been the occasion for excellence polemics, by sometimes leading to institutional changes - are not rare exchanges of teachers between the Departments....

IV) At points like this, the transformation of life stories sequent to academic conflict, the research produced very relevant documents. Which, associated with the reserved nature of the scientist, have been favorable context over institutional silence that has surrounded. Preceded by two students of monographs, this work longed to be exhaustive. I will have it achieved?

Some of the required memories are lost. In addition to the autobiographical notes,lack documentation of Scientific Calculation Centre, missing the 1967 floods.

However, some memory of the Gulbenkian Institute of Science could be reconstructed thanks to Professor Orlando Ribeiro Legacy.

V) I believe, however, that the thesis addresses the essential, and so is likely to be the synthesis of text and reference on Antonio Gião.

Perhaps I will have maximized the universe of interpretation of accessed documents. Someone like Gião, that very thought, read, listened and wrote very little has been read, the less said, was rarely heard, and almost nothing and just said of himself, can hardly be better understood.

And a conclusion was emerging, the rewrite - the latent pessimistic tone in the autobiographical notes came to be found with increasing density throughout the investigation. Except the discoveries in meteorology in the early 30s, and in the 50 and 60; Article about solar rotation in 1932; and models of the past 40 on the magnetism of rotating bodies, the scientific path Gião is a sequence of solitary adventures; the listed projects are carried out by others and, when made by Gião, do not run smoothly. At the institutional level - the documentary sources are telling - the ruptures are common, and some assumed; Portugal in the relationship with the University degraded and only the Calouste Gulbenkian Foundation their labor remains well liked...

Some notes and self criticism:

VI) The historiography of the Portuguese Mathematics in the century. XX, sees centered on the 40 Mathematical Movement (a good overview is Elza Amaral, 2003) ; recent studies appear around the Vicente Gonçalves (Cecilia Costa, 2001) , Almeida Costa (Elza Amaral, 1994) , Mira Fernandes (Portuguese Society of Mathematics, 2011) and Gomes Teixeira (Grace Alves, 2004) ; with less depth, we studied J. Tiago de Oliveira (JCTiago de Oliveira, 1993) and Luis de Albuquerque (AAVV, 1993) ; still lack a biography of Sebastian Silva and...
This thesis focuses on a less relevant figure that these seven, and contemporary - but not integrated - that movement of the 40s, which were part of some employees and friends.

VII) The uniqueness, not analyze, the origin of the class in the Alentejo intellectual profile.
Which yields two behaviors typified :
- The wealthy owners, as Gião, Mariano Feyo, Pires Gonçalves, often ranging from loneliness and munificence;
- The Teachers coming from the rural proletariat, as Benedict Caraça, Mira Fernandes, Sebastiao e Silva, more heavily involved in the public arena.
VIII) also to study, is the role of Professor in Portuguese universities in the sixties. Is, however, implicit in the lines of the chapter" A Gião error" - items recognized in # 37, the contest was subscribed for Scholars, Faculty of Science, being a part of this critical review by less then graduated teachers. And very explicit in the Proceedings referenced School Board, the only body of the Faculties (in addition to the Director) , composed of all the chair holders...

IX) A point of self-criticism; timelines presented - autobiography, general

chronology, institutional life in college triennial reports at the Gulbenkian Foundation - are juxtaposed in part, and I choose to make them independent as they do not know reduce them to common format without losing information.

Methodological reference: for each of the scientists involved - except Manuel Ferreira, whose information I did not accede to - opens a bibliographical note.

Are not considered in these notes:

- The authors belonging to the Academy of Sciences of Lisbon;
- Nobel prize holders;
- Referenced in"Teacher Memories Scientists" (2001).

With one exception to this rule - Flávio Resende, whose research turn is so unique that, having been away in 1947 to return shortly after, implicitly makes the most friendly ally Gião in 3 moments of approach to the College, and on the Advisory Board the Foundation.

In fact, about the thread of continuity represented by him in the Faculty, the simple inspection of"Teacher Memories Scientists" (2001) shows the effect, in mathematics, the four highlighted names are all after the generation of 40, giving three of them rise to very different schools. Out is Vicente Gonçalves, who cultivated solitude. In the area of physics, two names before 40 - Cyrillo Soares and Manuel Valadares, without continuity to the only disclosed on the later generation - José Pinto Peixoto. That is, with the generation of 40 away from the institution, FCUL had to reinvent the research in these disciplines.

While in Botany, the teaching of Flavio come join the institutional memories of Carlos Neves Tavares, José Pinto-Lopes, and memoirist himself, Fernando Catarino; as well as the great absentee Lima de Faria, who opted for Sweden at the time of removal of his Master.

Other methodological aspects to reveal:

I- Thesis considers4 scientific chronologies. By order:

a) Meteorology (naturally correlated with autobiographical notes).

b) The chronology of the work of Gião and its readers

c) Particle physics

d) The cosmological theories.

II- The thesis includes four grids analysis:

a) The bibliographic;

b) The chronological, coinciding with Ib) ;

c) The themes, including Ia) and their extensions in time; Ic) and Id) ;

d) The institutional life.

0. 6. GIÃO'S GALAXY

This paragraph summarizes everything that General chronology and thematic analysis will present in more detail - times, places, people and institutions. To this end follow the most complete institutional element, which is the minutes of the meeting of the School of the Faculty of Science Council of 17.11.1959.

Life in Reguengos and Évora, until the departure to Coimbra in 1923 deal with autobiographical notes; an important mentor, Commander Carvalho Brandão. The modesty of tone barely disguises the youthful brilliance that abound, sparsely, eloquent evidence. In Strasbourg from 1925 to 1927, their teachers; goes to Bergen - 1927/28, where lives with Tor Bergeron and Jacob Bjerknes, which sponsors the Royal Meteorological Institute of Belgium. There have worked, under that Act School Board, with Jules Jaumotte, military aviator that comes to driving and then implement the"Norwegian method". But all consulted texts omit the name. A silence perhaps less significant than others to be developed.

From 1929 to 1931 is in the Office National météorologique Paris, working with Philippe Wehrlé that which will make the preface of one of his books, who is co - author before becoming incompatible irreversibly. His publications are essentially summarizing target in *Zentralblatt.*

It is without a job and tries to intervene in correspondence and projects (# 86 to # 89) who can not perform; creates a new center of interest, the phenomenological physics, where it will be even more isolated. House in Paris (1939) with Sophie Spira (# 95) , and their social circle widens. Date then the friendship with André Verdet (# 64).

The Jewish nationality Sophie is reason to return to Portugal, where it opens new interessses center in particle physics and cosmology. The institution that appears to be closest by publishing repeatedly, is the Geographical Society, where he began his lifelong collaboration with Manuel Ferreira, a military. In the following years will be in contact with Portuguese physicists - Manuel Valadares, Glaphyra Vieira da Silva

Marques, and at least one mathematician, ZALUAR Nunes. All of them shall be cut off from the University by the New State.

In 1946 began to publish on their new interests, first larval in both *Portugaliae: Mathematica and Physica*, and later in Paris, from 1947 *Comptes Rendus in de l'Académie des Sciences (CRAS).* It is said in the abovementioned minutes that"did research and conferences" at the Institut Henri Poincaré, until 1950. His mentor is Louis de Broglie, and among the contacts mentioned in the correspondence, his brother Maurice, Jean Thibaud, Georges Lemaître; in another place of business, the magnetism of the rotating masses, corresponds with Horace Babcock and Patrick Blackett, receiving the Nobel Physics in 1948. Other scientists who exchange letters are called Einstein (# 11) and Schrödinger (# 65 and # 68). The reviews are now systematically made by two other magazines, *Mathematical Reviews* and *Physics Abstracts*, where Charles Strachan and WR Newing will be, respectively, the referees that most closely follow their work.

This area of intervention ceases abruptly in 1951 - perhaps by its persistence around the micro-electron theme. 1952 sees, even in Paris, the emergence of a new activity - the invention of an analog calculation device with François-Henry Raymond (# 44 and # 45) , a project that ends badly (# 46).

In the following years its activity is lecturer - in 1958/9 in Dublin, before that in 1953/57 in Italy (# 71) , which is interlocutors Mario Bossolasco - that both the public and induces in error (# 14A) - and Giorgio Piccardi, who calls (# 29) , as theoretical, the border areas in experimental science.

So back to writing about Meteorology, distinguishing the recurrence of co-authors as Jean Roulleau and Manuel Ferreira.

Accepted the second invitation to join the Faculty of Sciences of Lisbon - had refused the first in 1949 (# 19). On arrival the Portuguese University is publicly hailed as the an international-class figure.

The Faculty is to give especially with Flávio Resende and Almeida Costa; but also to win the adversity and Sebastian Silva and Veiga de Oliveira. In 1966, the debate (#

33 to # 42) on a academic examinations, these will prove to be right, unlike Gião, which does not understand that missed. At that time, this leaves the direction of the Journal of the School, where published regularly (# 41).

But it is in the direction of the Scientific Data Centre of the Calouste Gulbenkian Foundation Gião know a more favorable environment for their research. First as Scientific Director, then as Director - having as Deputy Egidio Boyfriend, leading thinker in the philosophy of science, Gião will have on their team the two brightest young mathematicians of Coimbra, Simões Pereira and Renato Pereira Coelho; with this write co-authored, and will do it with two meteorologists - José Barbeito and George White. For that runs a publication referenced again in the Zentralblatt. In the Foundation editions publish almost exclusively now, and the title will disappear with it.

Its scientific peak will be in 1963 with the completion and editing Cosmological Models, Congress setting out your (hard) model of the universe to the squad of the best international experts. Another sector this computer center, the Program, directed by Antonio Cadet, will support an innovative way - numeric and symbolic computation, graphics - the theoretical investigations and simulations of Gião.

In Gulbenkian summit abounds you a friend, Orlando Ribeiro; in Mathematical Reviews, WR Ames who will be over next follows and comments on his work. The spectrum of its scientific sociability shows that is closer to intellectuals who are not physical or mathematical. His interests also evolve, making interventions in-depth philosophical and literary nature in 1959 (# 5) and 1967 (# 6). No reading these, the edge of his weltanschauung remain sparse and not very consistent.

Strongly discredited the Faculty of Science, the last years of Gião are seriously affected by kidney disease. Your writing becomes rare and the pessimistic tone that emerges in autobiographical notes, is the opposite of that he wrote all his life. Loneliness - # 82 - is the tone that will follow clearly his passing.

1.PORCH

1. 1. SEARCHING FOR THE LOST WORD

[Methodological Note : here as in" Chronology" I insert my comments in []].

The 21-page document transcribed below is the interpretation of a manuscript undated, barely legible, abruptly ended, I know since 1998, and only in 2008 was fixed by Stéphane Rouault.

The eventual result of this manuscript would, as a corollary, the Autopsychography of an author who had been seen as large, but that itself is recognized as a subject of a failure.

The rest of these notes, or never existed, or was lost - the most natural.

Lost (forever?) Words, will some ideas and a host of divergent judgments of contemporaries who have dealt with the Author.

It is worth adding that the omnipresent figure of Father Antonio Jacinto Fernandes Gião, is that of a fellow student in Coimbra, and friend, Sidónio Paes.]

1. 2."AUTOBIOGRAPHICAL NOTES TO CLARIFY THE REASONS OF MY FAILURE"

[Methodology note - in figures and documents the source is indicated except when it comes to Casa Antonio Gião, whence comes most of the structural documentation of this thesis.

Translation (simplified) transcription by Stéphane Rouault.

Not the subject of my thesis translate but interpret, I take as a primary source transcription of Rouault, and adapt always when I seems more enlightening.]

"I was born on July 19, 1906, the natural son of a Portuguese father and Spanish mother (...) My father belonged and was related by father and mother, from rich families of the Alentejo land, his personal fortune was not considerable, as ever the knew how to make fruitful, and had to divide the inheritance with his 5 brothers and sisters."

"After studies at the Faculty of Mathematics, University of Coimbra, decided to spend a few years abroad, leaving for the École Centrale Paris. Indeed (these) will have been devoted to the fun of a rich student with women."

"Back in Portugal, was to take the course of Mathematics. After some pretension, as a teacher of Arts, he returned to his homeland taking the life of a Portuguese family's son, pretending to manage their (goods) and acting as a dilettante in local politics."

"This 'mathematical' dilettante Portuguese, intelligent, had not (except activities) facade and nothing published. It may be that he has not suffered for it. It is during his"political" period who knows my mother, who know almost nothing, because all it avoided me talk. It has always been a taboo subject in the family. (I understand) it will have been a dancer or actress of a troupe of traveling comedians who went through Reguengos theater. Little was the time she lived with us. Because passed and fled or was expelled by my father, for Spain, for reasons that I ignore, as well as unknown to his name. Is she alive at the present time? I know nothing"(...).

[He was then living fact; # 83A is a chart that shows where Sophie searched this Mother Gião never met; later, Maria Amelia Mendoza, half-sister of Gião his mother's side, would, it is said, to be benefited as heir, and later disowned by Sophie; was Dance Teacher in Evora in 1996, and helped the first group of students who worked on Gião; did not know find it in the present investigation.]

"Shortly after starting my mother my father-amantizou with a set of 16-17 years, who had a son, and what would be your lawful wedded wife, to his misfortune. This girl was called Fernandes Gião, the name of my grandmother, and that choice was the first manifestation (...) of your desire to climb the (scale) social at the expense of my father's weakness of character."

"While my sister had the name of our grandmother, I was (...) with the full name Antonio Gião."

"This so short name, a country of vain and ignorant as Portugal (...) reveals itself a illegitimacy. The first big mistake of my father with me was put me that

name in that country.”

"How much humiliation, or desired (unknown) , came not in school and at the university censorship by the name. Adding to this the shame of having to write: Antonio Gião (son of Antonio Jacinto Fernandes Gião) (...).”

"It is understood that here lies the most likely origin of the inferiority complex and shyness that I suffered all the youth and (...) explains a failed existence.”

"I was very young when my father entrusted my education to Grandma and Aunt Rita Josefa, lived with them in their big house, and it was my aunt Josefa who saved what was left of my soul, filling with a tenderness and love I am infinitely grateful to him, the role of my mother. I was then brought up in this house, uncomfortable but nice, with its garden surrounded by high walls, where I spent and still spend whole days walking alone under the blue sky of Portugal. It was where I came as early taste for science, and even more by the weather”(...)

(Reguengos de Monsaraz).”It was the world of the works of art. The families of wealthy farmers had houses, and wide of the old white churches of the Alentejo villages, stood megalomaniac a cathedral, bizarre outgrowth in style and sober landscape of my province.”

[Documents # 3 and # 53 are inserted at this time.]

"For 10 years rode a (observatory) weather; read widely and had built a rain sensor, and a hydrometer, from soup spoons: certainly the influence of my father (...) I had thought to install a meteorological observatory in a windmill project that was not followed, but it helped to decide my vocation. (...) I learned to speak French, devouring the books of the father's library, including meteorology.”

(...) ”I came to know (that old book) color and is both the enthusiasm of childhood that he remembers me.

One day my father took me to Evora, I returned full of emotions (...) my father's friends decided to create a school in our village.”

“A dozen boys - for the life of the field studied thanks to this. We spent there these years, to open the Évora High School from 3 to 5 years. The teaching in this

school was not bad, much better than the school of Évora that had not changed since the time of the Jesuits (XVIII century) , with teachers to debit mechanically. Especially remember the liveliness of geometry teaching by a priest who, not content with taking students to the frame, animated operations when he solved the.

(...) In the first years of high school, I became aware of a defect, or quality, my spirit characteristic: the inability to that suffered during youth (...) to solve by order or under the teachers look the simplest problems. Often did cretin figure."

"This defect is accompanied from the youth of a quality that is exceptional gift for research, and the ability to solve, alone and without witnesses, the most difficult issues, provided that interested me truly. Without such interest, nothing done!"

"I am a victim of this defect and this quality. It was they who prevented me from getting certain university diplomas essential for a scientific career in a world that respects and stupidly strong a static hierarchy, without fundamental relationship with the merits."

"It was this quality that guided me prematurely for research (...) the results of two years, without great enthusiasm, I began to receive specialized training. My father did not approve of (...) unorthodox and could hinder the teaching career he dreamed perhaps for me."

[Gião knows, at this rate, their intervention on the Mina de S. Domingos, edited by Grandmother and Aunt for, which will be his first title printed - shall be referred by the number (0).]

"Despite all this time" lost"I graduated in 1923 with 19 on 20. This rare note was the key that opened the door to me the" temple"of teachers of Coimbra. It was because of this haloed 19 I got to the university town where I started with an unfortunate (...) examination of Biological Sciences. It is true that botanical amused me, but I could not bear the experiments on animals and the disgusting touch of worms, then moved to the section of Physical and Chemical Sciences. I'll never say enough how much was bored teaching I suffered in those two years."

[I could not unravel the identity of those teachers].

"The (Analysis? Algebra?) Higher and physics were given by teachers unbearable, and the work, practical, were doing them in a pharmacy.

Joins this and this stupid life of false swingers Coimbrões, the influential clericalism and forced contact with the peasants of the north.

I was sick of Coimbra and its delicious courses, and thought only of escape me. The good memories of that time are the visits to the Astronomical Observatory and the University Library."

"An old employee (...) guided me every day in long hours spent in the library, reading and flipping through magazines and foreign collections. This library was produced-what decided big part of my future. I saw a day at the table Director teaching program Globe Institute of Physics of the University of Strasbourg; for the title of geophysical engineer, created shortly after the armistice, when this university has returned to French."

"I thought then find the optimal searching in vain: the scientific specialized training in meteorology and geophysics (...). Since then, only had a fixed idea from abroad. But there was a categorical refusal of my father (...). It was the first year in Coimbra I published my first work, a considerable feat for a 17 year old boy who decided to devote his life to science. This small text 1924 revealed a certain periodicity in the disturbances that I watched in my family home (...) , (the French original does not clarify the subject of the sentence below) asked me to collaborate, and I made a few reports all academically"(...)

[Go in this spirit the letter # 85.]

"It was the Congress that said I met an intellectual of a type rare in Portugal. I want to talk about Carvalho Brandão.

It was an enthusiast with a heart of gold. It was he who brought freshness to the closed vessel of the Portuguese weather. After an internship in Bergen he proposed to apply the Norwegian method with us. His great ambition was the creation of the

National Meteorological Institute, which reserved me a position. The plans and initiatives clashed with a jealous wall, with the rivalry of services sprayed in multiple ministries, and was the bane of anything I might have done that died prematurely. Later. (...)

His sincerity was touching. I remember when I told you about the importance of fluid mechanics, asked me to make him a private course of hydrodynamics. During a summer I found myself in his office, and keep best memory of this hospitality also remember the time letters he sent me regularly on vacation, so I describe and comment."

"It was then decided to leave for Strasbourg providing my Father's refusal (...) invented a ruse, making him believe he was leaving for a vacation course.

After seeing Paris, happy as a child to be alone in this big city, I paused in Bar-le-Duc. It was there that he spent the summer school that lasted a week in August 1925, in which one of the collaborating teachers, releasing balloons-probe, as he had already done in Germany. Rempp was one of my future teachers. I helped him as I could, and I was afraid of almost maniacal thoroughness with which he made preparations for the polls.

I found charming Strasbourg as the German cities were new to me, who was accustomed to the southern cities. Impressed me by imposing university palace and institutes around the grounds. But the Institute of Physics of the Globe, a private mansion, disappointed me. Everything was reduced to its simplest expression. An employee of the institute, amateur radio part time, received information that reported immediately on a small map of Europe."

[The training program attended by Gião figure in # 55, and the teaching of two of the chairs had the contents declared in # 56.]

"In these letters, Rempp draw isobars fluorescent ink, deduced that the forecasts for the Alsace and Lorraine.

On the contrary the Institute's library, inherited from the Faculty of Sciences of before the war, had good books."

"Teaching was provided by three teachers: the director, Rothé, for physics itself, G. and J. Rempp Lacoste. Rothé was a physical classically trained, especially experimental. Before the war, was dedicated to the aerodynamics and meteorology at the University of Nancy and published a full Physics course, quite different from the usual; interest in geophysics guess you certainly their activities during the war. I followed their seismology classes, aerodynamics, and the principles of geophysics. The problems that led us to resolve and the practical work were disappointing level.

Sometimes took us on tours.

Although not particularly interested in what he taught, was very important in my scientific training. It was he who taught me the true method of experimental science, as well as respect for facts in theoretical constructions that came to involve me.

I thought for a scientific career, and in his institute, remained always aware of my work. I met him for the last time at a congress of Uggi in Stockholm. Patriot convinced, deeply suffered from the French defeat in 1940, retiring hurt to Clermont-Ferrand.

The Rempp teaching would, in principle, the most suitable for me, but I must say I gave a course...

His scientific training was German. What he tried to hide to avoid patriotic susceptibility of French colleagues, and also because it was an Alsatian patriot. He had studied at the German University of Strasbourg"(...)

[Busy this city by Germany, the University remained open and scientifically active.]

He was an expert in meteorological equipment, some invented by him, and had great skill in the use of rule calculations and tables.

I still remember as if it were today, tournaments and calculation championships organized with students. Every one gave a ruler, timing the solution of the most

difficult jobs (...) sometimes exhibited their skills with the rules. Had the taste of the accuracy of practical work, which should be perfect to merit more than his contempt.

Showed him my work that, as an honest man classified with”Good", always with”but...". I remember these works as tribute to the memory of those who gave me the taste of precision and well finished work.”

"Professor Lacoste gave the course of 'wireless telegraphy', teaching was a reflection of man: good guy, is a relaxed kind of man increasingly rare and only found in France. A kind of intellectual bohemian, without the slightest self-love, always available to students, and their friend. I could appreciate its moral worth, they often invited me and the Castan for a beer or dinner at his house. I never thought in a university career, and had been a school of Lozère, where he taught physics, but do not know how to Strasbourg was doing work with Rothé, which was his doctoral thesis. After what was astonished to enter the Faculty of Science. Now is the professor of nominated for his work in seismology.

All these institutes teachers are dead. They sleep in peace these great men, (Rempp., Ribaut and Olivier).”

"Dead also my physics teacher. It was a decent fellow Rothé the accuracy of their practical lessons. Had the cult of manners and the classic French, and suffered when a student is not expressed with all the elegance. One day, angry, advised us to study the La Fontaine fables to learn to read well and write well. I remember my fear, in a class where we had to measure the thermal conductivity of ice. It was necessary to make it an ice lens without any air bubbles. Not easy. After several tests sent me again.”

"Going to Portugal for the great vacation, made a detour through Lyon, attended the Congress of Association Française pour l'Avancement des Sciences.

(...) Had already sent to the Société de Météorologie a job.

It was at this congress that met a former naval officer, meteorologist Albert Defant.”

(This was not done to the rest of the text)

[In his schooling in Coimbra; is contemporary of Vicente Gonçalves (then 2 Wizard, 40 years later colleague in Lisbon; and Ruy Luís Gomes, and in 1950, the scientific interests of both would overlap not left contact traits, then, no. them.]

1. 3. COIMBRA, STRASBOURG, BERGEN

Disconnect the autobiographical notes, is the place to corroborate the data relevados by Gião with traces of their passage, in this case by Coimbra and Strasbourg, and the reasons for their departure for Norway.

Even before Coimbra, an absence - Gião does not address the issue of his lecture at the School of Évora, aunts gift for their 17 years (07/19/1923). Modesty? Shyness?

The choice of the old University is the logical choice for a young man so promising. Thus, in the directory of the University of Coimbra, Academic year 1924-1925, published in 1933, Gião appears as a student in Algebra Superior, Analytical Geometry and Trigonometry Spherical (p. 97) , Rational Mechanics (p. 94) , Plant Design and Animals (2nd year, p. 86) Strict Design (p. 87) , Geology (p. 91) Paleontology (p. 96). Again, the most important of its Notes is an absence - no name of a fellow student or lens - and could emerge the Sidonius, the friend of the Father; or Vicente Gonçalves, who will come to have cordial relationship is privileged only a continuous, direct responsible for the departure to France.

Studying in Strasbourg may have been the result of two accidents - the announcement read in Coimbra library, and a summer course. This time left over, in notes above, the names, the much appreciation, criticism thin these teachers that we will meet again student manuscripts notebooks - are Ollivier courses -”Physique Générale, Thermodynamique, Théorie des Gaz Cynétique" (1926) ; M. Ribaut,”Physique Générale, Vibrations, Acoustique" (1926-27) ; the same dates,”Météorologie" M. Rempp, and”Aérologie et aérodynamique" E. Rothé.;

another course of M. Ollivier,”Electricité" is associated with the year 1927; notebooks that House Gião has retained.

It was noted above that Strasbourg may have been a fluke, but Bergen was a necessity. I will rgue with 2 sets of reasons - the resulting treaty of comparative epistemology precious theories of atmosphere which is the Master's thesis Gardner Perry III (1961) , and the action in Portugal, de Carvalho Brandão, described in detail by Leonardo, Martins, Fiolhais (2010). We are in Coimbra 14 to July 19, 1925, the Luso-Spanish Congress for Progressive Sciences. Costa Lobo directs the magazine”The Office" and the Astronomical Observatory, where he tries to create a Section of Astrophysics. Just installed a espectroheliógrafo. Its Deputy Director, Ferraz de Carvalho, who also directs the Geophysical Institute, presents communication on three themes - meteorology, geology, seismology. The all this institutional climate Gião seems oblivious, if singling-but his attention to Carvalho Brandão. In its communication, this officer will describe schools meteorology in terms of nationality and, after attacking the imprecision in place of high and low pressure centers Napier Shaw, will make the defense of”theory of polar fronts" of Villelm Bjerknes, which in 1917 founded the Bergen Meteorological School, and would be led by his son Jacob. The tone of this school were then discontinuist the theory of cyclones and numerical forecasting methods. Carvalho Brandão compares the Norwegian School with French and Italian, and makes recommendations for Portugal. The importance of this meeting speaks Gião in their notes.

The action Carvalho Brandão, in this sense, will continue - it is he who brings the Portugal Jakob Bjerknes in 1927, as General Emile Delcambre, Director of the National Office météorologique in Paris. The three get together with government representatives, and is by Bjerknes mooted the creation of a weather station in the Azores,”which would have prevented the loss of aviators Nungesser and Coli" (Leonardo (2011) , to join the Lisbon, Porto, Coimbra, Faro existing as well as Berlengas and Cape St Vincent, installation. The Azores station opens in 1929, which

was internationally hailed However, several Portuguese meteorological services remain uncoordinated.

On the other hand, already in 1926 Wehrlé in correspondence (# 15) with Gião, had tried to put him in contact with Bjerknes, during the Strasbourg times. Region will go to Bergen twice - in 1927, under the auspices of the Navy weather service (directed by Carvalho Brandão) , and two years later, to a free course. However, in September 1933, the 5th General Assembly of the International Geodesy and Geophysics Union (Uggi) in Lisbon, Gião come to criticize the”Norwegian theory” and this done without knowing the automarginalizar up. This conference will present a man of Bergen, Tor Bergeron (author of the # 57 symbology that Gião as well enjoy) , which talks about the causes of rain and ice crystals in clouds. It is the time when Gião proposed, unsuccessfully, to create a Mechanics Institute of Atmosphere. It is here also that cease references to contacts between Gião and Bergen and between the School and the Portuguese meteorology.

In any case, whether in Portugal, France (Delcambre or Wehrlé) or Norway, Bjerknes was, in recent years 20, the inescapable authority. Gardner Perry shows how the theory he developed with his Father, Villlelm Bjerknes, from 1918, on the fronts is the one that meets the following requirements :

- Not be speculative;
- Show the most likely explanation of the observed data;
- Be so complete and unifying;
- Have an interest current and immediate implementation;
- Be accessible to the reading of the community of experts.

Perry exhaustive list of previous models - all of them folded by not check one or more of the above criteria - names like Hare, Howard, Dove, the Admiral Fitzroy, Blasius, the Helmholtz biophysical, Margules and English School of Napier Shaw. We will find some of these names in the next paragraph.

After Bergen also the trajectory of Gião becomes predictable because we will meet you at the Observatoire Royal météorologique Brussels. The reason emerges in the ephemeris of the Director, by J. Van Mieghen :

" Jules -M. Ch. Jaumotte (1887-1940) ,"*Ciel et Terre*, 56, p. 28:

" Ses premieres experiences dans l' aire de l' aérologie synoptique fûrent effectuées à la station d' Uccle grâce à l' Appui et personnel pécuniaire du Prof. J. Bjerknes" ("His first experiences in the area of the upper air synoptic were carried out at the station of Uccle with the staff and financial support of Prof. J. Bjerknes")

It is very likely that the Gião stage was part of the Norwegian support to the stratospheric ozone diffusion discoverer from sounding balloons, Jaumotte.

Is it just to go to Paris, and then find their corresponding - Delcambre, Wehrlé - that the institutional target Gião if autonomizará. For better or for worse.

1. 4. BEGINNING OF METEOROLOGY

The lines that follow take the chronology of Hortsmeyer (2005) as a starting point, and aim to provide the historical and cultural context in which it will enter the first part of Gião career, bridging the gap to the autobiographical notes when possible.

Hortsmeyer is traced back to the Weather 9000 BC, and a great precursor, Aristotle. I will not go so far.

1747 - Benjamin Franklin, movement observation of a cyclone during an eclipse.

Later that year, draws up the positive and negative electricity concepts, instead of glass and resin.

1750 - invented the lightning rod.

1752 - Franklin proves that lightning is an electrical phenomenon.

1755 - The Rev. Thomas Prince responsible”iron spikes of the shrewd Mr Franklin" as the cause of an earthquake.

1770 - Franklin cartographer the Gulf Stream.

1775 - Franklin uses the thermometer to measure the temperature of the Atlantic Ocean.

1783 - De Saussure invented human hair hygrometer.

1802 - Classification of the form of clouds by Luke Howard.

1816 - WH Brandes publishes the first synoptic charts of pressure and temperature.

1831 - The Fitzroy Commander of traveling with the Beagle; Darwin will board.

1833 - T. S. F. Invention

1835 - Coriolis mathematically defines the force that bears his name.

1837 - Heinrich Dove presents the”theory of two linear chains" - the middle latitude storms shock as the product of the polar and equatorial currents. Search the relationship between pressure distribution and wind. Cyclones investigated looking for evidence of large-scale rotation. Devising a comprehensive mapping of climates.

1843 - Loomis legitimate scientific use of synoptic charts.

1845 - The telegraph is publicly available in the USA, gradual transition of weather methodologies”local" to the synoptic.

1849 - Joseph Henry creates, from the Smithsonian Institution, a network of 150 weather stations oriented to forecast storms.

1856 - Smithsonian Institution - the daily weather report presented to the public with a color code.

1859 - Joseph Ferrel mathematically formulated the circulation of the atmosphere as the fluid surrounding the rotating Earth. The differential heating is because of the general circulation, and also the storms.

1861 - The”synoptic charts" of the atmosphere introduced in England by Admiral Fitzroy, who coined this term two years later.

1863 - Le Verrier enters these cards in France at the request of Napoleon III to conceive how the weather.

1860-1870 - Worth in Europe thermal theories of cyclones - the Hare, Howard, Dove, Fitzroy, Blasius that describe them as just caused by latent heat.

1872 - William Clement Ley publishes the”laws of the winds" of Western Europe.

1884 - First photograph of a tornado.

1887 - Ralph Abercromby proposes the model still accepted for the average cyclones. Presents the idea of causing the rain with projectile shot.

The classification of Luke Howard clouds is adapted to include the altitude.

1892 - Systematic use of air-balloons probe.

1898 - Remarks by regular”kites" ("Kites") by the US Weather Bureau; continue until 1933.

1900 - Vilhelm Bjerknes applies its hydrodynamic circulation theorem to the atmosphere, thus laying the foundation for the numerical prediction. Founded the School of Bergen, open until 1940.

1902 - Discovery of the stratosphere.

1904 - V. Bjerknes criticizes its own draft estimates - too few observations excessively difficult mathematical calculation to”manual".

1913 - Discovery the ozone layer.

1917 - Jacob Bjerknes formulates the theory of polar fronts; Tor Bergeron confirms the existence of different air masses.

15 Agosto1918 - J. Bjerknes signs the current theory of cyclones as collision between cold and warm fronts.

November 19, 1919 - Tor Bergeron invented the concept of occlusion-one of the first that Gião come to work.

1922 - Lewis Fry Richardson, one of the pioneers of fractal geometry, conceives the equation trends or prognosis. The weather forecast for a period of time it takes you 6

weeks. the numerical methodology used is the finite difference equations. Richardson conjecture that a”Forecast Factory", of 64000 people, equipped with mechanical calculators could rival the time calculation speed with the evolution of this.

[Gião will use, without citing the author, this formalismo that is still criticized for its inaccuracy.]

1931 - Francis Reichelderfer is sent by the US Weather Bureau that would lead to study in Bergen theory of air masses as a forecasting tool, which was to implement the scale of their country, two years later.

[This date shows, by comparison, at least three facts :

- The foreknowledge of Carvalho Brandão;
- Blindness in science of the Portuguese regime;
- The Gião disability in the management of such a scientific opportunity].

1946 - John von Neumann developed the first digital computers and applies them to the weather forecast.

1950 - Weather forecast by the ENIAC (Electronic Numerical Integrator and Computer) ; to this point, occurs again compare and verify that the invention of Gião and Raymond in 1952, would come late...

2. ATRIUM

This thesis is a case that I think often of bottom-up procedure: two groups of students, residents in Reguengos de Monsaraz, the Mathematical Thinking discipline of History at the University of Évora, were the first to penetrate, with the support of the Portuguese Society Authors, files stored in Casa Antonio Gião.

In a previous book used a similar methodology: from successive Curricula Vitarum was possible to reconstruct the entire written work, most of the interventions and major inflections in the life of a scientist of the twentieth century.

In the present work, have been more difficult to get there, due largely to personality traits: an isolated scholar by his wealth and temperament, rarely with academic commitments; little quotes, little is said, making in various areas of science, a parallel path to the main trend.

Parti, has already been written on the back, not a *curriculum vitae* (Gião wrote no!) But two bibliographies: the designated (93) , taken by itself and the accompanying the order appointing the Faculty of Sciences of Lisbon (# 74).

There are hundred and fifty texts; students before me and Prof. Carlos Fiolhais, were able to find all the latest publications.

Each year, list will be publications; when that information is available, in compact form, attach themselves, in contrast, abstracts and reviews. All texts are kept in the original language, except in the original German (always translated).

This methodology points to what I considered to be a gap of work, but it can prove to be a mistake - to criticize - one of the sources, the order appointing # 74, which subtracts the paragraph below, where it was written:

"The assessments made in its work are contained in various journals. In *Mathematical Reviews* and *Zentralblatt für die Mathematik*, are signed by J. Zierep, G. Kikuchi, C. Truesdell, M. Kiveliovitch, AJ Coleman, A. Schild, H. Panofsky, M.

Wyman, HC Corben, C. Strachan, AH Taub, A. Lichnerowicz, Volz, Heckmann, Glaser, P. Jordan, Hamel, Bagge, Muruhn, etc.”

However, only the authors underlined correspond to actually existing recension those magazines, accessed by *online* consultation (as confirmed by the last paragraph of the Bibliography) ; ie Ramos and Costa, Vicente Gonçalves, Costa Almeida, who signed the document may have made a mistake that is difficult to justify: - the names missing are not included as Reviewers of Gião cited in journals; the fact is that the book reviews in *Physics Abstracts* are submitted by different Authors mentioned herein.

Because the participation of Antonio Gião the genesis of the Gulbenkian Institute of Science and Scientific Data Centre, which (after Gustavo Castro effort at the National Laboratory of Civil Engineering) , preceded, in 1962, the start of Informatics in Portuguese universities if inserted in a different logic from the rest of its business, and because these years are reported by the masterful pen of José de Azeredo Perdigão, I chose to transcribe in the independent chapter, alternating with Antonio Gião reports and and a memorandum of J. James de Oliveira.

This is because of a study to 6 times - one early interrupted autobiography, a tree chronology, projects never made a *Mathematical Physics* perhaps spread in 60 years, the *bird's eye view* hermeneutic 40 years later; and the internal time to scientic materials of each of the thematic chapters

These times are articulated in five areas of scientific writing, the first four declared by Mr Gião, the last for me proposed by checking a thematic change from 1957, which comes to be correlated with the subjects taught at the Faculty of Sciences of Lisbon, which sought to give, as I shall try to show, a profile pointed to the understanding of their work.

Classification is :

A - Theoretical Physics, Relativistic and Quantum.

B - Physics and Meteorology Phenomenological.

C - Dynamic Meteorology - Fluid Mechanics.

D - Analysis, Book reviews, Miscellaneous.

(Sections listed in the text (93)

E - Mathematical Physics and celestial mechanics.

Until 1955 (93A text Timeline) the bibliography is made by the author, and since then by who signs this study, bailing me the manuscript update # 97 sometimes difficult to read.

2.1. PRELIMINARY ANALYSIS

Thematic Chronology

Table I provides an assessment of the prolixity of Gião over the years, perhaps proportional to their motivation and inclusion in the community.

The chromatic contrast distinguishes in Table 2:

- Until 1927, the eagerness of young science reporter, seeking intellectual stimulation;

- Continuity in meteorology until 1933, a gap (that the graphics do not realize) that allows guess a conflict situation; restart in 1936, alternating with the phenomenological physics;

- The meteorological studies follow until 1944, the phenomenological physics ceases forever in 1942;

- From 1946 until 1951, career focused on fundamental physics;

- An interruption in which guesses the removal of Louis de Broglie;

- Return to the weather, as inventor in 1953, which since then, and until the return to Lisbon in 1960, is the dominant concern;

- The mathematical physics area alternates with the weather until the end of his

days.

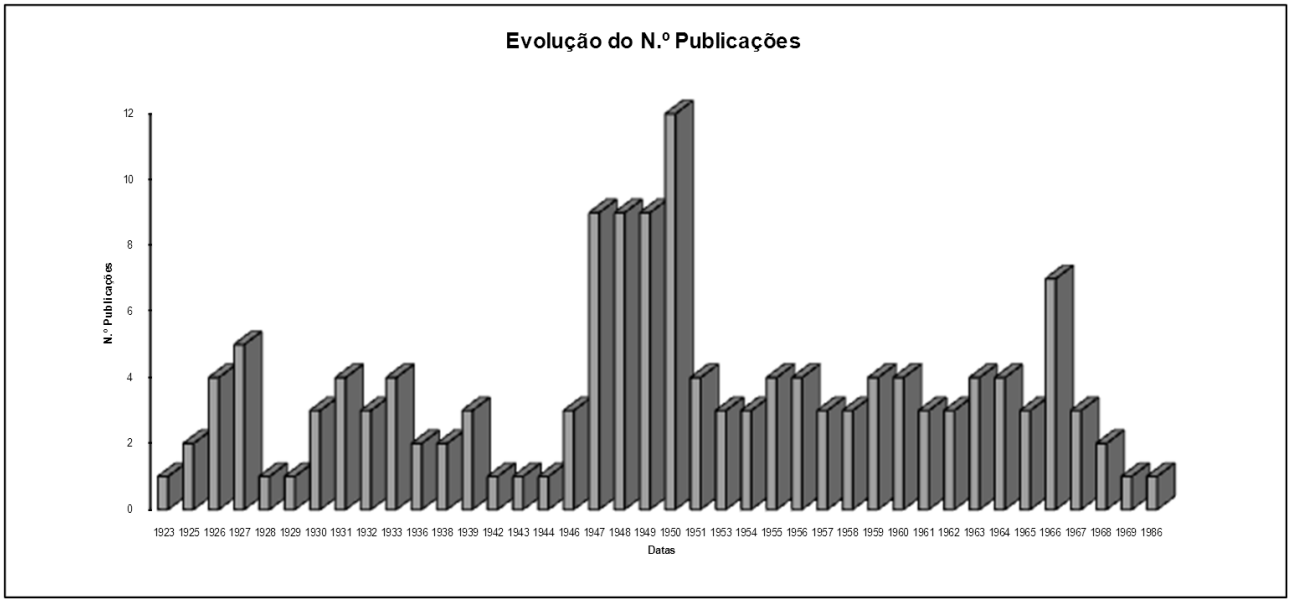
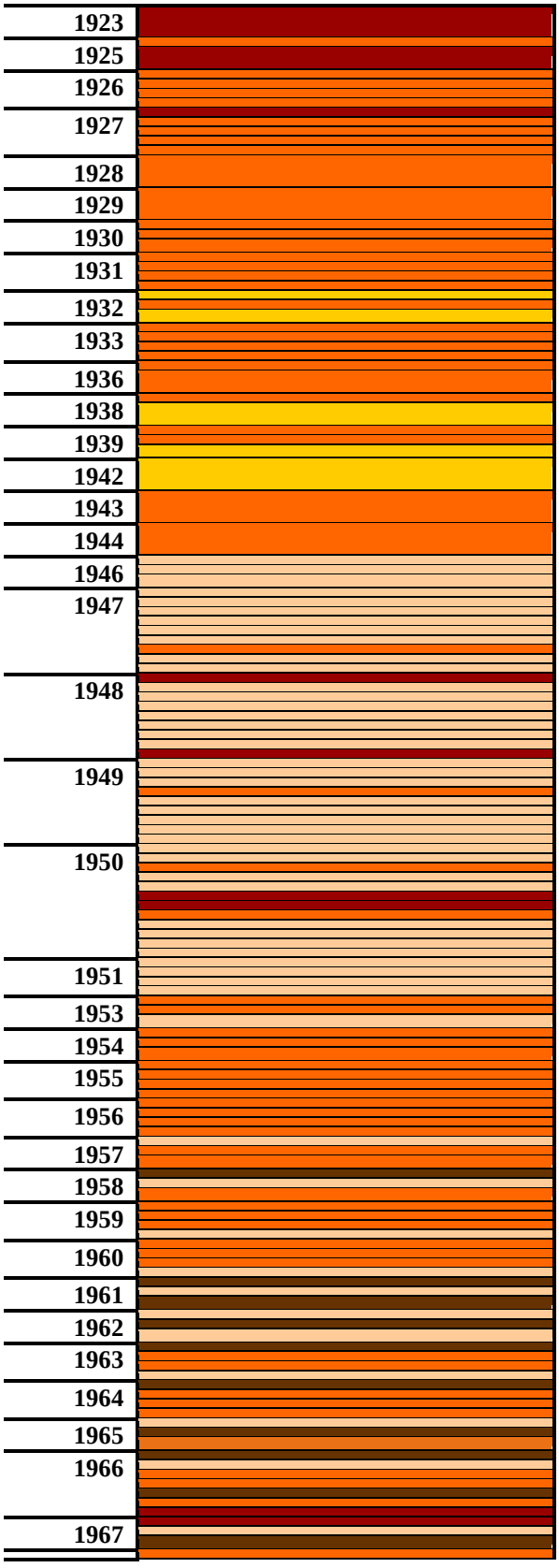


Table 1 - Evolution of the number of publications



Themes:

A. Theoretical physics, relativistic and quantum
B. Physics and Meteorology phenomenologist
C. Dynamic Meteorology. Fluid Mechanics
D. Analysis, book reviews,several
E. Mathematical Physics and Celestial Mechanics

Table 2 - Evolution of scientific topics

Beitrãge zur Physilc der freien Atmosphãre	6 (1932/36)

Gerlands Beitr zur Geophysík	3 (1931/38)
Jiíeteorologische Zeítschr	3 (1931/33)
Ciel et Terre	1 (1928)
Ciencias	1 (1944)
Annuaire de l'Institut de Physique da Globe de 1' Université de Strasbourg	2 (1927)
L' Astronomie	2 (1925/26)
Actualités Scient et Industrielles	2 (1938 – 3 livros– e 1951)
Comptes rendus des Séances de l' Académie des Sciences de Paris	23 (1947/50* e 1958/61**)
Comptes rendus des Congrès de l'Association Française pour l'Avancement des Sciences	2 (1947/50)
Journal de Physique et le Radium	4 (1949/51)
Journal Scientifique de la Météorologie	2 (1955)
La Météorologie - Annuaire de la Société Météorologique de France	8 (1952/53)
Mémorial de l'Office National Météorologique de France	3 (1929/31 – 3 livros inovadores) + 1 coautoria anos mais tarde
La Nature	1 (1939)
Nature	1 (1926)
Proceedings of the International Congress of Mathematicians 1954	1 (1954)
Geofisica pura e applicata – Revue internationale de Géophysique	12 (1949/1956***)
Geofisica e Meteorologia – Bolletino della Società Italiana di Geofisica e Meteorologia	2 (1953/54)
Boletim da Sociedade Portuguesa de Matemática	1 (1947)
Gazeta de Matemática	10 (1946/51)
Portugaliae Mathematica	6 (1946/61)
Portugaliae Physica	2 (1946/47)
Boletim da Sociedade de Geografia de Lisboa	2 (1942/43)
Técnica	1 (1939)
Revista Faculdade de Ciências de Lisboa	3 (1960/66)
Arquivos do Instituto Gulbenkian de Ciência	19 (1963/69****)
Publications da Secrétariat de l'Organisation Météorologique Mondiale	1 (1939)
Physical Review	2 (1949/50)

Presented by: * De Broglie. ** Danjon.

*** To break with Bossolasco. **** Magazine directed by Gião.

[Check yourself as an initial inspection reveals bibliometric 4 of conflicts experienced by Mr Giao - the gap of 30 years, ruptures with De Broglie - interruption of CRAS - and Bossolasco - end of writing in Italian periodicals - and with colleagues - publishing exclusively in the Archives thereafter]

Table 3 - Publications and dates

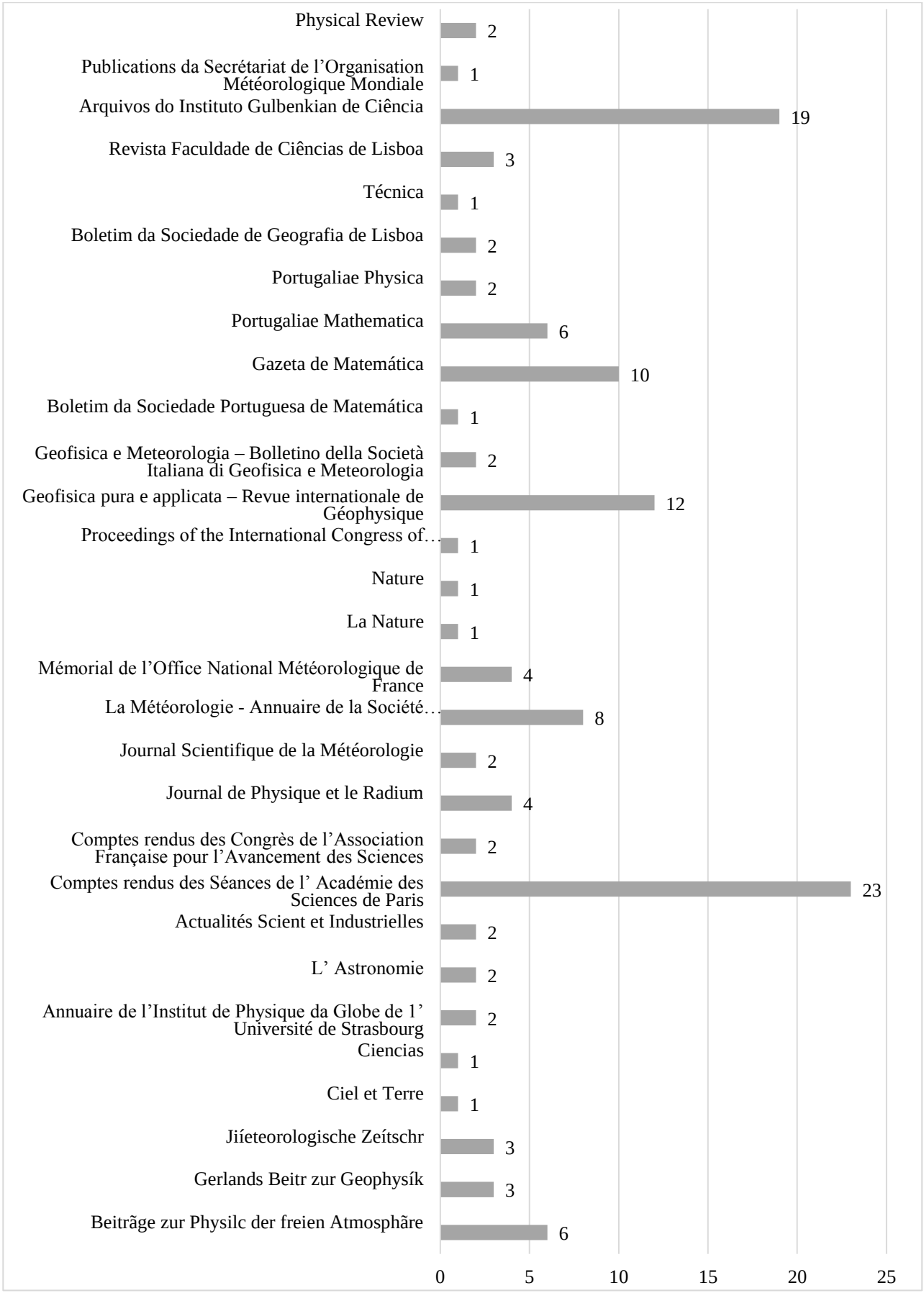


Table 4 - Magazines and other evidence in which he published

2. 2.POWER LINES IN GIÃO'S THINKING

Next, addresses to a hundred and a half point of view of the text of"Republic of the Wise", pointing to each title, the book reviews that i decided, in a cast that aspires to be exhaustive.

After checking most of his works, and what I think is all the book reviews, I try to scrutinize how the various streams of his thinking evolved over time. Help me for this:

- The categorization made in the"Bibliographie Scientifique" called (93A.) - And the numbers mentioned below are the bibliography, or its extension will be done depending on the Timeline

- From a finer division in line subclasses"Meteorology and Fluid Mechanics", open to your project # 87, 1937.

Exclude reference text that appointed by (0) , done at the Lyceum, the only one that today would be included in Geosciences. I do not analyze, also here, the posthumous publications 1981 and 1986, around the Poetry and Theatre.

I'm going to list sequences of items, sorted chronologically in large and small areas of knowledge.

After the Timeline will examine, tend hermeneutic perspective, some of them, judging so add something to assessments made by contemporaries.

Book reviews and event reports in Meteorology

2 (1925) ; 7 (1927) ; 11 (1927) ; 12 (1927) ; 27 (1933)

In the latter, Gião presents the Norwegian model of networking and the steps of mathematization that it will continue in the years 30. Your 1937 projects, # 87, and 1939, # 9, are part of the continuity of (27).

Mathematical Physics works Analysis

45 (1947) ; 50 (1948) ; 66 (1949) ; 77 (1950).

The latter review to a work of Costa de Beauregard, marks the Gião dichotomy as a fan of general relativity, but disagree with special relativity. The choices made in (77)

will have as cosequência synthesis (99).

Successive references to ether wind and Piccardi experiments result of this option, and the cosmological model 1963.

These reading notes will all be benevolent, but often beset with some critical note.

Phenomenological Physics

15 (1930) - the precursor text;

21:23 (1932) ; 25 (1933) ; 31 (1938) - reference that includes the three volumes published in Paris, with which, perhaps, is facing the consequent isolation of the criticism that had been the target.

34 (1939) ; 35 (1942) , which closes when this line of research.

Rational Mechanics

49 (1947) ; 51, 52 and 53 (1948) ; 61 (1949).

This area seems to carry over to the other three which distinguished.

It will be noted how some of the work to integrate over an area.

Gravitation and Electromagnetism

Seminal text - 38 (1946)

And still

39 (1946) ; 42 (1947) ; 52, 53 and 56 (1948) ; 59, 63 and 64 (1949) ; 68, 69, 71, 72 (1950) ; 83 (1951).

Interaction particles / field

63 and 64 (1948) ; 68, 69, 71 and 72 (1949) ; 78 (1950) ; 80, 81 (1951).

Relativity and Cosmology

55 (1948) ; 60 and 65 (1949) ; 76, 77, 79 (1950) ; 82 and 83 (1951) ; 98 (1957) ; 101 (1958) ; 114A, 117 and 121 (1963) ; 128 (1965).

(121) will be the culmination of the scientist. Your cosmological model is presented

to the best specialists. We shall see how little echo reap.

Particles

The precursor text is the same theme Gravitation and Electromagnetism - the text 38 (1946).

Keep it was in this area that Gião more intellectually risked his prestige.

However, the fellowship Manuel Valadares (# 23, # 24) and Louis de Broglie (until 1950 or 51) have led to it being not penalized Pelor one of your mistakes - the microelectrão, which was considered as seriously by the scientific community (Benham- # 27, Weinzierl - # 28, Schrödinger - # 65, # 68).

It will be demonstrated their interest as one of several alternative theories of radioactivity prior consensus on the existence of the neutrino.

40 (1946) ; 41, 43 (# 25) , 46, and 57 (1948) and the unpublished # 26

This latter work, around the concept of hyperemnon, a word that he would not be rewritten (before this Thesis) and corresponds to an idea without sequence.

Seventeen years later, back to the particles, with closer than ever so it was consensual articles:

126, 128 (1965) and 130, 136 (1966).

The return to Portugal will take you to be interested in the disciplines governing, making him published:

Celestial Mechanics

Booklet of 1960 course.

112 (1961) and 116 (1962).

Mathematical Methods of Physics

67 (1949) ; 70 (1950) ; 80 and 81 (1951).

Sebenta the course of Mathematical Physics in 1960.

122 (1964) ; 127 and 129 (1965) ; 137 (1967).

In this area, however, experienced a conflict - a calculation error in the texts (67) and (70) , who came to have consequences for the criticism of the work by José

Simões Pereira, in 1965, profusely documented # 33 to # 42.

The test Piccardi

The criticism of relativity leads Gião the boundaries of science:

98 (1957) ; 102, 104A (1959) [presented at # 29 and # 30]; 109 (1960) ;

Calculation Analog and Numeric

Its inventor short career, from a repeated patent from 1952, # 44, has given rise to several texts:

84 (1953) ; 84A and 85 (1954) ; 90, 92 (1955) ; 105 (1959).

The paragraphs that follow subdivide the field that began in Weather:

Frontologia

This is the model of Bjerknes, who prefaced inspired his youth, that would be Gião distance.

5 (1925) ; 7 (1927) ; 13 (1929) ; 16 (1930).

Theory of Troubles

14 (1930) ; 17:18 (1931) ; 20, 26 and 27 (1933).

This year are the texts that generates the conflict with Dedebant and Wehrlé; both Gião as those two scientists continue in their ways and in opposition.

29 (1936) ; 30 (1938) ; 36 and 37 (1944) ; 47 (1947).

Field Theory

Viewed by Gião as a subdomain of Physics Phenomenology, as explícto by Gião in its draft # 86, 1937.

21:23 (1932) ; 25 (1933) ; 31 (1938).

Atmospheric General Circulation

22 (1932) ; 30 (1938) ; 95 and 97 (1956) ; 110 (1960) ; 120 (1963) ; 124, 125

(1964).

Hydrometeorology

Uniqueness in relief in # 86, consisting of a single text, 20 (1931).

Dynamic weather

Perhaps the subject that his works know better host - # 80

62 (1949) ; 97 and 100 (1957) ; 105 (1958) ; 131, 134 (1966).

Often of great technical nature, the works of Gião are difficult to interpret by unskilled current player

Escaped this fate projects, presented as Documentary Sources and:

Philosophy of Science

40 (1946) ; 48 (1947) ; 73, 74 and 77 (1950) ; 82 and 83 (1951) ; 98 (1957) ; 103 (1959) ; 113 (1961) 128 (1965) ; 130 (1966) , 135 (1967) ; documents # 5 and # 6 elegantly express the essence of his thinking in this area.

3.DIACHRONIC ANALYSIS

[The reviews in *Zentralblatt fuer die Mathematick* are indexed ZM and translated; in the *Mathematical Reviews* marked with MR.]

1923

0.” The Mina de São Domingos, notes a study tour”.(D) , 42 pp., Empreza Typographic Reguenguense.

[Exhibition presented at the Spring Festival in Liceu Acts Room, was issued on the day of his 17 years (19 July) by Grandma Ana Luisa Josefa and the Aunt Rita.]

[Graduation with 19 values at Central High School André de Gouveia, in Évora.]

1924

[Enroll in Physical Sciences at the University of Coimbra.

According to then Assistant, José Vicente Gonçalves, who will become Colleague in Lisbon. Student at the same time, Ruy Luís Gomes.]

1925

1. “Sur la périodicité des minima barométriques dans le sud du Portugal”("On the periodicity of barometric minima in the south of Portugal") , *L’Astronomie*, 39, 121-123. (C) ;;

2.”Travaux de Géophysique au Congrès de Coimbra de 1’Association Luso-Espagnole pour l’Avancement des Sciences”, (Geophysical work at Coimbra Congress Luso - Spanish 1'Association for the Advancement of Science”*) La Météorologie*, 1, 403-410. (D)

[Title reported in Portuguese, in the order of appointment, entered in the Government Gazette of 27-4-1960) ; in French in (93A)].

[First letter to meteorologists (# 85)].

1926

[According to the" Notes Autobiographiques" is a stage in Bar -le -Duc and enrolls in Strasbourg, where they are Teachers : Albert Schweitzer (physician and organist) and Andrew Leriche (anesthesiologist) , two doctors who dominated the intellectual landscape. Monsignor Trinity Willow, futro Archbishop of Évora, is contemporary of Gião this University.(José Pires Gonçalves, (1959)]

3. "Cirrus at lower level than Altocumulus", *Nature*, 118, p. 49. (C)

[This is the only publication in this journal, which will again submit a text in 1947, which will be rejected. In accordance with Fiolhais, C, (2008) is the first Portuguese to write in Nature].

First Book review :

Letters to Editor, Nature 118, 49-49, (10 July 1926) , doi: 10. 1038/118049 a 0.

"Cirrus at a Lower Level than Alto-cumulus", ANTÓNIO GIÃO.

Abstract.

"In his letter to NATURE of February 6, 1926, p. 199, Mr. C. J. P. Cave has directed attention to the fact that well-defined cirrus clouds may occur at a much lower level than we generally assume to them, say, under a sheet of alto-cumulus. To supp. ort his view he describes a striking observation similar to that made by me on Sunday, June 13, at Strasbourg. During the morning and early afternoon of that day the weather was rainy and the sky covered with altostratus and nimbus. The nimbus ceased about 16. 30 (G. M. T.) and the alto-stratus merged gradually into a sheet of fleecy alto-cumulus moving from west-south-west. It had a straight edge separating it from a beautiful clear sky."

(http: //www. nature. com/nature/journal/v118/n2958/abs/118049a0. html)

4. “Parhélies et colonne lumineuse”, *L’Astronomie*, 40, 365-366. (C) ;

5**.** “Tourbillons de Bjerknes de petites dimensions”, *La Météorologie*, 2, 321-322. (C) ;

6. “Particularités de la variation diurne du baromètre par beau temps au Portugal”, Comptes rendus du *Congrès de Lyon de l’Association Française pour l’Avancement des Sciences*, Juillet 1926, pp. (C) ;

   [This work Gião continues the work begun in (1) in Reguengos mansion of Monsaraz; the variations are compared to summer pressure, between this village and Coimbra. It is given a” harmonic analysis”, as noted in # 55; in doing so, Gião apply what we Carvalho Brandão called the”Italian method”. P. 4, references that have future echoes the reference to” moyennes pour les longues periodes” that inform the dynamic weather; and the quotation of the author who best developed methodology to eliminate the” faux noyaux” Dedebant, whose history so often entroncará with the Gião.]

1927

7. « Analyse du livre de A. Defant:”Wetter und Wettervorhersage », *La Météorologie*, 3, p. 134. (D) ;

8. “Etude sur les Occlusions”, *Annuaire de l’Institut de Physique da Globe de l’ Université de Strasbourg*, Première Partie: Météorologie, Année 1926, 134-137. (C) (publicação dirigida por E. Rothé; tese de licenciatura).

[The work answers two questions:

- The pressure variations inform on the surfaces of discontinuity?

- This allows for better analyze and predict the weather?

Have to guess the future interest in Frontologia.

Graduation as Geophysical Engineer: documents # 55 and # 56 specify the"physical baggage" of Gião off of Strasbourg. It will be noted the lack of training in mathematics; the biographical note, 1945 also refers to a degree in Physical Sciences, on which nothing found in Gião House nor the School Board Minutes; certainly reference to time spent in Coimbra? Mystery - or deception - that is unsolved. I think, however, that the mathematical training will come to you of cities - Bergen, Brussels, Paris, where the next few years the head.

The theme of the TSF, patent these courses will be repeated by Gião projects and letters to the community. See # 87; however, the titles of Wehrlé in 1938 - in # 20 - show that he is, and not Gião, to take the initiative in this field].

9. "Application des barogrammes à l'étude des occlusions", Comptes rendus da *Congrès de Constantine de l'Association Française pour Avancement des Sciences*, Avril 1927, pp. (C)

[Integrates the mission of the French government to this Congress]

10."Les pluies da 28 au 29 Octobre 1926" (en collaboration avec G. Rempp. et A. Castan) , *Annuaire de l'Institut de Physique du Globe de l'Université de Strasbourg*. Première Partie: Météorologie, Année 1926, 89-92. (C)

11."La Météorologie au Congrès de Constantine de 1'Association Française pour 1'Avancement des Sciences", *La Météorologie*, 3, 396-402. (D).

[Report an open meeting by Paul Langevin, where Gião highlights its contribution on the importance of clouds in occlusions; the summary is done at the request of L. Petijean, President of the Congress.

Various interventions on the meteorology of the then North African territories; applications to agriculture, sea and air transport. Remarkable historical lecture by Roach commander meteorology in" Salammbô" Flaubert.

The contribution of Gião will be" Sur la nature et l' âge des occlusions," pp. 2-3,

the only theoretical text of Congress.]

[Departure to Bergen]

1928

[The Encyclopedia of news refers to" one and a half in Bergen and Oslo; the relevant Minutes School Board indicates stay in Bergen in 1927-28. The two sources appear complete.]

12. "La Météorologie à Bergen, aujourd'hui et demain", *Ciel et Terre*, 43, n. º 10, 233-238; 44, n. º 1-7, 72 pp. (C)

[Enthusiastic Notes of a scientific trip to an organized forecasting service with professionalism; originality of the proposed notation Tor Bergeron,"bien connu pour travaux de ses frontologie" (p. 12) present in # 57, had sequence, to the extent that most of the symbols have been used since then.

Keep one of the most important articles of Gião, it is foreshadowing all his work until the third book.

In the first part -"L'arrivée" and"Le quotidien service" - is a follow-emerging interest in autobiographical notes; also referred contributions such as Bergeron, Bjerknes and Wehrlé. Sign emotional moments"Bergen j'ai Compte jusqu'à 25 averses par jour" (p. 23)

In the second part, pp. 29-72, a brief history of frontologia, introducing the contributions of Villelm and Jacob Bjerknes, H. Solberg, T. Bergeron - all of Bergen school; and, from p. 38, successively introduces the formalism, differential, full and partial derivatives, that will inspire all your work on the weather forecast in the thirties. It does so in pedagogical manner, and mathematics to the physical content, namely, full of movement, the entropy of the air mass (p. 39) , the continuity equation (p. 43).

From p. 49 wonders about the layout of the fronts and cyclones in letter; to conclude on p. 71-72 with"à l'heure besoins impérieux actuelle" - the Meteorological Organization of the oceans,"l'Océan est un 'désert'" and the aerology, enfatisando

vertical soundings.

It is now a scientist with a much higher mathematical training to the Strasbourg Geophysical that is emerging. Personality and Bjerknes ideas, the process of analysis / communication, radio / mapping are thoroughly described, and precede the first steps of the mathematical model. In Portugal and France, Gião would propose the organization of services according to the Norwegian model.

Gião signs the article as a delegate of Service météorologique Anglais, a body which would only exist in 1946. Shall the Carvalho Brandão delegation who directed an annual service in the Navy have been very taken seriously by Gião.

It is referred to the General Delcambre; is outlined here the basis for a network of observatories.

Invited to participate in the polar expedition in airship headed by General Nobile, Gião declines; such an expedition would pay off in the airship fall and death of several participants.]

1929

[Partially contradict the Act, which relates 1928-29 as passed in Brussels, and the biographical note that evokes the return to Bergen in 1929 without date the stay in Belgium; maybe the key is in Acta mentions that the joint work on aerology with Jules Jaumotte and Jacob Bjerknes, directors of both institutes, which certainly did joint research.

In 1929 it is already in Office National météorologique of Paris.]

13. ”La Mécanique différentielle des Fronts et du Champ isallobarique”, *Mémorial de l’Office National Météorologique de France*, n.° 20, 128 pp. (C) (Prefácio do General Emile Delcambre, Director do Office National Météorologique; introdução de Jacob Bjerknes).

[It should do a little” history of prefaces." Delcambre compares the French and Norwegian methodologies, the difficulties of integrating the differential models, and the novelty of Gião formalism, by integrating the pressure as variable- in wind place. This being, reiterates Bjerknes, obtained from the evolution of pressure by simple calculation.

First of many books. Marks the transition to the so advanced mathematical models as the time allows; Is review as Delcambre and Bjerknes, Margules referred to, but not Lewis Fry Richardson]

[Methodology note -

The references of each recension are, in order, pursuant to paragraph inícicio” online reference" Bibliography.]

Book Review - ZM **JFM55. 1135. 01 (**by W. Wenzel).

Compared to the earlier work on the mechanics of atmospheric fronts, this work shows, especially in chapters 3, 4 and 6, fundamental progress. In all chapters is treated deriving terms of speed and acceleration of a front air. In Chapter 3, the problem is approached initially simply the kinematic point of view. In the derived acceleration value - generally to the fronts in altitude and also in particular for the fronts in soil - now only enter the point in question, in addition to the kinematic data of the observed spot facing, the slope$\theta$the discontinuity surface belongs to the front.

With$\boldsymbol{u_f}$as the horizontal velocity of the front and *u, v, w* and point components of the observed speed of forward acceleration is:

$$j = \frac{\partial u}{\partial t} + u_f \frac{\partial u}{\partial x} - \frac{\partial}{\partial t}(w \operatorname{ctg} \theta) - u_f \frac{\partial}{\partial x}(w \operatorname{ctg} \theta).$$

Chapter 4 presents the transformation of this result using the hydrodynamic Euler equations for an atmosphere without friction. tg $\theta$is expressed by means of pressure gradients.IfΩ is the vector of the Earth's rotation, the acceleration of a front that moves on the ground will be :

$$j = \left(2\Omega_z - \frac{\partial u_f}{\partial y}\right) v^* + (2\Omega_y u_f - 2\Omega_z v^* - g)\,\mathrm{tg}\,\theta$$

com:

$$v^* = \frac{\varrho_1 v_1 - \varrho_2 v_2}{\varrho_1 - \varrho_2} = -2\Omega_z u_f.$$

It is obvious that by inverting this equation is easily obtained from the formula of*Margules*. However, the last expression of*j*presents the known shortcomings, which are that it entered while empirical quantities, and the wind or wind density and the density of the jump along the front, the observation with the precision required for actual calculation purposes is impossible. Is this the reason why the author incorporates, in chapter 6, the calculation of the front acceleration starting from another point of view, so that, in the result,$u_f$and*j*are expressed through the elements of isobaric field and isalobárico field - which the measurement is much easier to accomplish with the help of the weather observation equipment :

$$u_f = \frac{\dfrac{\partial p_I}{\partial t} - \dfrac{\partial p_{II}}{\partial t}}{\dfrac{\partial p_I}{\partial x} - \dfrac{\partial p_{II}}{\partial x}} = -\frac{\Delta b}{\Delta G_x},$$

$$j = -\frac{1}{\Delta G_x}\left[\Delta\frac{\partial b}{\partial t} + u_f\left(2\frac{\partial}{\partial x}\Delta b + u_f\frac{\partial G_x}{\partial x}\right)\right].$$

In the other chapters of the first section, the author briefly explains the effect of friction on the results derived, trying to make it more accessible to the mathematical processing the processes of destruction and fronts formation. The behavior of greatness,

$$F = \left(\frac{\partial T_1}{\partial t}\right)_f \left(\frac{\partial T_2}{\partial t}\right)_f = \Delta\frac{\partial T}{\partial t} + u_f\Delta\frac{\partial T}{\partial x},$$

wherein T is the temperature and is transformed repeatedly used criterion for the occurrence of processes" frontolíticos" or" frontogénicos", and the last element in the top line represents the effect of the penultimate element advection and the effect of

processes advective not on the temperature behavior along the front.

In the second part, is exhaustively treated isalobárico the field, however, the exhibits about the division of isalobáricas formations in a”transfer field” and a” developmental disorders field” use only ancillary to the dynamic meteorology set of formulas and are as the third section exhibits an exact quantitative prediction of more general nature.(VIII 1.)

1930

14. Recherches sur les Perturbations mécaniques des Fluides; Première Partie:”Théorie générale des Perturbations”, *Mémorial de l’Office National Météorologique de France*, n. º 21, XV-f, 61 pp. (C).

[Prefaced by an elegant writing Wehrlé which highlights the”usual audacity to Gião" and author of the analysis in the passage of the differential formalism (13) for a full treatment, and the importance of perturbation theory to the history of fluid dynamics in general and particular weather. Suggests future developments for a thermodynamic approach. Courtesy is reciprocated by Gião declaring duty Wehrlé the content of the chapter on energy theory.

Pages. 5-12 present the equations of hydrodynamics, namely continuity, and the difficulty of integration. On pages. 13-25, disturbances are treated, defined as non-hereditary, autonomous and can be”pure" or”impure" (not dwell on these categories) to arrive, p. 24, the notion of”mouvement entretenu" as an alternative to persistent movements to stop. It is”entretenu" a movement created by continuous input of energy - f. ex., convection currents. I stress this adjective, which will become so central in phenomenological physics. A p. 25 introduces the general equations of the disturbances, to get to the integration of pressure, p. 30. The news highlighted by both Delcambre and Bjerknes such as Wehrlé, is the introduction of methods of fluid dynamics.

The end sections are more difficult to interpret by treating disorders of the properties of pure and impure with respect to the movement of the particles and the wavelike motion. Ends the book (p. 55) with the dissipative effects of friction, in particular on the waves (p. 60).]

15.”Sur la liaison de plus en plus intime de la prévision de temps et de la physique”, *La Météorologie*, 6, Supp. lément 3, (C)

[Seems this work around the notion of field and its evolution the project Genesis” Phenomenological Physics”.]

16.”Sur quelques propriétés dos fronts doubles”, *La Météorologie*, 6, 306-322. (C)

1931

17.”Recherches sur les Perturbations mécaniques des Fluides. Deuxième Partie: Les Perturbations atmosphériques”, *Mémorial de l’Office National Météorologique de France*, n. º 22, 96 pp. (C).

[This third book will be the reason to break with Wehrlé, Dedebant, and by extension, the community of physical training meteorologists. An overwhelming criticism of the two authors we read in # 16. What is said in this long note reading mentions inconclusive simulations in Office; is likely that date this time the separation of Gião in relation to the institution headed by Delcambre, matter that there was no way to check.]

18.”Une nouvelle méthode de prévision quantitative du temps”, *La Météorologie*, 7, 275-285. (C)

[Are compared with the procedures of Euler and Lagrange; summary of the work (14) and (17) ; Project : what is the best possible determination of”forward- vector" ?

Another version of the text - the same title, no date has as references” Premier

Congres de Sécurité Aérienne”,” VI - Métééorologie et Aérologie”, pp. 5-10; above is perhaps because only reference (14).]

19.”Zur Differentialmechanik der Fronten”, *Meteorologische Zeitschrift*, 48, pp. (C)

[Em torno aos trabalhos de Bjerknes e de Wehrlé.]

20.”Essai d’hydrométéorologie quantitative*”*, *Gerlands Beiträge zur Geophysik*, 34, 142-163 (C)

Recension (ZM) :

Gião, António: Essai d’hydrométéorologie quantitative. Gerlands Beitr. Geophys. 34, Köpp. en-Bd. 3, 142-163 (1931).

Based on the thermodynamic equations (Poisson equation) and hydrodynamics, formulas are developed that can calculate the individual temperature change from the local change of pressure and horizontal speed. Introducing the relative humidity, you get a mathematical expression, which shows a criterion for the occurrence of condensation. It explains also how these formulas give rise to the close correlation between the pressure field and the” systèmes nuageux”. Moreover, the role of processes is front (in the opinion of the author) negligible. The clouds are formed in an area where air masses expand, but reproduce with the cause of this expansion, not with material particles.

Haurwitz (Leipzig)

[The importance of the article comes the quote in the PhD thesis of James Murdoch Austin, who, in the abstract and bibliography listed below, includes mention of a Haurwitz article in response to the Gião. The young scientist seems strongly inserted in the community]. :

Austin, James Murdoch,"Cloudiness and precipitation in relation to frontal lifting and horizontal convergence", in 1943, Massachusetts Institute of Technology and Woods Hole Oceanographic Institution, Papers in Physical Oceanography and Meteorology vol. IX (3)

Abstract: The physical processes result in the formation Which of clouds and the production of precipitation Have Been Numerous described by meteorologists. The genetical classification Has Been summarized Petterssen is as follows: (1) Clouds and precipitation types Which form in unstable air masses, (2) Clouds and precipitation types Which form in stable air masses, (3) Clouds and precipitation types Which form in connection with quasi-horizontal inversions in the free atmosphere, and (4) Front clouds and precipitation forms. (...) This study divided into two Has Been main sections, viz., (1) Clouds and precipitation types Which Occur at the front surfaces of the front lifting result, and (2) Clouds and precipitation types Which Occur Within the air masses the result of horizontal convergence Within the wind field. (1) Front Surfaces. In a recent study of fronts and frontogenesis, Petterssen and Austin have investigated the processes que trend to create wind shear, or vorticity, along fronts. It was found que, in general, an Increase or decrease in shear is Accompanied for a change in the vertical velocity field at the front. Since cloudiness and precipitation arise from the ascending velocities at front surfaces, The Possibility of forecasting the change in horizontal shear at the front will be investigated. F urthermore, It Has Been shown que vertical velocity of the air mass Either at the front surface can be determined from the velocity of the front and the horizontal wind velocity. The wind velocities in the free atmosphere can be Obtained with a reasonable degree of accuracy, but the front velocity can not always be Evaluated with the same accuracy. Because it is important to determine the magnitude or at least the sign of the vertical velocities, the kinematical study will be made of the displacement of the front surfaces. (2) Horizontal Convergence. In 1931 Gião published an explanation of the origin of

clouds and precipitation in the vicinity of moving cyclones, without Introducing the concept of front surfaces. Claimed region que most condensation phenomena Could be Attributed to the cooling produced is local pressure changes and the horizontal convergence Which Arises from the southern component of the wind velocity. The Conclusions are conveniently summarized for Haurwitz, together with a short discussion of Gião's theory. Since some systems of clouds and precipitation types may result Solely from convergence in the horizontal flow, an attempt will be made to evaluate this effect quantitatively.

20A.” The Theory of Fields and Weather Forecast," The Earth, p. 5

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9. Byers, H. R.: "Divergence and Deepening of Extra-tropical Cyclones," Q.J.R.M.S., Vol. 66, Supplement 1940.
10. Bjerknes, J.: "Theorie der Aussertropischen Zyklonenbildung," Met. Zeitschr., 1937.

[In the same magazine, Carvalho Brandão (1931) speaks of Gião as” passionate Bergen School, as all those who were fortunate enough to attend one Temple of Science, undertook the screening of astonishing discoveries of J. Bjerknes”

December 1931 – In”Science et Vie", of December’s 1931, na article intitled”Aurons-nous bientôt la machine à prédire le temps?” (p. 457) writen by Abel Verdurand (ancien élève de l'École polytechnique).

Contents:

"Comment on trace la carte des pressions atmosphériques. Cartes des variations de pressions. Comment évolue la pression barométrique en vingt-quatre heures. Comment évoluent, en vingt-quatre heures, les noyaux de variations de pressions? La prévision du vent. La prévision de la pluie. Systèmes « dépressionnaires » et systèmes « orageux ». Les perfectionnements en cours, aux méthodes actuelles de prévision. L'exploration de la stratosphére et les voyages aériens."

This paper addresses the work Gião.

- Subscriber magazine in Reguengos, Mr. Hector Durão surprised fellow with the importance of the work that young (J. Pires Gonçalves, 1959).

- Gião is invited to teach Theoretical Meteorology at MIT and refusal, as like living in Paris and indicates the name of a European meteorologist.

(José Pires Gonçalves, 1959).]

1932

21.*"*Sur la prévision mathématique par une relation générale entre l'espace et le temps", *Beiträge zur Physik der fr. Atmosphäre*, 19, 123-142. (B)

[Continued (17). Prolegomena to what will be the physical phenomenologically see the distinction between" spontané" and" entretenu" (p. 133) , applied to phenomena in general and in particular to the fields. Thus, on earth there are 3 fields" entretenus" sobrepostos- the gravitation, the mechanical rotation of a fluid star, and the consequent energy thermodynamic interaction with the sun. And we propose a classification of wave equations as irreversibility, and heredity, as the value of the parameters (p. 131). It is anticipated the application to other stars - Sun and stars.

Recognition of the collaboration of Captain Ferreira (p. 141). A working relationship that will last over 30 years. In summary (p. 142) states that its field theory amounts to introducing a new variable in physics, the scale.]

22.”Sur les rotations des astres fluides” (en collaboration avec Ph. Wehrlé) , *Beiträge zur Physik der fr. Atmosphäre*, 19, 237-245. (C)

[First foray out of the weather.

Integrates the notions of”champ entretenu" and”perturbation spontanée" (p. 237) , to apply this concept on the next page to sunspots.

Note the emerging arrevezada language of this co-authorship. Calls for the”simplicity" and”perfection" of the sun and calls the accuracy of 1/200 (p 238.) Between the forecasts and the scientific observation; criticizes the”bâtardes syntheses" (p 239.) Ferrel and Oberbreck; quips about Faye, pioneering a century earlier in the study of the rotation of sunspots. It is also explained the variation of the rotational speed of solar latitude hydrodynamic terms.

Thanked supporting Dedebant, and the Gauthier-Villars (the editor) , for graphics. Sai already after Authors if they incompatibilizado.

There will be an answer in the text Svein Rosseland (1934) ”Remarks on Gião and Wehrle's" Sur les rotations des astres fluides”Beitr. F. Z. Physik der atmosph., Vol 21, p. 49-50. The reply to the astrophysicist, in the pages of the same magazine, will be subscribed only by Wehrlé, at a time when relations with Antonio Gião had cooled.]

[(22) will come to be named more than 60 years later:

- The text Mohan, C., Lal, AK, Singh, VP (1994) ,”Equilibrium Structure of Stars obeying the Differential Rotation Law", in”Astrophysics and Space Science", 215, n.1, pp. 111-120, is shown as the first differential rotation model of a star;

- In G. Rudiger (1989) ,”Differential Rotation and Stellar Convection-the Sun and Solar-Type Stars.”Akademik Verlag, the contrast is made between a statement of the two authors, translated as" the famous mistery of solar equatorial acceleration is now completely cleared up”and the Emden critical in replacing" completely”with" in the way”. Consider the abstract of this critique:

Emden, R. (1936) ,”Zum Rotatationsgesetz der photospharichen Schichten":

"In a line of work are concerned with the masters G. Dedebant, A. Gião, Ph. Schereschwensky and Ph. Wehrlé with the Law of rotation of the Sun, rather the photospheric layers, and believe in the basis of its investigations have reached a valid conclusion: the famous mystery of the"equatorial equation of the Sun", which raced so much ink, is now fully clarified. The following presentations must show that this even remotely be to replaced.

I. The observation lines, in which the rotation speed ωis function of the width ofheliocentricφdemonstrate to become the rule by the formula of Fayesche

$$\omega = \omega_0 (1 - q \sin^2 \varphi)$$

compared, which*q*corresponding to the observation material fit. This demonstration of art has been shown to be useful. The named author (?) Now believes, therefore, that these relations Fayesche, by which a Gião theory Founded by Law and withdrawal, which states that the observations are developed with an accuracy of 1/200 and therefore takes the Sun's rotation Act as true. How to prove you tried the new formula in one of the numeric expressions of J. Bosler[2]. At the opening of I. Table 1 are the durations of rotation of the photospheric layers relative to its measure of slope ω (according Bosler) ; of which the new law Gião, the calculated values of column III are consistent with their accurate to about 1/200."

I think the longevity of quotes, unique in the work of Gião only their texts on Piccardi, in the 60s, know comparable destination - is due to the following factors :

- Theme today;
- Co-author prestige.

Corroborate this assertion mentioning the more detailed quote :

Fabre, H. (1949) ,"Théorie dissipative de la rotation dans la galaxie, les astres fluides, et l'anneau des asteróides", *Annales de l'Obs. Astr. Et Met. De Toulouse*, vol 19, pp. 16-65, onde o estudo da rotação das estrelas é incluído no âmbito da

Mecânica Aleatória.]

23.”Sur l’application de la théorie de l’évolution spontanée à la prévision de la pression atmosphérique”, *Beiträge zur Physik der fr. Atmosphäre,* 20, 42-46. (B)

Recension by W. Wenzel [ZM]**JFM 59. 1600. 02**

Click for the practical implementation of forecast atmospheric pressure field according to the theory developed by the author (see” Sur la prévision mathématique par une relation between l' espace et Générale le temps” Beiträge z. Physik d. Atmosphäre 19 (1932) , 123-142;. F. d M. 58) , which consist, from a mathematical point of view, the transition from differential equations that describe the changes to the forecasting process.

1933

24.”Erwiderung auf eine Kritik meiner Störungstheorie”, *Meteorologieche Zeitschrift,* 50, pp. (C).

[It will be the response to a criticism of (14) and (17) made by H. Solberg (meteorological, Zeitsch, 1933, S273) ; an author who met in Bergen.]

25.”Sur la théorie de la prévision”, Beiträge zur Physik der fr. Atmosphäre, 21, 7-48. (C).

Recension by W. Wenzel [ZM] **JFM 59. 1599. 07**

The work is divided into two chapters. In the first, is exposed to general theory of the most comprehensive courses compared with an earlier presentation of the author (Sur la mathématique pair prévision une relation between l'espace et Générale le temps, Beiträge z. Physik d. Atmosphäre 19 (1932) , 123-142; F. M. d 58).. As in previous work, this also underlining the fundamental difference between the theories developed by the author against the classical physical theories, which is expressed in the fact that the laws of development of fields do not appear in the form of partial differential equations, but but already in the integrated manner. The author assumes that all measured values of physics are actually spatial or temporal mean values, postulating the existence of a”prince

d'evolution". According to this, there is a relationship between the scales of time and space (échelle d'espace et du temps) used in the formation of average values, so that the spatial and temporal average values of each treated physical quantity (the functions”physical" as opposed to defined mathematical functions for spatial and temporal points) become identical. Decisive for the theory is presented after the equation:

$$d\bar{P}(\tau) = d\bar{P}(\varrho)$$

which expresses the” principe d'action of contact", especially the axiomatic assumption that the laws of physical phenomena must be independent of the scales of space / time selected for the determination of means of physical quantities (“ les lois des phénomènes doivent être invariants vis à vis tout changement d' échelle”). The first chapter ends with the construction of” équations of prévision” resulting from the general principles, in the second chapter is applied to the problem of weather forecasts.

[Nothing says recension on the 2nd chapter. Region has, as a consequence of the theory explained, a weather forecasting methods in the short term- p. 38 - 2 and to predict the longer term - p. 42 and p. 44. p. 47, develops the” prévision directe des hydrométéores." - Rain]

26.”Uber die Theorie der spontanen Störungen”, *Meteorologische Zeitschrift*, 50, 411-423. (C)

Recension by W. Wenzel (ZM) **JFM 59. 1600. 01**

The aim of the work is to give the perturbation theory, developed by the author in previous works, in general as far as possible, to prove it can be developed without any reference to mechanical notions and expose the connection of this theory with” general theory of phenomena”(fields Theory) , drawn up by the same author. The chapters are : (1) The terms” Required field” and” disturbance",(2) the principle of adaptation and major disturbance equations (3) The life cycle of waves

and eddies, and analyzed in the last chapter, the various increasing and decreasing eddies, like the eddies without its own playback speed and eddies with a constant angular velocity in spatial terms. As equations underlying the" Theory of spontaneous disturbances," the author concludes the rate equation :

$$\frac{\partial \mathfrak{v}}{\partial t} + \mathfrak{v}\nabla\mathfrak{v} + \mathfrak{V}\nabla\mathfrak{v} = \varkappa\nabla \div (\mathfrak{V} + \mathfrak{v}),$$

In which $\mathfrak{V}$ is the basis of speed and $\mathfrak{v}$ the speed of the disturbance, and the pressure equation:

$$\frac{dp}{dt} = -\varrho\mathfrak{v}\frac{d\mathfrak{V}}{dt} - \left(\frac{1}{2}v^2 + Vv\right)\frac{d\varrho}{dt}.$$

The first of the two equations is the most important for the prediction, as also shows that local changes infinitely small disturbance velocity is independent of the change in the base rate. The pressure equation can only be used after integration of the velocity field.

The author does not explain, however, how they react to the principles underlying his theory, with which simultaneously introduced a large number of unusual concepts, given the fundamental notions of the theory of classical disturbances and to what extent differences result of both theories in if calculation developments.

[First recension not very positive about the concept of spontaneous disturbance in the pioneering Gião showed fracturing. Also referred to the draft" general theory of the phenomena."]

27."Rapport sur l'état actuel de la prévision du temps", (C) Comptes rendus du *Congrès de Lisbonne*, Septembre 1933, de l'Association de Météorologie de l'U. G. G. I.; Mémoires, [unedited with this title, patent 93A];

the correct reference is" Imprimerie Paul Dupont, Paris, 1935".

[Working through content between science journalism (as had been (2) ,(11) ,(12) , and the review article. Argument against" physicalist assumptions" of the

phenomenological theories, which are then the most meteorologists. it is at this meeting that takes away p ara with noruguesa theory, to defend (p 10) :

1.º Que ma théorie, indépendamment des résultats pratiques, n'a pás une valeur nulle;

2.º Qu'elle est la seule veritable théorie de meteorology dynamique qui existe actuellement.

These statements indicate a conflict (1) and its isolation (2) ;. The conclusion is structured in five points (pp 10/11.) :

1.º Une théorie n'a pas de valeur si elle n'est pas applicable à la prévision;

2.º Les méthodes par extrapolation n'ont pas de valeur théorique;

3.º La mécanique aidée ou non par la thermodynamique, ne peut pas conduire à la prévision;

4.º Même si les cyclones étaient des ondes, ce qui n'est pas exact, la"théorie norvégienne" ne serait pas une véritable théorie puisqu'elle ne recherche si des zones cycloniques sont possibles et existent nécessairement dans l'atmosphère. En outre, la valeur de cette doctrine est nulle parce qu'elle est à l'antipode de la prévision;

5.º La théorie des perturbations spontanées est la première théorie où les variables hydrodynamiques peuvent être séparées;

6.º La théorie des champs est la première tentative pour arriver à une doctrine qui soit automatiquement une prévision".

[This is the emancipation of ritual practiced by Gião regarding Bjerknes theory.

Note that in point 4 Gião marks his departure from the Norwegian School.

And that point 6 marks the beginning of phenomenological physics.

When away from its master Bjerknes, is to document the attitude of Bergeron, then this.

It is singular that the chronicle of Costa Lobo (1935) , also one of 14 players in the Weather section of this congress, pass next to this scientific debate.

Leonardo*et al* (2011) report that is advocated by Gião unsuccessfully creating a

Mechanics Institute of Atmosphere; that name, I believe, a priori condemn the proposal to fail... Gião will continue to henceforth signs of autonomy, sometimes intellectual self-sufficiency.

This congress Dedebant and Wehrlé respond strongly to (17) ; the title of the article is elegantly sarcastic :

"A propos de la 'Théorie des perturbations' de M. A. Gião", I copy at # 16.

Who are Dedebant and Wherlé ? A rare photo, # 17, allows a glimpse of them. Creators of Random Mechanics, come to direct the Office of Paris.

To these criticisms, will find itself, Gião will respond with proportional force.

It is the simultaneity of these episodes, not mentioned after the 30s by any of the parties, held the first of several line breaks in the relationship between Gião and the various scientific communities that will integrate.

Perhaps as a consequence four years without noticeable scientific activity.]

1934

The only mention found this year at Casa Antonio Gião, is the picture # 58.

1935

[No publications. In 1935 Wehrlé since incompatibilizado with Gião replaces Delcambre as Director of the Office National météorologique.]

1936

[Year entirely marked by conflict with Wehrlé and Dedebant.]

28."Bemerkungen uber eine neue Theorie des allgemeinen Kreislaufes der Atmosphäre", *Gerlands Beitrdge zur Geophysik*, 46, 331-338. (C)

Recenionby W. Wenzel [ZM] **JFM 62. 0989. 01**

The author tries to prove that the" minimum dissipation principle" underlying the theory of general circulation*Debedant*, *Wehrlé* e *Schereschewsky* (Le maximum de probabilité dans le mouvements permanents, application à la turbulence. *C. R. Acad. Sci.*, Paris, 200 (1935) , 203-205; F. d. M. 61_{II}) , is

incorrect. The principle states that a continuum internal movements (or temperature) present at any time a spatial arrangement such that, considering the boundary conditions, the" mechanical dissipation" is a minimum. This principle has been applied by the authors referred to the stationary optimal circulation of air and, when applied to the heat dissipation, results in the following equation:

$$\Delta (\log \theta) = 0 \ (\theta = \text{Temperatura})$$

which, according to the author may not be correct. Even when applied to the distribution of velocities, the principle is not a mandatory condition.

Segintes in the same magazine pages, and there is a Dedebant Wehrlé response. It is then that Antonio Gião circulate the pamphlet written in a tone of irony and sarcasm, the document # 18; again, the argument focuses on the meaninglessness of applying Laplacian operator to the logarithm of temperature. Although in different matter discussed in Lisbon, disagreement and the disregard of the two authors are not mitigated.

That is, in 4 -year career, Gião is isolated in the conflict that opposes the biggest names of the previous generation; and it anticipates its change of interests, and profile.]

29."Le problème des perturbations atmosphériques. Son examen à la lumière de la mécanique des fluides, de la thermodynamique et de la théorie dos champs", Beiträge zur Physik der fr. Atmosphäre 23, 208-237. (C)

Recension by I. Hoheisel(ZM) **JFM 62. 1600. 02**

O autor expõe primeiro, numa crítica matemática à teoria norueguesa dos ciclos, as razões que, na sua opinião, ditam a rejeição desta teoria. Por sua vez, deseja colocar uma teoria, que descreve vagamente, como teoria das perturbações termohidrodinâmicas.

A apresentação esquemática, porém, não é muito convincente.

[Recensão fortemente contundente, que vai no sentido de criticar a física fenomenológica.]

1937

[Two texts, # 86 and # 87 will be projects unrealized certainly disclosed by post. The letter # 88 shows the failure of # 86; Wehrlé demonstrate, in 1938 (# 20) , have completed the recommended by Gião at # 87.

Region will not be part of such projects, which leads him to depart from the Meteorology and to embark on the paths, not always convergent, the phenomenological physics and mathematization of atmospheric phenomena (clearly stated in Project 1939, # 89) already in Portuguese, certainly for lacking the international network of contacts; and, after the war, the physical particles and the cosmos.]

1938

30.”Les circulations générales et leurs perturbations”, *Gerlands Beiträge zur Geophysik*, 52, 20-67. ©

Recension by K. Muruhn (ZM) **JFM 64. 0884. 02**

This work represents the first part of the announced title analysis; is essentially of the circulation about the axis of the pole star in a liquid, and should follow later perturbation theory. In permanent circulation under review, the mathematical expression of Navier-Stokes reduces the Laplace equation for speed. With the help of field theory, it is demonstrated that, in this case, the frictional force fades with any viscosity. Furthermore, the field theory provides the differential equations for the density, pressure and temperature, which are essentially of the same type. Since the conditions are not known in the star limit the form of solutions is derived from certain characteristics of the external forces. In addition to the absence of a nucleus, the author also deals with the spheroidal core and the general core. The final part consists of modifications of rotational symmetry of the circulations.

31.”Phénoménologie Unitaire. Recherches sur les propriétés générales de

l'évolution", *Actualités Scientifiques*, n. º 758, 759, 760; 228 pp., Hermann, Paris. (B)

[This is a reference in the literature (93). Zaycoff described in greater bibliographic data.]

[It is worth comparing this work with" Le Premier Principe" of Zareh Nubar (1930) who Gião will come to match. Both adopt :

- The exhibition"Geometric more";
- The objective of reducing to a single principle of explanation in physics;
- Bjerknes ideas (eg the waves generated by pulsating spheres..) ;
- The absolute determinism.

Only much later, however, it will contact; upstream of both the influence of Bjerknes.

Long quote by Braffort, Paul, in" Unité j'écris ton nom" in Science et LITTERA - ture, Chap. 1, Jardin des Sciences (9) - cf." Online References '.

«En 1939 mes parents, redoutant des bombardements sur Paris, s'installèrent à Alençon et j'y préparai le baccalauréat de Math. Elem. A la bibliothèque municipale, je découvris les fameux livres oranges de la *Bibliothèque de Philosophie Scientifique*, éditée par Flammarion, en particulier *La valeur de la Science*, de Henri Poincaré, et *L'évolution des idées en physique,* d'Albert Einstein et Léopold Infeld. Après la débâcle, nous revînmes à Paris et je retournai à Buffon, en hypotaupe (Math. Sup., aujourd'hui). (…) Ayant échoué aux examens d'entrée aux grandes écoles, je m'inscrivis à la Sorbonne pour y préparer une double licence en philosophie et mathématique. Je découvris les premiers fascicules de Bourbaki et les thèses de Cavaillès: *Remarques sur la formation de la théorie abstraite des ensembles* et *Méthode axiomatique et formalisme*. Inscrit au certificat de licence de Logique et Philosophie des sciences, je suivais les cours de Gaston Bachelard. Jean Cavaillès, qui ne pouvait assurer le cours de logique (je n'appris pourquoi qu'à la Libération) , était remplacé par le physicien Jean-Louis Destouches. Celui-ci me proposa de présenter un exposé au séminaire Bachelard, dont il assurait

l’animation. Je présentai cet exposé à l'Institut Henri-Poincaré, en 1944. Il avait pour titre: *L'unité des disciplines*.

J’exprimais ainsi pour la première fois la conviction que m’inspiraient l’enseignement de Bachelard, ainsi que des lectures fort éclectiques: le grand ouvrage de Joseph Sivadjian sur *Le temps*, celui d’António Gião: *Phénoménologie unitaire*, les livres de Louis de Broglie, dans la collection” Sciences d’aujourd’hui” chez Albin Michel, *Matière et lumière, Continu et discontinu en physique moderne*, le traité de Léon Brillouin: *Les tenseurs en mécanique et en électricité*, etc. »

[That is, for once an author of mathematical training cites Gião, this time side of the largest... Braffort come to collaborating with PH Raymond, co -author and co - inventor of Gião at the beginning of scientific computing in Paris.]

Recension by R. Zaycoff (ZM) **JFM 65. 1455. 03**

Phénoménologie unitaire. Recherches sur les propriétés générales de l'évolution. I. Le principe et l'équation d'évolution. II. Équations de prévision. Évolution infinitésimale. III. Évolution superficielle, champs virtuels, champs passifs.

Actual. Sci. Industr. 758 (1938) , 91 p.; 759 (1938) , 56 p.; 760 (1938) , 81 p (1938).

In this extensive work, the author strives to create a theory” homogeneous” purely phenomenological evolution of the fields related to the problem of predicting future events. Thus, the author analyzes the” change” regardless of what should be changed, introducing the term”field" in quite abstract terms. The overall results obtained are applied to special events (physical, biological or chemical). The exposure is rich with respect to the formation of metaphysical concepts.

[May I personally disagree with the last sentence - the public interventions of

Gião, # 5 and # 6 will be, these yes, rich, metaphysical references, totally absent of the three books from the point of view of who presents this thesis.

I am supported by an elegant reading note in the Journal of Philosophy (1939) , vol 16, No 9, signed by HCT :]

> «What the author seems to be aiming at is the development of a new approach to the symbolizing and handling of observations of physical class, more synthetic and integral than the differential equations in usual employ. He brings forward in his early discourse a number of topics that prone to be philosophically intense; the richness of any field of observation compared with the poverty of symbols, the possibility of observation in different levels both in space and time, the possibility of verification, etc. The physicist must pass judgement on the value of the author's technique, but the philosophical suggestions remain pretty largely underdeveloped in the sequel.»

And what is the phenomenological physics? Read up # 59, an excerpt subtracted from the Appointment of Order # 74.

[Perhaps in 1938, the culture of Gião not include art, classics, and philosophy. It is certainly the input Sophie Spira in your life that marks this turning.]

1939

March 1st - Wedding in Paris with Sophie Spira, Jewish descent lady, and Belgian nationality, art collector. The translation of the certificate is reproduced in # 95

32. "Mémorandum sur l'établissement de cartes synoptiques de la circulation générale de l'atmosphère", *Commission Internationale de Climatologi*e. Réunion de Salzbourg. Public. Secrétariat de l'O. M. I., 38, 114-117. (C)

[It is, five years after Lisbon and after the spoken refusal to # 19 in Oxford, the return to international Areopagus.]

Writes" Business Plan of a Study Centre on Weather Forecast Mathematics", # 89

[Analysis: In two years, the Gião attitude towards the community on the fundamental restructuring. Polemics with Wehrlé and Dedebant are outdated.

The 1937 projects - # 86 and # 87 - insisted on organizational and technical aspects, but Gião is now a completely different man.

Its size, as author within the phenomenological physics, you are recognized by the prestigious publisher Herrmann.

He can now launch an octave above, the proposed implementation of a mathematical methodology. It is the project # 89.

Let this way to take as a physical, but rather evolves into the physical-mathematical profile; and takes another approach - instead of letters to the community whose failure (in terms of answers as in financial) regrets now takes a more polarizing and central position, and the least element of a network of observatories, which have begun to exist without your competition.

1963 and 1964 reports (# 49 and # 50) to Scientific Data Centre, are part of a sequence of document # 89, as well as:

- The invention of analog calculating device whose sucesivas patents from 1952 reproduce at # 44;

- Much of the work we publish, particularly in the Science Data Centre.

An ambiguity has perhaps origin of this proposal - the symbolic appropriation for Bossolasco, proposing the Gião the direction of an institute (virtual) , as we will see in # A14]

33. "Nouvelles perspectives dans la prévision du temps", *La Nature*, Paris, 3047, 234-239. (C)

34. "Sur l'évolution continue des variables physiques", *Técnica, Lisbonne*, 101, 1-32. (B).

[It summarizes the applicability of Phenomenological Physics at atmospheric forecast, following a more detailed mathematical development than in (30)]

1940-41

[The Fact of Sophie being Jewish makes them travel first to the South of France (see interview with Verdet) and provides a return to Portugal, Sintra (Vila Necklace) reported in" Diário de Lisboa", and Reguengos) in 1941 (correspondence with the father and aunt Rita Josefa). Remain until 1947.]

1942

[Hesitates to return to France (in the interview to André Verdet, # 63, after meeting in Saint Paul de Vence)]

35. "Solution générale du problème de la prévision mathématique du temps à échéance quelconque", *Bul. Soc. Geograph.*, Lisbonne, 60, 233-272. (B)

[Innovation introduced in the equations, a term for the compressibility of air.

Scientific sociability change, the war ceases contact the *Zentralblatt* and shall be read in *Mathematical Reviews*.]

Recensionby T. G. Cowling (MR)

MR0025374 (9,634e) 76.1X
Gião, António
Solution générale du problème de la prévision mathématique du temps à échéance quelconque. (French)
Soc. Geograf. Lisboa. Bol. **60,** (1942). 233–272

The aim of the paper is to forecast values of a meteorological variable, given a suitable set of initial values. First conditions are found for the wave equation to possess a solution ψ inside and on a surface S, such that $\partial\psi/\partial n = 0$, $\psi = u$ on S, u being a given function of position and time. Next a rather obscure argument is expounded, enabling the values of u on S at an arbitrary time to be constructed from those of ψ inside S during a suitable initial interval. Finally, by an argument which the reviewer can neither understand nor credit, any general meteorological variable is identified with the solution ψ of the wave equation, so that the prediction problem is solved.

Reviewed by *T. G. Cowling*

[The tone of the review is not enthusiastic, unlike the magazine's preface. It is the time when the Geographical Society was exposed to photon theory Bernardes Miranda and Gago Coutinho contest relativity. Posterity will judge both unfavorably. Last text Phenomenological physics.

Although my work is not assumed as a critical study, it should be noted as the phenomenological perspective was shown already so inadequate. Inspired by energetismo, this view ignores a fundamental aspect in the structure of the universe, which is the heterogeneity of hierarchical levels of organization of matter, largely caused by the order of magnitude that makes the physical laws not comparable in different scales.

Region, in his time, could not guess these views, as they are responsible for the division of scientific disciplines (cosmology, astrophysics, geology, biology, biochemistry, chemistry, solid, fluid, nuclear physics, particles...).

The phenomenological perspective, or the part of it postulates the invariance of scale in the laws of natural phenomena persist perhaps not so assumed in those texts that Gião resembles the calculation of the magnetic moments of the particles and stars.]

1943

36. “Nouvelles recherches sur les perturbations spontanées du mouvement des fluides, avec des applications à l’hydrodynamique solaire”, *Bol. Soc. Geograf.*, Lisbonne, 61, 503-562; 62, 35-94 et 201-256. (C)

[This paper presents an unusual notation makes it very difficult to read.]

Recensionby T. G. Cowling (MR)

MR0025376 (9, 634g) 76. 1X Gião, António. Nouvelles recherches sur les perturbations spontanées du mouvement des fluides avec des applications à l’hydrodynamique solaire. (French)

Soc. Geograf. Lisboa. Bol. **62, (**1944). 35–94, 201–256

The motion in a fluid medium under steady external actions is divided into the steady (“entretenu”) part which those actions could maintain, and a perturbation part. The first half of the paper derives the equations of these two parts in recognizably usual forms; the derivation starts from the equations of a finite mass, and proceeds to those valid at a point. The entretenu motion is supp. osed assigned; viscous stresses are taken as sole cause of the difference between the entretenu and actual motions, and are replaced in the equations by terms representing the entretenu motion.

In solar hydrodynamics, the sun’s steady rotation is taken as the entretenu motion. It is determined, with good agreement with observation, by taking the body force of friction to vanish, with a supp. lementary assumption: surface viscous stresses are not considered. Sunspots are taken as the perturbations. They are regarded purely as vortices; their thermal properties are not considered, and their magnetic properties are interpreted simply as implying a related vorticity. Suggested explanations of their stability, distribution with latitude, and vorticity and other properties are advanced.

Reviewed by *T. G. Cowling*

[It is a text that remains the problem of (22) , in which reference the Werhlé co - author is sovereignly ignored. Innovation focuses tells us Gião, the rotation of sunspots.]

1944

37. “Even the vibrations of the atmosphere according to the theory of spontaneous disturbances”, Science, Madrid, 10, 795-817.(C) Communication to the Luso - Spanish Congress for Progressive Science in Cordoba].

[Application of differential operators to pressure variations. In this symposium, will intersect with Ruy Luís Gomes, without, again, contact dash between them. It is also the time when the” estrangeirado Reguengos” turns to interests as relativists, such as the Porto Master.

He is Vice - Secretary of the Section of Meteorogia the Geographical Society; the Secretary is Captain Manuel Ferreira.(Bulletin, 1944).]

1945

[Therefore it is written as having occurred and being in progress, I am led to dating # 60 as being written in 1945.

The indicated activities have a tone that allows can be interpreted as free participation, or by invitation, in scientific activities. In the way it expresses its work, the anonymous author, which seems to be Gião, focusing the dynamics of ideas at the expense of institutional experience. One difficulty that becomes applicant, when trying to find objective trademarks of their life scientist.

The last two jobs data as” in preparation”, no entry or remaining manuscripts.]

1946

[In 1946, the scientific profile of Gião is already quite another. Studied the tensor calculus, differential operators, relativity, the particles. Launches heart and soul in these scientific areas, making contacts at the highest level, which is witnessed by

correspondence. In Lisbon, its partners are Valadares, ZALUAR Nunes, Marques da Silva, as the correspondence reproduced in # 12 allows to demonstrate. Are prominent figures of"Mathematical Movement", and come to be recognized in University by Salazar in 1947.

But is oblivious to the foundation of the Portuguese Meteorological Service, created this year by Amorim Ferreira, Teacher had built a government of Salazar. Perhaps because of his bad relations with Dedebant, which, in 1947, teaches at the Faculty of Sciences of Lisbon. I gather this is not scientist is linked to the establishment of the Office.

But in 1946 Dedebant already in Portugal; proves it's dedication to a then student of Ruy Luis Gomes in Port:

"To M. José Tiago da Fonseca Oliveira
Hommage d'auteur
Pôrto 23 Mai 46
Dedebant",

to each of the volumes of the" Mécanique Aléatoire"(1946) he had just written with Wehrlé.

Correspondence with Quirino Majorana, the letter # 61.

It is the first time the concept of Being Mathematical Not Arbitrary is quoted.

Correspondence with Einstein; four cards are played at # 11. Einstein seems to be little interest in the point of view of Gião, a subject that I frame later. Enter the number of scientists who sends (38) proposing the creation of a magazine - # 90 - thus initiating correspondence with Schrödinger].

38. "Le problème cosmologique généralisé et la mécanique ondulatoire relativiste", *Portugaliae Physica*, 2, 1-98. (A) , (redigida em Dezembro de 1944).

[Total change of subject, because the subject arises (A) , fundamental physics. A

similar change in the style of exposition. The text states present a Cosmological Principle able to make a synthesis between relativity and the microphysics.

Themes:

- Complete and arbitrary mathematical beings. The Emna - existence and uniqueness.

- Number of unknowns and degrees of freedom.

- Cosmological models (opting for oscillatory scenario De Sitter,”slightly deformed by the existence of matter") ;

- Mass of particles as a proper amount of differential operators (plethora of solutions, in descending order.) ;

- Internal and external metrics, associated respectively gravitation and electromagnetism.

- Calculability of the masses of elementary bodies (p. 58). Note the term”proper" mass emerges as an eigenvalue of a linear operator, as well as the load (p. 64).

- Style:

Defined the”Be Not Arbitrary Math" by an axiomatic minimal, the physical results are presented as theorems.

Language is not dogmatic and assertive rare, ie, seeks to derive physical results usually considered independent, which are presented as the same cosmological principle consequences.

I understand that this is one of the central works for understanding the work of Gião.

The remaining 37 texts of class (A) written until 1951, and the 1957, take up these themes and language. All of them will be abandoned in the texts (A) 60s.

Methodological note:

The profile of Gião players came with your change of interest; periodic in that they publish, and thus the methodology of the present Thesis and also change accordingly.

Why are accessible online, those published in Mathematical Reviews - when cited, are offered by the acronym MR - appear as links and are listed in order, in the” Online reference"; those published in” Physics Abstracts” are included, from photocopying, in JPG files.]

Book Review by C. Strachan, the mathematical physicist of Aberdeen that best will have penetrated the hard thinking Gião:

MR0017198 (8,121e) 81.0X

Gião, Antonio

Le problème cosmologique généralisé et la mécanique ondulatoire relativiste. (French)

Portugaliae Phys. **2,** (1946). 1–98

A nonarbitrary mathematical scheme (n.-a.m.s.) is defined to be such that the "content" of the scheme, that is, the set of functions "contained" in it, determines completely the intrinsic properties of structure and form of the mathematical framework, or "container," and vice versa. Every n.-a.m.s. is postulated to be the basis of some physical existence. The author considers Riemannian N-dimensional spaces e_N immersed in an e_{N+1} and claims that there is only one n.-a.m.s. among these subspaces. The metric for e_{N+1} is (1) $d\Sigma^2 = \Gamma_{\mu\nu} dX^\mu dX^\nu$ and the internal and external metric forms for e_N are, respectively, (2) $ds^2 = g_{ik} dx^i dx^k$ and (3) $d\Omega^2 = \omega_{ik} dx^i dx^k$, where $\omega_{ik} = X^\mu_{;ik} n_\mu$, n^μ being the unit vector normal to e_N in e_{N+1} and $X^\mu_{;ik}$ the second tensor derivative of X^μ with respect to the x's. Intrinsic properties of (2) and (3) are taken to be represented by symmetric tensors of the second order satisfying the usual conservation laws. For familiar reasons the equations

$$(4) \qquad R_{ik} - \tfrac{1}{2} g_{ik}(R + \lambda_g) = \kappa_g \Gamma_{ik}, \quad (5) \quad S_{ik} - \tfrac{1}{2}\omega_{ik}(S + \lambda_\omega) = \kappa_\omega U_{ik},$$

corresponding to (2) and (3), respectively, are considered. A simple comparison of the number of equations (including those of Gauss and Codazzi) with the number of unknowns is taken to imply that $N = 4$ and that (2) is of class one. Eigenfunctions (column matrices) Ψ^n of the familiar operator equation (6) $\varepsilon^i \partial\Psi/\partial\rho^i = -\sqrt{(\alpha)}\Psi$ are used to express T^{ik} in the form

$$(7) \qquad \Psi_n{}^\dagger (\varepsilon^i)_n \frac{\partial \Psi^n}{\partial \rho_k} - \frac{\partial \Psi_n{}^\dagger}{\partial \rho_k} (\varepsilon^i)_n \Psi^n + \Psi_n{}^\dagger (\varepsilon^k)_n \frac{\partial \Psi^n}{\partial \rho_i} - \frac{\partial \Psi_n{}^\dagger}{\partial \rho_i} (\varepsilon^k)_n \Psi^n$$

and similarly for Φ_n and U^{ik}. Here ρ_i are local orthogonal geodetic coordinates and, for each n, ε^i are 4×4 matrices satisfying $\varepsilon^i \varepsilon^k + \varepsilon^k \varepsilon^i = 2\delta^{ik} I$. Metrics (2) and (3) are both found to be hyperbolic normal and the author discusses, in the function- and number-content of the n.-a.m.s., the usual scalars, pseudo-scalars, polar and axial vectors, and the antisymmetric tensors arising from the ε^i as bilinear forms in the Ψ^n and in the Φ^n. An approximate solution of (4), (5), etc. gives a space-time of de Sitter-Lanczos type with constant mean curvature and it is concluded that an accurate solution would yield a natural unit of length.

The physical interpretation correlates T^{ik} with the energy-momentum tensor of matter, the ω_{ik} with the description of the electromagnetic field, and the above-mentioned bilinear forms with various mass- and charge-current density vectors, mechanical and electromagnetic moment tensors, etc. In this interpretation the relations (8) $\omega_{ik} = \chi g_{ik}$, where χ is a constant corresponding to constant mean curvature, are essential.

The elementary corpuscles of the universe have an enumerable infinity of increasing positive masses and of decreasing negative masses. Similarly for the elementary charges in the universe. Only the numerically smallest contribute appreciably to their respective metrics. The rays of electromagnetic radiation are null geodesics for (3), and also for (2) provided (8) holds. The constants c and h are introduced in a "nonarbitrary" manner, neutrons and protons occur as close unions of electrons, and mesons are incomplete protons and neutrons.

A cosmological wave-mechanics is considered. The usual "intensity" interpretation is given to the coefficients in the expansion of Ψ^n or Φ^n in terms of the eigenfunctions of an operator, although the usual probability interpretation of quantum-theory is rejected as being unsuitable for a n.-a.m.s. The locations of elementary proper masses and of elementary charges coincide only to the approximation in which (8) holds. The operators representing spin, magnetic moment, and momentum are considered in the appropriate generalisation, and the expected conclusions are drawn.

There are extremely few references.

Reviewed by *C. Strachan*

[A summarizing Strachan, as benevolent, omits the difficulty of"close union" of electrons with identical mass and opposite charge antiparticles... and attentive to the applicant bibliographical gap in the works of Gião. There is a reference to a book Einstein, another to Louis de Broglie from" L' électron magnétique". Implicit references, expressed by proper names, just the Ricci calculus, equations of Codazzi, the Sitter - Lanczos In cosmology.

This text is seminal in thinking Gião in particle physics, which will advocate a bold hypothesis, and cosmology.]

523.11 : 530.145 = 4 2737

The generalized cosmological problem and relativistic wave-mechanics. GIÃO, A. *Portugaliae Physica*, 2 (*No.* 1) 1–96 (1946) *In French.*—A new theory of the unification of general relativity and quantum mechanics leading, amongst other results, to Eddington's relation for the total number of elementary particles in the universe. The initial premise of the theory is that the metric of space-time must be completely and uniquely determinable by its defining equations, which are taken to be the formal analogues of Einstein's gravitational equations (with cosmical constant) for the first and second differential forms characterizing the space-time. By means of this notion of "complete determinability," the author shows that (*a*) space-time must have three "spatial" and one "temporal" dimensions, (*b*) it must be a subspace of a flat 5-dimensional manifold. Again, the "energy-tensors" occurring in the gravitational equations must be expressible in terms of two sets of wave-functions Ψ_{mn} (for the first differential form) and Φ_{mn} (for the second). In the first approximation the first differential form of space-time is

$$ds^2 = -d\tau^2 + P^2(\tau)\{d\theta^2 + \sin^2\theta(d\phi^2 + \sin^2\phi d\psi^2)\}$$

with $P(\tau) = P_0 \cosh(\tau/P_0)$, ($P_0$, a constant)

The second part of the paper deals with the physical interpretation in terms of gravitational, electromagnetic, etc., field-variables of the various vectors, tensors, etc., derived from Ψ_{mn} and Φ_{mn}. It follows that the paths of light-rays are null-geodesics of the second differential form and only in special cases of the first as well. Elementary particles may have different masses and charges. Finally the Eddington relation above referred to, as well as the ratio of

Recensão in"Physics Abstracts":

[Incomplete Scan]

39. “Forces nucléaires, gravitation et électromagnétisme”, *Portugaliae Mathematica*, 5, 145-193. (A)

40. “Quelques propriétés des fonctions d’onde cosmologiques des particules élémentaires”, *Gazeta de Matemática*, 7, Lisbonne, n. º 30, 4-5. (A)

Recencions at (39) por C. Strachan (MR)

MR002502503 (8, 555c) 81. 0X

This summarises work already reviewed [Portugaliae Phys. **2,** 1–98 (1946); MR0017198 (8,121e), and the paper reviewed above] and refers to forthcoming related work.

MR0020502 (8,555c) 81.0X
Gião, Antonio
Forces nucléaires, gravitation et électromagnétisme. (French)
Portugaliae Math. **5,** (1946). 145–193

This continues previous work by the same author [Portugaliae Phys. **2,** 1–98 (1946); MR0017198 (8,121e)] and part of this is given again here at some length. Equations of motion for the elementary mass-corpuscles and for the elementary charge-corpuscles, the two not being necessarily coincident in space, are derived by integration of the divergences of the previously introduced tensors T_n^{ik}, U_n^{ik} for each corpuscle n. These tensors are each expressed as the sum of a part referring to the motion of the mean centre of the corpuscle and a part referring to the internal structure of the corpuscle, the former part in each case being identified with the usual tensor of general relativity, referring however to the internal and external metrics for the mass- and charge-corpuscles, respectively. For particles having both mass and charge it is supposed that the metric is given by a linear combination of the g_{ik}, ω_{ik}. For an approximately flat space-time these equations produce forces which are identified with the Lorentz force, the force of gravitation and nuclear forces. By a series of definitions, whose justification is not apparent to the reviewer, equations are derived having formal resemblance to those of a type of meson field.

Reviewed by *C. Strachan*

Recencion at (39) and at (40) in"Physics Abstracts"

530.14 = 4 2018

Nuclear, gravitational and electromagnetic forces. GIÃO, A. *Portugal. Math.*, 5 (*No.* 3) 145–92 (1946) *In French.*—The aim of this work is to show that the cosmological theory developed earlier [Abstr. 2737 (1946)] allows the three types of forces to be united into a single principle. Wave functions for elementary particles and the energy-momentum tensor are set up and their properties are discussed. The equations of motion are deduced from the principle of conservation of the energy-momentum tensor, and this involves a study of the equations of geodesics in the presence of the three types of forces mentioned. The meson field is discussed and the equations of the field are developed. L. S. G.

530.14 = 4 2019

Some properties of cosmological wave functions for elementary particles. GIÃO, A. *Gaz. Mat.*, 7, 4–5 (*Nov.*, 1946) *In French.*—Previous work [Abstr. 2018 (1947)] is continued and the use of the wave functions in the treatment of radiation is discussed. The principle physical properties that may be deduced from the various wave functions are tabulated. L. S. G.

L. S. Godadrand, B. Sc., Pl. B.

[How will henceforth usual, the recension of the physical is more favorable than that of mathematicians. Note how the deduction is quoted : directly, without critical engagement that the use of this word today is; which suggests that the argument Gião would be in the spirit of some of the physicists of the time.

In the diagram # 62, arising from (39) structure is an attempt to unified field theory. This is the first printed the word" microelectrão"((40) , p. 2) , as suggested in the letter to Einstein as an alternative to"hypothetical neutrino."].

[The Secretary of the Geographical Society of Meteorology Section is Major Manuel Ferrreira; his deputy is Dr. Antonio Gião (Bulletin, 1946).]

1947

[February 2, 1947 - Dedebant sign your timesheet as regent of Meteorology at the Faculty of Science -. Process in AHMCUL]

[It will be for the year Gião largest and most dispersive publication in scientific, on themes as the different times of their long ago of Meteorology.]

41. “Sur l’existence de microélectrons”, *Comptes rendus Acad. Sc. Paris*, 224, p. 454. (A).

[There then there will be book reviews this text reproduced at # 25; framework to see # 21 and following documents.]

42. “Sur la propagation de la lumière dans un champ électromagnétique”, *Comptes rendus Acad. Sc. Paris*, 224, 1212-1214. (A)

Recension by C. Strachan (MR)

MR0020883 (8,608g) 83.0X
Gião, Antonio
Sur la propagation de la lumière dans un champ électrostatique. (French)
C. R. Acad. Sci. Paris **224,** (1947). 1212–1214

In previous work by the author [Portugaliae Phys. **2,** 1–98 (1946); Portugaliae Math. **5,** 145–193 (1946); MR0017198 (8,121e), 555] electromagnetic phenomena were assumed determined by the external metric (1) $d\Omega^2 = \omega_{ik}dx^i dx^k$ of space-time just as gravitational phenomena are supposed determined by the internal metric (2) $ds^2 = g_{ik}dx^i dx^k$. Rays of light are null geodesics for (1), and for (2) if space-time has constant mean curvature. A formula is derived for the deviation of light rays in a spherically symmetrical electrostatic field analogous to that produced by a gravitational field.

Reviewed by *C. Strachan*

Recension in”Physics Abstracts”:

535.1 = 4 2085

The propagation of light in an electrostatic field. GIÃO, A. *C.R. Acad. Sci., Paris*, **224,** 1212–14 (*April* 21, 1947) *In French.*—A novel electro-optical effect—the bending of light rays by an electrostatic field analogous to the Einstein deviation in a gravitational field—is derived from the author's synthesis of general relativity and wave-mechanics [Abstr. 2018 (1947)]. The formula derived for the deviation of the rays appears to be capable of experimental verification. V. C. A. F.

V. C. A. Ferraro, Ph. D., F. R. A. S.

[The expectation of experimental confirmation translates some greater sympathy in the last couple of book reviews of this almost identical content.]

43. “Sur la masse propre des mésons”, *Comptes rendus Acad. Sc. Paris*, 224, p. 1275. (A).

[Appears in this work the model of heavy particles (mesons, baryons) that will

designate as" molecular" - such particles would be formed by coalescence of electrons and microelectrões, these yes, truly elemental.

The lack of" reviews" to (41) indicates prudence and reserve the scientific community, except De Broglie - in whose workshop part - and Schrödinger - whom he corresponds more regularly in this regard.

I must also mention that the coalescence of electrons and positrons is incompatible with that was already known about antimatter. Not me is easy to understand the lack of discussion on this point, for those who are still so close to Louis de Broglie.]

Recension in"Physics Abstracts", purely descriptive.

530.14 = 4 3421

On the proper mass of the meson. GIÃO, A. *C.R. Acad. Sci., Paris*, **224**, 1275–7 (*May 5*, 1947) *In French.*— The masses of neutron, proton and meson can be obtained by a theory that they are formed in a contracting universe by the association of + and — electrons.

G. J. K.

G. J. Kynch

44. "Sur le magnétisme des masses en rotation", *Comptes rendus Acad. Sc. Paris*, 224, 1813-1815. (A)

Recensionby C. Strachan (MR)

MR0021749 (9,107g) 83.0X

Gião, Antonio

Sur le magnétisme des masses en rotation. (French)

C. R. Acad. Sci. Paris **224**, (1947). 1813–1815

The relation $M_{\text{magn.}} = (\beta\sqrt{K}/2c)M_{\text{rot.}}$ (K the constant of gravitation, c the speed of light, β a numerical constant about $\frac{1}{4}$), connecting the angular momentum of rotation and the magnetic moment sufficient to produce the observed magnetic fields, has been shown to be satisfied for the earth, the sun and the star 78 Virginis and has been suggested to be a general relation [Blackett, Nature **159**, 658–666 (1947)]. The present author states that for a nonelectrified uniformly rotating spherical mass the coefficients g_{ik}, ω_{ik} of the first and second fundamental forms (his "internal" and "external" metrics to which, respectively, he relates gravitational and electromagnetic phenomena) satisfy $\omega_{4i} = \text{constant} \cdot g_{4i}$ $(i = 1, 2, 3)$. The values of g_{4i} are those given by Lense and Thirring [Phys. Z. **19**, 156–163 (1918)]. From this relation and from his previous work [Portugaliae Phys. **2**, 1–98 (1946); MR0017198 (8,121e)] he deduces a connexion of the above type between magnetic moment and angular momentum.

Reviewed by *C. Strachan*

Recension in"Physics Abstracts":

530.12 : 538 = 4 3046

On the magnetism of rotating masses. GIÃO, A. *C.R. Acad. Sci., Paris*, **224**, 1813–15 (*June* 30, 1947) *In French.*— The author's unified field theory [Abstr. 2018 (1947)] is used to show that the magnetic moment of an uncharged rotating sphere = $kG \times$ its angular momentum, k being a constant involving the mean curvature of space-time. Blackett's result [Abstr. 1715 (1947)] follows on the assumption $k = \beta/cG^{\frac{1}{2}}$. R. A. N.

530.14

R. A. Newing, Dipl. Ing., A. M. I. Mech. E.

[Note the reference to Patrick Blackett, the great experimentalist who Gião have regular contact in the only field where the relationship with the observation was systematically crowned with success - astronomy. It is another of the rare times when Gião is in sync with the" state of the art." - Six weeks after the result of Blackett, is the explanation given by Gião]

45. « Analyse du livre de H. Jeffreys et B. S. Jeffreys:"Methods of Mathematical Physics" », *Gazeta de Matemática*, Lisbonne, 33, p. 24. (D).

[Críticas severas a uma obra complementar ao texto de Courant-Hilbert"Mathematical Physics", mais"fisicalista", sem no entanto, recorrer às ferramentas que Gião designou como necessárias à investigação – Tensores, espaços de Riemann. Nesta recensão é um Gião assumidamente matemático que escreve.]

46."Théorie des particules fondamentales. I. Particules élémentaires", *Portugaliae Mathematica*, 6, 67-114. (A).

[Here comes the term"emnon", existing elementary particles in the universe, it would be the"Être Mathématique Non arbitraire" as we know is the point of view of Gião.

This is a background text. Region using the fact that the mechanical observable

particles are eigenvalues of linear operators.

Generalizes this argument to the mass of the particles, and argues that the appropriate operator to electron has an infinite number of eigenvalues.

The result is a spectrum of decreasing masses - the microelectrões].

Recensionby C. Strachan

MR0024865 (9,558m) 81.0X
Gião, Antonio
Théorie des particules fondamentales. I. Particules élémentaires. (French)
Portugaliae Math. **6,** (1947). 67–114

The author's theories [for example, Gaz. Mat. Lisboa **7,** no. 30, 4–5 (1946); MR0020503 (8,555d)] allow particles of matter with a spectrum of masses and particles of electricity with a spectrum of charges: here he supposes "fusion" of elementary particles to form heavier particles during a phase of contraction of the universe, and discusses spin momenta, magnetic moments, and uncertainty relations for these "microelectrons." The flexibility of a spectrum of sub-electronic masses is applied to the theory of beta-ray spectra. Photons and the electromagnetic field are discussed.

Reviewed by *C. Strachan*

Telegraphic recension in"Physics Abstracts":

530.145 : 530.12 : 539.165.2 = 4 1430

The theory of fundamental particles. I. Elementary particles. GIÃO, A. *Portugal. Math.*, 6 (*Nos* 1–2) 67–114 (1947) *In French.*—The cosmology previously outlined [Abstr. 2737 (1946), 2018 (1947)] is applied to find the

530.145

principal properties of the elementary particles, including microelectrons with charge and mass < that of the electron. β-decay is briefly discussed in terms of these.

G. J. K.

530.145 : 535.1 : 539.18 = 3 *see Abstr.* 1660

530.145 : 537.122 *see Abstr.* 1542

530.145 : 537.122 = 3

G. J. Kynch, Pl. B., A. R. C. E., D. I. C.

[Here the commitment is less of Physics of the magazine than the mathematics.

In footer, Gião announces the preparation of a more detailed text for publication in”Actualités Scientifiques et Industrielles", which was unprecedented and reproduce, excluding a chapter in # 26.

Appears in (46) an idea that will run sequence: the photon spin 1 / n, that reappear in # 26].

47.“Le problème atmosphérique d’après la théorie des perturbations spontanées”, *Portugaliae Physica*, 2, 203-234. (C).

[In this text is given by solved the problem of”predictive vector".

topics:

- Spectral intensity of the properties of space-time systems;
- All Laplacian system is Hamiltonian, but not vice versa;
- The probability density concept is inapplicable to:

a) internal and external metrics with constant coefficients;

b) systems limited by surfaces orthogonal to coordinate time.

The conclusion Gião is determinism of physical systems.]

Recensionby T. G. Cowling (MR)

MR0025377 (9,634h) 76.1X
Gião, António
Le problème atmosphérique d’après la théorie des perturbations spontanées. (French)
Portugaliae Phys. **2,** (1947). 203–234

The equations derived in the paper reviewed above are applied to meteorology, after simplifying by omitting certain terms. Two vectors, defined as complicated functions of the “entretenu” motion, are used to calculate the motion of fronts. A differential equation is found for the pressure at the earth’s surface in terms of the same two vectors, and is solved formally by successive approximations and by expansion in terms of normal oscillations. A method of solution of the general equations by successive approximations is also indicated.

Reviewed by *T. G. Cowling*

Recension in”Physics Abstracts”:

551.515.11

356. The atmospheric problem according to the theory of spontaneous perturbations. GIAO, A. *Portugal. Phys.*, 2 (*Nos* 3–4) 203–34 (1947) *In French.*— It was shown earlier that the fundamental theorems of spontaneous perturbations lead to a rational explanation of the principal phenomena of solar hydrodynamics. A system of three equations with partial derivatives of the first order (one vectorial and two scalar equations) when solved provides a general solution of the problem of movement of a fluid, when the direct hydrodynamic effect of external forces on the medium is known. This theory is here applied to the problem of atmospheric perturbations. A complete solution is obtained which can be applied mathematically for the forecasting of weather over periods $<$ 48 hours. R. S. R.

R. Shread, M. A., B. Sc., A. R. C. S., F. inst. P.

[The recension of the physical is further and takes both a positive tone.]

48. “Intensité et probabilités dans les systèmes spatio-temporels”, *Bol. Soc. Port. Mat. (*A) , 1, 29-42. (A).

Recensionby H. C. Corben (MR)

MR0026968 (10,228h) 81.0X
Gião, Antonio
Intensité et probabilité dans les systèmes spatio-temporels. (French)
Bol. Soc. Portuguesa Mat. Sér. A. **1,** (1947). 29–40

The author defines Laplacian and Hamiltonian systems according to whether the equations of motion are expressible in terms of differential operators of the second or first order, arguing that the first category includes the second but that the second includes the first only if relations analogous to the commutation laws of the Dirac α-matrices are valid. From a study of the conservation laws of such systems he concludes that wave mechanics of a conservative system cannot be interpreted in terms of probability phenomena in the general case where gravitational and electromagnetic forces exist. There follows a discussion of the effect of metric fields on the wave equations.

Reviewed by *H. C. Corben*

Recension in”Physics Abstracts”:

530.14 = 4 1427

Intensity and probability in space-time systems. GIÃO, A. *Bol. Soc. Portuguesa de Mat.*, 1A (*No.* 2) 29–40 (1947) *In French.*—Continuing previous work [Abstr. 2018 (1947)], a distinction is made between Laplacian and Hamiltonian systems according to the behaviour of wave functions with respect to linear operators. The concept of probability density is considered and found to be applicable only in restricted regions of space. The influence of metric fields on wave functions is also considered. R. A. N.

(R. A. Newing)

[Sober Book reviews, the deeper the Corben. Again Gião argues against indeterminism-may have begun to do so in # 4, which seems to be a previous study of this and other publications.

On pp. 38-39 applies the equations deducted from electrons and microelectrões, referred to as consensus - in Gião previous texts presented them reargumentando always.

First work written after the death of the Father,"pieusement dédié to sa memoire".

Interview # 63"L'Algèbre du Monde", by artist André Verdet; # 64 informs us about that his friend, the only vestige of Parisian sociability in the art world that found evidence in the House Gião.

The last publication, as posthumous (1986) of Gião analyzes a poem of this author that interviewed 39 years before.

This relationship attests to the quality of the artists tout-Paris with whom the couple deprives in Paris- among other names, the pianist Landowska Vanda, singers Barbara and Juliette Greco (video testimony Luís Gonçalves Pires).]

49. "Sur la relation entre le moment magnétique et le moment de rotation des masses sphériques", *Comptes rendus Acad. Sc. Paris*, 225, p. 924-926. (A).

Recensionby C. Strachan (MR)

MR0023206 (9,320e) 81.0X
Giao, Antonio
Sur la relation entre le moment magnétique et le moment de rotation des masses sphériques. (French)
C. R. Acad. Sci. Paris **225,** (1947). 924–926

Further consideration is given to the deduction of Blackett's relation between the magnetic moment and the moment of momentum of a rotating star from the author's cosmological theories [Portugaliae Phys. **2,** 1–98 (1946); Portugaliae Math. **5,** 145–193 (1946); same C. R. **224,** 1813–1815 (1947); MR0017198 (8,121e), 555; **9,** 107].

Reviewed by *C. Strachan*

530.12 : 538 = 4 2696

On the relation between the magnetic moment and the angular momentum of spherical masses. GIÃO, A. *C.R. Acad. Sci., Paris*, **225**, 924–6 (*Nov.* 17, 1947) *In French.*—Earlier work [Abstr. 3046 (1947)] based on the author's unified field theory is extended. It is shown that the ratio of the magnetic moment to the angular momentum of a rotating body is equal to a positive or negative constant, the constant including a numerical coefficient whose value is unity in the case of uniform angular velocity and spherically symmetric density distributions. [See also Abstr. 2004, 3026–7 (1948)]. R. A. N.

R. A. Newing

[Both book reviews are brief and benevolent.]

1948

50. "Analyse du livre de W. Heitler:"Wave Mechanics", *Gazeta de Mat.*, Lisbonne, 35, 22-23. (D).

[Reading note examines in detail the problems treated"à l'usage des physiciens"; regrets the choice of exterior calculus instead of the tensor.

Nevertheless, Gião considered to be the best math for physical work written after release.

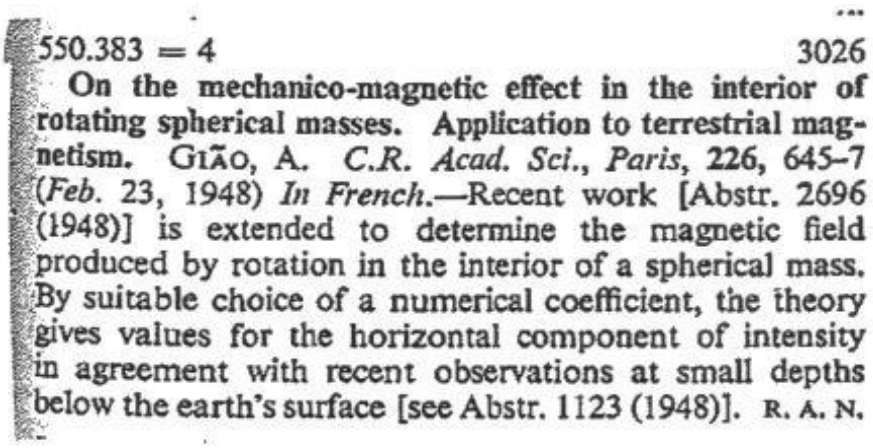
"The book is dedicated to the memory of Georges Bruhat, which should have addressed this collection had he not been murdered by the Germans in a concentration camp like so many other Jewish intellectuals".

The quote is a translation of the end of the text A. Gião.]

51. "Sur l'effet mécanomagnétique à l'intérieur des masses sphériques en rotation.

Application au champ magnétique terrestre", *Comptes rendus Acad. Sc. Paris*, 226, 645-647. (A).

Recensão in"Physics Abstracts":



550.383 = 4 3026

On the mechanico-magnetic effect in the interior of rotating spherical masses. Application to terrestrial magnetism. GIÃO, A. *C.R. Acad. Sci., Paris*, **226**, 645–7 (*Feb.* 23, 1948) *In French.*—Recent work [Abstr. 2696 (1948)] is extended to determine the magnetic field produced by rotation in the interior of a spherical mass. By suitable choice of a numerical coefficient, the theory gives values for the horizontal component of intensity in agreement with recent observations at small depths below the earth's surface [see Abstr. 1123 (1948)]. R. A. N.

R. A. Newing

Recensionby C. Strachan (MR)

MR0026969 (10,228i) 81.0X
Gião, Antonio
Sur l'effet mécanomagnétique à l'intérieur des masses sphériques en rotation. Application au champ magnétique terrestre. (French)
C. R. Acad. Sci. Paris **226,** (1948). 645–647

From his previous work [same C. R. **225,** 924–926 (1947); MR0023206 (9,320e)] the author gives a value for the magnetic field in the interior of the earth in order to compare it with measurements of Hales and Gough [Nature **160,** 746 (1947)] in a Transvaal mine-shaft.

Reviewed by *C. Strachan*

[In relief on both compliance with the observations.]

52. "Proprietés magnétiques de la matière en rotation", *Gazeta de Mat.*, Lisbonne, 34, 9-12; 35, 10-12. (A).

[The argument is dizzying: the same model seeks to explain, from the spin, the magnetism of the electron, the baryons (seen as aggregates) and stars, and that the correspondence with Babcock in this regard.]

Recensionin"Physics Abstracts":

530.1 : 538 = 4 2004

Magnetic properties of rotating matter. GIÃO, A. *Gaz. Mat.*, **8**, 9–12 (*Nov.*, 1947) *In French.*—Amplifies an earlier discussion of the magnetism of a rotating sphere [see Abstr. 3046 (1947)]. R. A. N.

(R. A. Newing)

53. “Sur le champ magnétique à l’intérieur de la Terre”, *Comptes rendus Acad. Sc. Paris*, 226, p. 1298. (A)

[Direct Sequence (52).]

54. “Origine microélectronique de certaines anomalies de l’effet Hall”, *Comptes Rendus Acad. Sc. Paris*, 226, p. 1177. (A)

[Attempt to experimental validation of the model n (41).

First Reference, casual, bismuth properties, element that will come to be treated in the theme of Piccardi, Rara a writer who values more tenuous physical field that hard matter and dense materials.]

Recension in”Physics Abstracts”:

538.632 : 530.14 = 4 3842

The micro-electronic origin of certain anomalies in the Hall effect. GIÃO, A. *C.R. Acad. Sci., Paris*, **226**, 1177–9 (*April* 12, 1948) *In French.*—A current of micro-electrons [Abstr. 1430 (1948)] could explain certain anomalies in the Hall effect attributable to a current of positive ions. G. J. K.

G. J. Kynch, Ph. P., ARCS, D. I. C.

[Totally uncompromising assessment.]

55. “Sur les transformations de Lorentz internes et externes et le vent d’éther”, *Comptes rendus Acad. Sc. Paris*, 226, p. 2051. (A).

[It is nominally text presented first by Louis de Broglie, and addresses the criticism of relativity and vindications of absolute space. Brief reference to Miller's

experiences, Piccard, Stahel, twenty years later and more accurate than the Michelson-Morley, revealing a”petit vent d'éther". (55) will be one of the points where the thought of Gião resembles that of Piccardi, a theme that will be developed more systematically within the reported conference in # 29.]

530.12 : 535.1

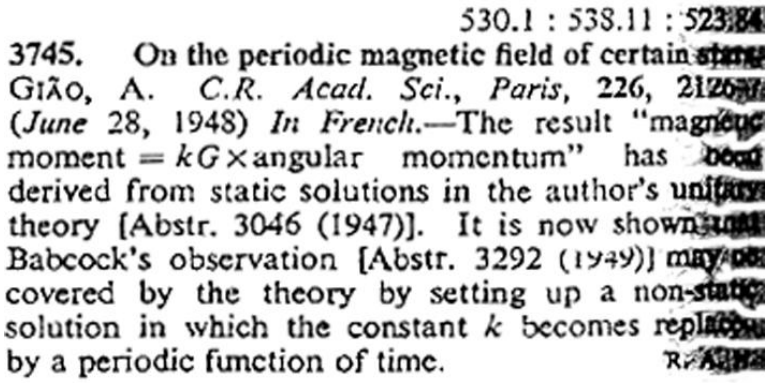
2328. On the ether-drift and the internal and external Lorentz transformations. GIÃO, A. *C.R. Acad. Sci., Paris*, **226**, 2051–3 (*Jihe* 21, 1948) *In French.*—In the author's unitary theory involving internal and external space-time metrics [Abstr. 2018, 2085 (1947)], light rays are not in general null-geodesics of the internal metric. A strong electric field will involve a slight anisotropy in the velocity of light in vacuo. It is conjectured that this may explain Miller's observations of a small ether-drift [Abstr. 3366 (1933)]. R. A. N.

Recensionin”Physics Abstracts”:

R. A. Newing

56. “Sur le champ magnétique périodique de certaines étoiles”, *Comptes rendus Acad. Sc. Paris*, 226, p. 2126. (A).

Recensionin”Physics Abstracts”:



530.1 : 538.11 : 523.84

3745. On the periodic magnetic field of certain stars. Gião, A. *C.R. Acad. Sci., Paris*, 226, 2126 (*June* 28, 1948) *In French.*—The result "magnetic moment = $kG \times$ angular momentum" has been derived from static solutions in the author's unitary theory [Abstr. 3046 (1947)]. It is now shown that Babcock's observation [Abstr. 3292 (1949)] may be covered by the theory by setting up a non-static solution in which the constant k becomes replaced by a periodic function of time. R. A. Sa

57. "Théorie des particules fondamentales. II. Particules non-elementaires (protons, neutrons, mésons) ", *Portugaliae Mathematica*, 7, 1-44. (A)

[At this point, Gião still do not know who is intellectually isolated. The absence of both reviews as quotes is a deafening silence. A central concept is that of"hyperemnon" compound"molecular" of"emnons" arising in (46). This word born and die here, between pages 1 and 16. Between this and the 21 already studying a particular case, the calculation of the mass of the proton and neutron. As in (52) , the point at which tune with the science of time is the dynamic estelar- pp. 42-43.

What was accepted in (43) , (46) and (54) - the microelectrão as an explanation for the mesons and Hall effect - does not deserve any sympathy when applied to baryons.

Strengths of the text: the instability as an explanation of the decay of mesões- pp. 22-23, the atomic nucleus, p. 25 et seq.]

58. Analyse du livre de A. Lichnérowicz:"Algèbre et Analyse Linéaires", *Gazeta de Mat.*, Lisbonne, 37-38, p. 45. (D).

[The correspondence is diversified, with René Cordebas (# 66) and Nubar Zareh (# 67).

In these cases, authors of theories or models little known outside French-speaking environment, sympathize with propositions Gião under their own work.

Do not know whether Gião have responded.

I found the logical calculating device that at # 67 in the House António Gião.

The study of Zareh personality revealed an Armenian statesman, contact Calouste Gulbenkian. (* 7)

Resumed correspondence with Schrödinger - after the letter # 65, the discussion continues at # 68.

Exposure than have been the tone of some texts - the interrelationship between the electromagnetic formalization, particles, and the macroscopic objects. To the objection of non-relativism by Schrödinger, Gião responds with elegance"Einstein's theory is half of another more general theory", thus clearly showing its immense intellectual ambition.

Sir Patrick Blackett receives the Nobel Prize in Physics. One of the foundations of this reward is your work around to cosmic rays.]

1949

59. Sur les rapports entre gravitation et électromagnétisme déduits des équations de Codazzi:"Application au champ électromagnétique général des astres", *Comptes rendus Acad. Sc. Paris*, 228, p. 812. (A)

[Includes a tentative explanation of cosmic rays.]Referência minimal in"Physics Abstracts"

530.12 : 521.038

6736. On the relations between gravitation and electromagnetism deduced from Codazzi's equations. Application to the general electromagnetic field of stars.
GIÃO, A. *C.R. Acad. Sci., Paris*, **228,** 742–4 (*Feb.* 28, 1949) *In French.*—See Abstr. 3745 (1949).

60. "La constante cosmologique gravifique et les équations de Gauss d'une hypersurface", *Comptes rendus Acad. Sc. Paris*, 228, 812-813. (A)

Recensionby A. H. Taub (MR)

MR0029318 (10,581b) 83.0X
Gião, Antonio
La constante cosmologique gravifique et les équations de Gauss d'une hypersurface. (French)
C. R. Acad. Sci. Paris **228,** (1949). 812–813

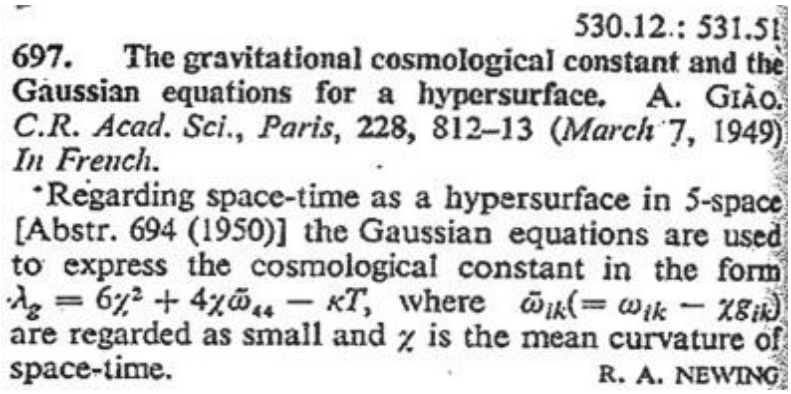
The author assumes without justification that the underlying space of general relativity is a hypersurface in a flat five-dimensional space. In the first paper he uses the Codazzi equations to obtain relations between the metric tensor (gravitation) and some components of the second fundamental form (these are supposed to represent the four-vector potential of electromagnetic theory). A relation between magnetic moment and angular momentum is given. It is a consequence that every static gravitational field has associated with it an electrostatic field.

In the second paper the Gauss equations are used to obtain a relation between the cosmological constant of general relativity, the components of the two forms of the hypersurface, and the stress energy tensor.

Reviewed by *A. H. Taub*

[The dislike of the author reading is patent in the first sentence; which was normal to the unit so as theories Kaluza-Klein - read Gagean, milk Costa (1986). The association Gião to such theories will be denied by itself an oral critique of Thiry, the Congress of 1963.]

Recension in"Physics Abstracts":



530.12.: 531.51

697. The gravitational cosmological constant and the Gaussian equations for a hypersurface. A. GIÃO. *C.R. Acad. Sci., Paris*, **228**, 812–13 (*March* 7, 1949) *In French.*

Regarding space-time as a hypersurface in 5-space [Abstr. 694 (1950)] the Gaussian equations are used to express the cosmological constant in the form $\lambda_g = 6\chi^2 + 4\chi\bar{\omega}_{44} - \kappa T$, where $\bar{\omega}_{ik}(= \omega_{ik} - \chi g_{ik})$ are regarded as small and χ is the mean curvature of space-time.

R. A. NEWING

61. "Sur l'angle des axes magnétique et de rotation des astres", *Comptes rendus Acad. Sc. Paris*, 228, p. 1203. (A)

[Unified theory application Attempt of gravitational and electromagnetic fields to justify the tilt 5º and 11º. 30 'between the two axes, respectively in the Sun and the Earth.]Recensão em"Physics Abstracts"

530.1 : 521.038

693. On the angle between the magnetic and rotational axes of stars. A. GIÃO. *C.R. Acad. Sci., Paris,* **228,** 1203–4 (*April* 4, 1949) *In French.*

According to the author's theory of the magnetism of rotating bodies [see Abstr. 2696 (1948)], the inclination of the axes is determined by the non-diagonal terms of the tensor $g^{il}\omega_{lk}$. These terms have been neglected in previous work, and the two axes have coincided. If these terms are not negligible, the magnetic axis will be inclined to the axis of rotation; the inclination should be greater for the earth than for the sun. R. A. NEWING.

[The assessment notes the originality of the topic analysis.]

62. "A new dynamical climatology: its aim and method", *Geofisica Pura e Applicata*, Milan, 15, 114-129. (C)

[It is referred to the support of Major (Commandant) Manuel Ferreira.

Brings an unusual signature, Dr. Ing. Antonio Gião, Villa Sources, Castanhais, Sintra (Portugal).]

Recensionby H. Panofsky (MR)

MR0033725 (11,481h) 76.1X
Gião, Antonio
A new dynamical climatology: its aim and method.
Geofis. Pura Appl. **15,** (1949). 114–129

Dynamic climatology is a new branch of meteorology dealing with the average properties of perturbations superimposed on the given fields of pressure, temperature and wind. The general theory is applied to specific situations and apparently explains such observations as the decay of cyclonic storms when they approach west coasts of continents, and the motion of cyclones parallel to the isotherms. This study suggests the drawing of additional climatological charts which characterize the mean behavior of cyclones in the atmosphere.

Reviewed by *H. Panofsky*

[The editorial expresses the novelty of this scientific field. Region always recognize it as your idea; however, the project was launched by Tor Bergeron in 1929, in a lecture to the Mathematical Society of Dresden. But only the oldest texts of other authors occur in the bibliography.]

Resumo por Gião in"Physics Abstracts"

3571. **A new dynamical climatology: its aim and method.** A. GIÃO. *Geofis. Pura Appl.*, **15**, 114–29 (*July–Sept.*, 1949).

By dynamical climatology is understood the branch of mathematical meteorology which aims at a deduction of the mean properties of the atmospheric perturbations that are compatible with a given mean field of temp., wind and pressure. The fundamental equations of the author's theory of perturbations are recalled and a general equation for the pressure variations at sea level is deduced. From this equation the different elements of dynamical climatology are then derived, for instance the stability of the mean field, the mean trajectories of the perturbations, the frequencies with which they are visited, the regions of deepening and filling or of birth and death of the perturbations, etc. These results explain many observational facts and empirical rules about the mean behaviour of the atmospheric disturbances at sea level throughout the year. A.

63."Théorie des rapports entre gravitation et électromagnétisme et ses applications astrophysiques et géophysiques", *Journal de Physique et Radium*. (8) , n. º 10, 240-249. (A).

(Presented at the De Broglie Seminar in April 1949)

[Methodology - summaries of this and some of the following texts were obtained by pearl / aps system. org and are indexed in References Online]

Summary:

The aim of this paper is to show that, quite independently of any physical theory, the general equations of Codazzi on differential geometry lead to fundamental relations between the electromagnetic and the gravitational fields as soon as the external metric tensor of space-time is interpreted as an electromagnetic tensor. When the important special case of quasi static fields is considered, we get for a *rotating body with no permanent magnetization*: (1) The relation, previously studied by the author, between magnetic moment and angular momentum which explains the general features of stellar and terrestrial magnetism as well as the magnetic moment of the neutron; (2) a relation between gravitation and the electrostatic field, such that any massive body creates an electrostatic field Por its own

gravitation. *The mean electrostatic fields of celestial bodies, including the earth, can be ascribed to this effect*. When the gravitation produced Por a given body is negligible (as in the laboratory) the equations of Codazzi show that the familiar Coulomb field is merely a consequence of the very rapid vibrations of the components g_{4i} (i=1, 2, 3) of the internal metric tensor. Finally, for an uncharged body with permanent magnetization it can be shown that the curl of the g_{4i} and the magnetic field are related as cause and effect.

We think that these results are a confirmation of a fundamental result of our unified field theory: *That the geometrization of electromagnetism must necessarily be achieved by the external metric of space-time*.

Recensionby A. Schild (MR)

MR0031846 (11,217d) 83.0X
Gião, Antonio
Théorie des rapports entre gravitation et électromagnétisme et ses applications astrophysiques et géophysiques. (French)
J. Phys. Radium (8) **10,** (1949). 240–249

The author outlines his unified field theory based on the differential relations of four-dimensional space-time to a five-dimensional embedding space. This theory is applied to heavy rotating masses. Relations are obtained between angular momentum and magnetic moment which explain Blackett's empirical formula as well as Babcock's recent observation of a periodic stellar magnetic moment. The variation of the earth's magnetic field with depth and the earth's electrostatic field are also discussed.

Reviewed by *A. Schild*

530.1 : 531.51 : 538.11

694. Theory of the relations between gravitation and electromagnetism and their astrophysical and geophysical applications. A. GIÃO. *J. Phys. Radium*, **10**, 240–9 (*July–Aug.–Sept.*, 1949) *In French.*

Gives a detailed account of the author's theory in which space-time is regarded as a hypersurface in 5-space, gravitation and electromagnetism being defined by the internal and external metrics [see Abstr. 2328 (1949)]. Applications to the magnetism of rotating bodies are summarized [Abstr. 2696, 3026–7 (1948); 3745 (1949)]. A fundamental relation between gravitational and electrostatic fields suggests an explanation of the terrestrial e.s. field.

R. A. NEWING

[Book review content as eclectic as the text, the more enthusiastic the Newing.

Centered on the issue of internal metrics - gravity, and external -. Electromagnetism]

64. "The equations of Codazzi and the relations between electromagnetism and gravitation", *Physical Review*, 76, 764-768. (A).

Recensionby M. Wyman

MR0034130 (11,547e) 83.0X
Gião, Antonio
The equations of Codazzi and the relations between electromagnetism and gravitation.
Physical Rev. (2) **76,** (1949). 764–768

When an N-dimensional space S is considered as a hypersurface of an $(N+1)$-dimensional space then one obtains for S both external and internal metrics which must satisfy the equations of Gauss and Codazzi. By interpreting these metrics in terms of the gravitational and electromagnetic fields the author has derived a unified field theory. The present paper deals with applications of this theory to the rotating sphere and to a spherical rotating body with no permanent magnetization.

Reviewed by *M. Wyman*

530.1 : 531.51 : 538.11

695. **The equations of Codazzi and the relations between electromagnetism and gravitation.** A. GIÃO. *Phys. Rev.*, 76, 764–8 (*Sept.* 15, 1949).

The aim of this paper is to show that, quite independently of any physical theory, the general equations of Codazzi on differential geometry lead to fundamental relations between the electromagnetic and the gravitational fields as soon as the external metric tensor of space-time is interpreted as an electromagnetic tensor. When the important special case of quasi-static fields is considered, one obtains for a rotating body with no permanent magnetization: (1) the relation, previously studied by the author, between magnetic moment and angular momentum which explains the general features of stellar and terrestrial magnetism as well as the magnetic moment of the neutron; (2) a relation between gravitation and the electrostatic field, such that any massive body creates an electrostatic field by its own gravitation. The mean electrostatic fields of celestial bodies, including the earth, can be ascribed to this effect. When the gravitation produced by a given body is negligible (as in the laboratory) the equations of Codazzi show that the familiar Coulomb field is merely a consequence of the very rapid vibrations of the components g_{4i} $(i = 1, 2, 3)$ of the internal metric tensor. Finally, for an uncharged body with permanent magnetization it can be shown that the curl of the g_{4i} and the magnetic field are related as cause and effect. Thus the geometrization of electromagnetism must necessarily be achieved by the external metric of space-time. A.

[The acronym A. suggests that the summary is the Author.]

[Unusually diverse Bibliography, certainly by the publication is made in Anglo-Saxon journal.

The argument in favor of this interpretation is that the content does not depend on essential form of contributions such as Feynman or Dyson, far less classical thinkers that De Broglie or Gião.]

[I maintain the online format accessed in the references cited in the text]:

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Comptes Rendus 226: 2126 1948
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The magnetic field of massive rotating bodies, *Nature* 159: 658 1947
Bloch, F.
Note on the radiation field of the electron, *Physical Review* 52: 54 1937
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The radiation theories of Tomonaga, Schwinger, and Feynman, *Physical Review* 75: 486 1949
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Comptes rendus hebdomadaires des seances de l'Academie des Sciences 226: 1298 1948
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Schwinger, J.
Quantum elctrodynamics. 2. vacuum polarization and self-energy
Physical Review 75: 651 1949

65. "La distribution des galaxies et la structure cosmologique de l'espace-temps", *Comptes rendus Acad. Sc. Paris*, 229, p. 981. (A).

Recensão em"Physics Abstracts"

523.112

2860. The distribution of the galaxies and the cosmological structure of space-time. A. GIÃO. *C.R. Acad. Sci., Paris*, **229**, 981–2 (*Nov.* 14, 1949) *In French.*

From a discussion based on the author's expression for the cosmological constant [Abstr. 697 (1950)], it is concluded that, on the cosmological scale, space-time cannot be considered as pseudo-Euclidean. The variation of mean curvature with expansion is found to be very small. R. A. NEWING

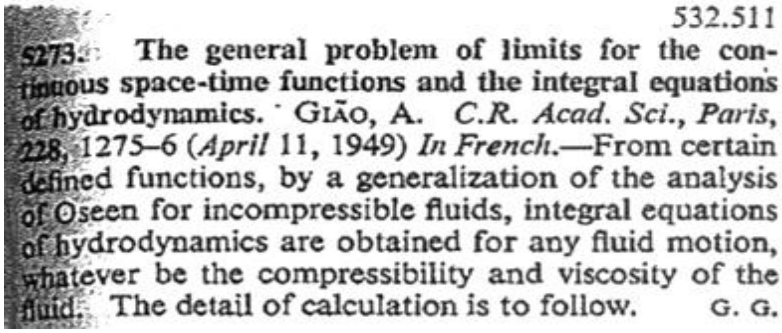
66. Analyse du livre de L. de Broglie:"Mécanique ondulatoire des systèmes de corpuscules", *Gazeta de Mat*., Lisbonne, 41-42, 44-45. (A)

[Defend the critical quality of this work, in second reprint, comparable to all Anglo-Saxon titles. In the first part, insists on the non-compatibility of the wave equation, with classical mechanics. The second part relates Gião some of the analyzed particle systems.

The honor of a distant disciple to his mentor.]

67. "Le problème général aux limites pour les fonctions continues spatio-temporelles et les équations intégrales de l'hydrodynamique", *Comptes rendus Acad. Sc. Paris*, 228, 1275-1276. (A)

Recension in"Physics Abstracts"



532.511

5273. **The general problem of limits for the continuous space-time functions and the integral equations of hydrodynamics.** GIÃO, A. *C.R. Acad. Sci., Paris*, 228, 1275–6 (*April* 11, 1949) *In French.*—From certain defined functions, by a generalization of the analysis of Oseen for incompressible fluids, integral equations of hydrodynamics are obtained for any fluid motion, whatever be the compressibility and viscosity of the fluid. The detail of calculation is to follow. G. G.

G. Green, M. A., B. S. C. D. Sc.

Recension por J. L. Synge (MR) **MR0030099 (70, 712g) 36. 0X**

Let V^m $(m = 1, 2, 3)$ satisfy the equations

$$(*) \qquad \partial V^m/\partial t - K\Delta V^m = A^m(x_1, x_2, x_3, t),$$

where Δ is the Laplacian operator and K any constant. Writing

$$\Phi(r, t, \tau) = (t-\tau)^{-\frac{1}{2}} \exp\left[-r^2/4K(t-\tau)\right], \quad \Psi = r^{-1}\int_{r'}^{r} \Phi dr,$$

where r is the distance between two points and r' any constant, the author follows Oseen in defining the tensor and vector

$$\overline{W}_i{}^k = -\delta_i{}^k\Delta\Psi + \Psi_{,ik}, \quad \overline{B}^k = (\partial\Psi/\partial\tau + K\Delta\Psi)_{,k},$$

so that $\partial\overline{W}_i^k/\partial\tau + K\Delta\overline{W}_i^k = \overline{B}_{,i}^k$, $\overline{W}_{k,i}^i = 0$. The limit W_i^k of $\overline{W}_i^k$ as r' tends to zero is used as kernel in the central integral formula of the paper. This formula is stated without details of calculation, which are to appear elsewhere. It expresses the partial derivatives $V_{,}^m$ at time t_1 at any point P in a domain $D(t_1)$ in terms of three integrals taken respectively over the domain $D(t_0)$, over the history from $t = t_0$ to $t = t_1$ of the surface $S(t)$ which bounds $D(t)$, and over $S(t_1)$. The integrands involve W_i^k and V^m and their partial derivatives, and also A^m, this last occurring on $S(t)$ only. By virtue of $(*)$, A^m is there expressible in terms of partial derivatives of V^m. Application to hydrodynamics is indicated, $(*)$ being the partial differential equation of motion of a compressible viscous fluid. [It appears strange to the reviewer that it should be possible to express the solution of $(*)$, or more precisely the partial derivatives $V_{,i}^m$, in terms of the boundary values of A^m on $S(t)$, without reference to the values of A^m in $D(t)$. Or, to put it another way, if we regard $(*)$ not as a partial differential equation but as the definition of A^m, the author's formula expresses V^m in terms of boundary values without V^m's being subjected to any partial differential equation at all.]

[The paragraph in brackets a mistake that will have dramatic consequences 16 years later-documents # 33 to # 42.

This recension figure a handwritten record by Gião, which reproduce the final page # 69. Gião prove critical that did not accept, by bringing continue this work with a doctoral fellow in the context of the Scientific Data Centre. (* 8)

The second book reviews are unevenly negative: in Green"the detail of the calculation is to follow in Synge" it Appears strange"].

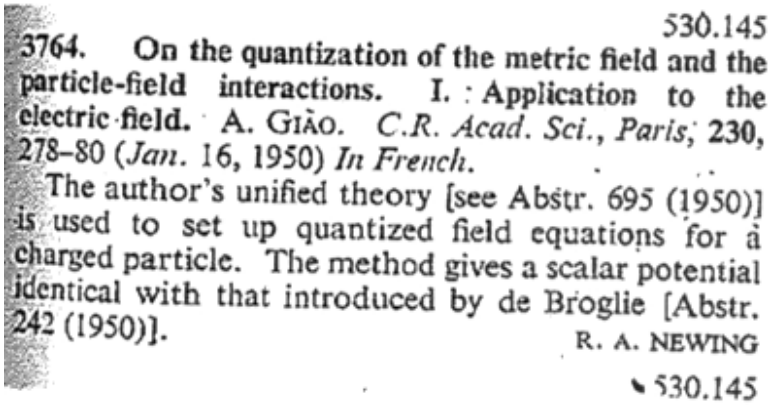
1950

[The passage of the Port Dedebant left school; proof-or"Paper presented at concuro

for Teacher Physics Extraordinary, Faculty of Science, University of Porto," by José Sarmento de Vasconcelos and Castro,"Introduction to the theoretical study of atmospheric turbulence," whose bibliography refers Bjerknes, and Wehrlé"Mécanique Aléatoire" of Dedebant. A third core in meteorology in Portugal, and Gião and Amorim Ferreira.]

68. "Sur la quantification du champ métrique et les interactions, particules-champs. I – Application au champ électrique", *Comptes Rendus Acad. Sc. Paris*, 230, p. 27. (A)

Recensão in"Physics Abstracts"



530.145

3764. On the quantization of the metric field and the particle-field interactions. I. : Application to the electric field. A. GIÃO. *C.R. Acad. Sci., Paris;* **230,** 278–80 (*Jan.* 16, 1950) *In French.*

The author's unified theory [see Abstr. 695 (1950)] is used to set up quantized field equations for a charged particle. The method gives a scalar potential identical with that introduced by de Broglie [Abstr. 242 (1950)].

R. A. NEWING

530.145

69. "Sur la quantification du champ métrique et les interactions, particules-champs II Application au champ magnétique et nucléaire", *Comptes Rendus Acad. Sc. Paris*, 230, p 434. (A)

70. "Sur les équations intégrales de l'hydrodynamique", *Journal de Physique et Radium (*8) , 11, 219-226. (C)

Recensionby C. Truesdell (MR)

MR0036100 (12,58b) 76.1X
Gião, Antonio
Sur les équations intégrales de l'hydrodynamique. (French)
J. Phys. Radium (8) **11,** (1950). 219–226

The author in effect considers a differential equation of type $\partial V/\partial t = L(V,t)$, where L is a differential operator with respect to space variables. Let κ be an arbitrary parameter. Then $\partial V/\partial t - \kappa\Delta V = A$, where $A \equiv L - \kappa\Delta V$. The author takes the gradient of this equation and solves it by means of a process analogous to that of Oseen. His result expresses $V_{,i}$ at time t in a region in terms of its values at time 0 throughout the region and the values of A and V on the boundary during the entire time between 0 and t. The value of V itself can then be obtained by integration. In the application to hydrodynamics the function A contains the pressure, the instantaneous velocity field and its gradient, the extraneous forces, and the viscous forces. These are actually interrelated in a complicated way and cannot be prescribed or known upon a closed boundary at all times. Thus the author's application of his method to the equations of viscous compressible fluids must be regarded as a system of integral equations for the velocity gradient in the interior in terms of the values of itself and of other hydrodynamical quantities upon the bounding surface. The author uses his result to show that motions of perturbation of a certain type in a fluid enclosed in a vessel are determined completely by their initial values.

Reviewed by *C. Truesdell*

[O tema é um desenvolvimento de (67) , mas Truesdell não evidencia o erro então apontado por Synge.]

Recensionin"Physics Abstracts"

532.511 : 517.948

6285. On the integral equations of hydrodynamics. A. Gião. *J. Phys. Radium*, **11**, 219–26 (*May*, 1950) *In French.*

A detailed derivation is given of the integral equations defining the velocity, pressure, density, etc., at each point of a compressible fluid of variable viscosity in general motion in terms of initial and boundary conditions [see Abstr. 5273 (1949)]. An application to perturbation theory is discussed briefly. J. G. OLDROYD

[Where the assessment of Synge is clearly negative in a previous publication (67) on the same subject, and the positive Truesdell, the Oldroyd is neutral.]

71."Sur la quantification du champ métrique et les interactions particules-champs. III. Systèmes de particules", *Comptes rendus Acad. Sc. Paris*, 230, p. 1740. (A)

72. "Sur la quantification du champ métrique et les interactions particules-champs.

IV. Application au spectre de l'hydrogène", *Comptes rendus Acad. Sc. Paris*, 230, p. 1838. (A)

[A recensão é tão telegráfica quanto a notícia de apresentação pelo Nobel da Física.]

:RUCTURE Abstr. 8914—8922

539.153.4

8920. On the quantization of the metric field and the interaction of field-particles. IV. Application to the spectrum of hydrogen. A. GIÃO. *C.R. Acad. Sci., Paris*, 230, 1838–40 (*May* 22, 1950) *In French.*

Discussion of the hyperfine structure of the H spectrum under the assumption of a non-Coulombian potential suggested in an earlier paper. J. R. MADDOX

PHYSIQUE THÉORIQUE. — *Sur la quantification du champ métrique et les interactions particules-champs.* IV. *Application au spectre de l'hydrogène.* Note (*) de M. ANTONIO GIÃO, présentée par M. Louis de Broglie.

En introduisant dans les équations relativistes de l'électron les potentiels quantifiés déduits précédemment, on montre que la structure hyperfine du spectre peut être attribuée à l'interaction de l'électron avec les champs propres non coulombiens du proton.

73. "Vers une réhabilitation du déterminisme", *Gazeta de Mat.*, Lisbonne, 43, 5-13. (D)

Philosophical content of text, organized by clearly defined points:

1 - What mathematical entities occurring in physical ?;

2 - How does Emna requires determinism ?;

3 - The existence of EMNA exclude the possibility of indeterminacy;

4 - The appearance of this in microphysics;

5 - Non-physical reasons but"philosophical" safeguarding"the moral law" which is the condition of freedom, the"dignity" as other causes of non-scientific basis of indeterminism;

6 - And Gião opposes the aspiration of the human imagination and heart to a 'éclat supraessentiel' the Areopagite, who would participate in the EMNA].

74. “Rationalisme cartésien et positivisme expérimental dans la science moderne”, *Gazeta de Mat.*, Lisbonne, 44-45, 1-4. (D)

(included in a thematic volume of homage to Descartes)

[Accusatory libel against the”experimental positivism", allegedly rationalist, implicit in the probabilistic presentations and complementarian of quantum mechanics. Claim a rigorous determinism as the only form of rationalism, in the wake of Descartes, which, according Gião, only lack quantify the laws of physically referencing his own work as rationalizing of relativity. Remember how Descartes, now outdated, seemed suspicious to contemporary. Part of the lecture # 5 will follow a similar argument to this text.]

75. “Analysis of the pressure variations at sea level”, *Geofísica Pura e Applicata*, Milan, 16, n. º 3-4, 141-158. (C)

Recensionby M. Kiveliovitch (MR)

MR0040144 (12,650a) 76.1X
Gião, António
Analysis of the pressure variations at sealevel.
Geofis. Pura Appl. **16,** (1950). *no. 3-4,* 20 *pp.*

L’auteur se propose de former l’équation de la tendance $\partial p/\partial t$ au niveau de la mer en se basant sur la validité de l’équation statique; la constante du gradient de température dans la troposphère est nulle dans la stratosphère. En utilisant les équations du mouvement, l’auteur arrive en négligeant un certain nombre de termes, pratiquement négligeables, à une équation intégro-différentielle linéaire non homogène. L’auteur obtient quelques solutions particulières de cette équation en attribuant au second membre certaines valeurs choisies d’avance.

Reviewed by *M. Kiveliovitch*

[The negligence of some terms seem to displease the recensor, as well as the default values.]

76. “Sur le mouvement général do la matière à l’échelle cosmologique”, *Comptes rendus Acad. Sc. Paris*, 231, p. 605. (A)

COSMOLOGIE RELATIVISTE. — *Sur le mouvement général de la matière à échelle cosmologique*. Note (*) de M. **Antonio Giao**, présentée par M. Louis de Broglie.

On considère un ds^2 qui est la généralisation la plus naturelle du ds^2 de De Sitter. La matière qui correspond à cet univers est animée d'un mouvement rotationnel, ce qui pourrait être l'explication relativiste du fait que toutes les grandes masses (galaxies) sont en rotation.

Recensionin"Physics Abstracts"

523.112 : 530.12

20. On the general motion of matter on the cosmological scale. A. Gião. *C.R. Acad. Sci., Paris*, 231, 605–6 (*Sept.* 25, 1950) *In French.*

Matter associated with a slightly deformed de Sitter universe is found in general to be in a state of rotational motion. It is suggested that this may explain the rotation of the galaxies. R. A. NEWING

77. *"A propos d'un ouvrage sur la Relativité", Gazeta de Mat.*, Lisbonne, 45, 44-46. (A)

Review to a book of Costa de Beauregard.

[Central text in the thought of Gião. Although presented with a note reading, clearly expresses opposition to physicalism of relativity, supporting, by contrast, most formal consistency of general relativity. The criticism of the book, which argues the opposite and more consensual position is however very favorable, given the known educational and literary qualities of Costa de Beauregard.

On the first page Gião to show that the logical structure of relativity is antagonistic of its historical development. He adds that the theory is reduced to the consequences of a single postulate of geometric content. Region took the opportunity to refer to its most general unitary theory (p. 6) to criticize the"hypertrophy" given in the book in question to the Michelson-Morley experiment; that devalues, to confront its work around the"small ether wind" (p. 10). It combines with the book from the tensor calculus of chapters to the end make the difference between his theory and the

exposure Beauregard, whose merit praises eloquently. The culmination of the comparison between relativity and his theory will be (99).]

78. “On the origin of positive and negative electricity”, *Portugaliae Mathematica*, 8, 143-153. (A)

Submitted to the International Congress of Mathematicians 1949

Recensionby C. Kikuchi (MR)

MR0044946 (13,501e) 83.0X
Gião, Antonio
On the origin of positive and negative electricity.
Portugaliae Math. **8,** (1949). 143–153

The difference in the behavior of mass and electric charges is discussed in the light of author’s unified field theory [see Physical Rev. (2) **76**, 764–768 (1949); MR0034130 (11,547e)].

Reviewed by *C. Kikuchi*

[Using for the fisrt time language of differential geometry, introduces,in a well structured summary, the reasons for the difference between the affected electric charge signal, and ground. It is also integrated into the then existing cosmological argument, even without the theory of continuous creation of matter.]

79. “On the general motion of matter at the cosmological scale”, *Physical Review*, 80, 755-756. (A)

Recension in”Physics Abstracts”

523.112 : 530.12

2311. On the general motion of matter at the cosmological scale. A. Gião. Letter in *Phys. Rev.*, 80, 755–6 (*Nov.* 15, 1950).

See Abstr. 20 (1951). Rotational motion associated with a slightly deformed de Sitter universe is further discussed. It is emphasized that the motions considered arise from non-Newtonian forces, and it is suggested Newtonian gravitation is of decisive importance only for smaller scale motions.

R. A. NEWING

[This article analyzes the expansion of the universe and argues that it is

independent of gravitation. Writing again this journal, bibliography, whose style after online access, keep, back to be more cosmopolitan]:

Compt Rend 229: 981 1949
Compt Rend 228: 8121949
Bosler
Astrophysique: 669
Einstein
Meaning Relativity
Hubble
Astroph j 79: 74 1934
McVittie
Cosmological theory
Russel
Astronomy: 943
Tolman
Relativity Themodyn: 253

[Before publishing the text, had suffered a rejection, which will force him to write. Possibly will be the time that extends references.]

THE PHYSICAL REVIEW
REVIEWS OF MODERN PHYSICS

Conducted by
THE AMERICAN PHYSICAL SOCIETY
JOHN T. TATE, *Managing Editor*

University of Minnesota, Minneapolis 14, Minn., U. S. A.

January 30, 1950

Transcribe correspondence, present in the House António Gião:

"Mr António Gião

The street Amoreiras, 18, 3

Lisbon, Portugal

Dear Mr. Gião:

I regret to report que our Board of Editors do not recommend publication of your paper"On the General Motion at the Cosmological Scale".

It is, Therefore, returned herewith.

Sincerely yours,

J. W. Buchte

Assistant Editor

JWB: ss

Encl. -1mss."

Response Author:

"Dr. António Gião

Rua A das Amoreiras, 18, 3º
Lisbon, Portugal

February, 24, 1950

Dear Professor Tate:

I was rather surprised to see that the Board of Editors of the Physical Review hás not recommended the publication, in the section"Letters to the Editor", of my small manuscript"On the general motion of matter at the cosmological scale". My surprise arises from the fact that the main results of this Note are derived by a straightforward calculation; from the well known equations of the gravitational field in general relativity. The different assumptions made in the interpretation of some equations are justo f the same kind as those made by all students of cosmological relativity.

For those reasons, may I ask if you would consent to submit again my manuscript to the Editors for further consideration?

Asking you to be so kind to give me an early reply, I remain, dear Professor Tate,
Yours faithfully"

The text would leave with the international bibliography listed above; a price Gião

rarely have paid.]

Citing Ilídio Gaspar (1998) :

"In 1949, Antonio Gião receives from the Council of the Faculty of Sciences of Lisbon, the first proposal for the conduct of the chair of Mathematical Physics (chair of the 2nd group of mathematics section).

This proposal left António Gião very surprised, that this attitude is evident in the following excerpt:"I was far from admitting the possibility of being a guest day to join the faculty of the School of Sciences of Lisbon, not only because both my person as my scientific work, are almost completely unknown in the Portuguese intellectual circles, but also because I never gave any step towards having such an invitation."

Similarly, Antonio Gião invokes the acceptance of the proposed position by filing a counter proposal expressed in the following way:"Weighing because all the reasons and without regard to the sacrifice it represents, I decided to accept the invitation, however getting this acceptance conditional the following condition: my appointment (no contest) to the post of effective professor at the chair of Mathematical Physics".

It follows that Antonio Gião want to be invited for the position, ruling out a possible contest. <u>According to witnesses this attitude of Antonio Gião is explained by the fact that he thinks there was no one in Portugal qualified to make you an entrance exam for the conduct of the chair of Mathematical Physics</u>".

[The interpretation of this phrase can mean ignorance, arrogance, or distraction - a scientist as Gião, surrounded by physicists in France, with contacts as Valladares, Marques da Silva, ZALUAR Nunes, could hardly ignore the existence in Portugal of relativistic as Mira Fernandes Ruy Luís Gomes, Manuel dos Reis, António da Silveira.

Absent from your library, books and references to these names.

Of which, however at least one - Ruy Luís Gomes - occurs in your epistolography -

see”Correspondência"; with another - Manuel dos Reis - will come to the cross-when Professor at the Faculty of Science.

Take part in a meeting of the Philosophy of Science, next to the greatest intellectual figures. Because there are few elements that demonstrate the effective paricipação discrete Portuguese scientist in the upper room of Parisian thought, include the program, # 70. This other Portuguese, Edmundo Curvelo. There is no reason to think that they have found.]

1951

80. “Équations du champ, équations du mouvement et fonctions d’onde” – *I, Journal de Physique et Radium (*8) , 12, 31-40. (A)

Recensão por A. J. Coleman (MR)

MR0041022 (12,783a) 81.0X
Gião, Antonio
Équations du champ, équations du mouvement et fonctions d’onde. I. (French)
J. Phys. Radium (8) **12,** (1951). 31–40

The structure of a Riemannian V_n imbedded in a V_{n+1} is determined by its “internal” and “external” metrics which are generalizations of the familiar first and second differential quadratic forms of Gauss for a surface in three-space. Assuming that the universe consists of a “container” describable by such a V_n and “contents” describable by appropriate tensors, the author deduces that the container of an autonomous self-determined universe must be a four-dimensional space of signature $(+, +, +, -)$ imbedded in a Euclidean five-space. The internal metric is interpreted, as in general relativity, as the gravitational potentials; the external metric is related to the electromagnetic field. Equations of motion and of conservation are deduced. Spin forces are introduced by approximating elementary particles by rotating spheres.

Reviewed by *A. J. Coleman*

Recensionby R. H. Dalitz in *Physics Abstracts*:

“After the derivation of the field equations in the author's unitary field theory [Abstr. 2328 (1949) ; 694 (1950)] Has Been sketched, equations of motion are deduced for the elementary fluids (matter and electricity) and two tensors of 2nd order are shown to be conserved. Radiation reaction and forces dependent on spin and on field inhomogeneities Appear in the transition from the theory of infinitesimal particles to particles of finite mass and charge”

[The exceptionally clear book reviews demonstrate how the article brings a positive contribution. However, the cedntral theme is unusual, to treat the matter and electricity as autonomous fluids.]

81. "Équations du champ, équations du mouvement et fonctions d'onde" – *II, Journal de Physique et Radium (*8) , 12, 99-106. (A)

Recensionby A. J. Coleman (MR) -**MR0041022 (12, 783b) 81. 0X**

The systematic presentation of the author's unitary field theory, begun in the article reviewed above, is continued. Wave functions are introduced and the internal and external metric fields are quantized. For a single particle new nuclear and electromagnetic potentials are deduced which coincide with those recently proposed by de Broglie [C. R. Acad. Sci. Paris **229,** 157–161, 269–271, 401–404 (1949); Physical Rev. (2) **76,** 862–863 (1949); MR0032515 (11,302i)] and which lead to finite self-energies. Applied to the hydrogen spectrum the theory leads to the conclusion that the hyperfine structure arises from a small perturbation of the electron self-energy by interaction with the non-Coulomb proton field.

[Coleman mantém o tom simpatético]

Recension in"Physics Abstracts"

530.145

5127. Field equations, equations of motion, and wave-functions. II. A. GIÃO. *J. Phys. Radium*, **12**, 59–106 (*Feb.*, 1951) *In French.*

Abstr. 2387 (1951), part I. The authors unitary theory of matter and electricity is discussed, using the eigenfunctions of the Laplacians associated with the internal and external metrics as base vectors. This system includes solutions characterized by isotropic current vector and energy-momentum tensor of zero trace, representing elementary radiation, electromagnetic and gravitational. The quantized theory leads to de Broglie's non-singular gravitational, nuclear and electromagnetic potentials, giving finite self-energy expressions. These potentials are applied to discuss the spectrum of hydrogen. R. H. DALITZ

[The reviews to (80) and (81) show understanding of the problem by recensores, which is exempt but to take sides.

The bibliography witness an attempt to tune with De Broglie, preceding the separation between them. It is the only text Gião, among those studied in the number

of references to other entries exceeds the Author himself. But the reason here does not seem to be diplomatic, but rather the fact that the relevant potentials were published by him, as befits the recension of Coleman. Again I am faithful to how Gião opted to present their readings.]

De Broglie L

Sur la theorie du champ soustractif

Comptes Rendus hebdomadaires des seances de l Academie des Sciences 229: 401 1040

De Broglie L

Sue une forme nouvelle de interation entre les charges electriques et le champ electromagnetique

Comptes Rendus hebdomadaires des seances de l Academie des Sciences 229: 157 1949

De Broglie L

Nouvelles remarques sur interation entre une charge electrique et le champ electromagnetique

Comptes Rendus hebdomadaires des seances de l Academie des Sciences 229: 269 1949

De Broglie L

Electron magnetique: ch17 1934

De Broglie L

On a new concept of the interation between charges and electromagnetic field

Physical Review 76: 862 1949

De Broglie L

Portugaliae Mathemat ica: 37 1949

French JB

The electromagnetic shift of energy levels

Physical Review 75: 1240 1949

Gião A

Sur la quantification du champ metrique et les interations particules-champs. 1. application au champ electrique

Comptes Rendus herdomadaires des seances de l'Academie des Sciences 230: 278 1950

Gião A

Sur la quantification du champ metriques et lesinterations particules-champs. 2. application au champ electrique

Comptes Rendus herdomadaires des seances de l Academie des Sciences 230: 434 1950

Kroll NM

On the self-energy of a bound electron

Physical Review 75: 388 1949

82. "Sur la signification des fonctions d'onde en théorie unitaire et en mécanique ondulatoire", *Comptes rendus du Congrès International de Philosophie des Sciences*, Paris, Octobre 1949, Actualités Scientifiques Hermann, n. º 1153, 79-91. (A)

Publication of intervention in Congress last year.

[The argument is far-fetched. The most original text of point, for the philosophical audience congressso whose program is # 70, is the suggestion that a mismatch between the wave functions of electricity and matter is responsible for the uncertainties of quantum mechanics; such an interpretation excludes indeterminists positions. In other texts, Gião defend, in that regard, the different location of the charge and mass. An argument less clear argues that the particles are space-time content, not individual, transcending it. An interpretation in logic that Gião do not, would, I think, the replacement of the relationship of belonging for inclusion. Final

edition in the publishing house which published three titles in 1938. Listing by Gião to be forthcoming in this editor, text # 26 will not come to light.]

83. "Quelques problèmes de physique théorique", *Gazeta de Mat*., 12, Lisbonne, n. º 50, 57-67. (A)

[Synthesis of all the work category, beginning in 1946. It marks the abandonment (not assumed, just disappears reference) of the baryons model as aggregates and refers for the first time, quantum electrodynamics.

The heartfelt dedication"Pour Stella, dans la nuit de son absence" refers to the bitch who always accompanied him.

Implied separation towards De Broglie, the purpose of a hypothetical graviton spin 2, declared"hypothèse peu souhaitable"... References to the Schwinger-Tomonaga equation as an alternative to serial developments in quantum electrodynamics.]

Recension by C. Kikuchi (MR)

MR0051162 (14,436e) 81.0X
Gião, Antonio
Quelques problèmes de physique théorique. (French)
Gaz. Mat., Lisboa **12** (1951). *no. 50,* 57–67

In the present paper, several problems in theoretical physics are dealt with. These include the proper mass of the photon, the difference in the behavior of mass in a gravitational field and that of an electric charge in an electromagnetic field, properties of a generalized electromagnetic field, Schwinger-Tomonaga equation, and the periodic variations of stellar magnetic field.

Reviewed by *C. Kikuchi*

Recension in"Physics Abstracts"

530.145

6280. Some problems of physical theory. A. GIÃO. *Gaz. Mat.* [*Lisbon*] *No.* 50, 57–67 (*Dec.*, 1951) *In French.*

A collection of five notes discussing, in the light of the author's unitary field theory [Abstr. 5127 (1951)], the following topics: the photon self-mass; the difference in behaviour of mass in gravitational field and of charge in an e.m. field; general properties of the generalized e.m. field; the Schwinger–Tomonaga equation; stellar magnetic fields with periodic variation.

R. H. DALITZ

[For six years, will move away from the Fundamental Physics.

Unaware why. Just notice it is simultaneously the removal of De Broglie, who does not return to submit communications Gião the Academy; according to Acta School Board preceding his appointment, ceases this year the relationship with the Institut Henri Poincaré, who was unable to clarify regarded correspondence with that.

The following years will be devoted to analog computing and, in this way, a return to Meteorology.]

1952

84. Brevet d'invention Procédé et Appareil pour le calcul d'une fonction mathématique par vie electronique A. Gião et F. H. Raymond, 13 pp. 4 fig. Demandé le 22 Octobre 1952

[The first page of this document is # 45 and witness the commercial value attributed to the invention, using the specification 100 francs. P. 2 explains the appliance division into two components, an integrator and a level lines visualizer. The difference in writing style makes you think the 1 st coauthor there designed the text up to half of p. 3; and the remaining 10 a study of hardware.]

1953

[In April the fate knocks at the door Gião. The inventor now attends the first meeting of the Italian Society of geophysics and meteorology, as we read in (# 71). Bossolasco Piccardi and present, who both will mark his work.

Methodological note: the summaries that follow are taken from SpringerLink system also being transferable via NASA / ASI and are listed in order in the online references; I could not ask the reason for not being the subject of recension.]

85. "Un calculateur électronique analogique pour la prévision mathématique de temps" (en collaboration avec F. H. Raymond) , *Geofisica Pura e Applicata*, Milan, 25, 141-202. (C)

Summary:

António Gião et F. H. Raymond

On montre d'abord que la théorie des pertubations, due à l'un de nous, conduit à une équation aux dérivées partielles pour les variations de presson au niveau de la mer. Cette même équation peut aussi être déduite par une méthode purement analytique en se basant sur quelques propriétés générales de l'intégrale de Fourier de la pertubation de pression. La méthode utilisée montre d'ailleurs que d'autres fonctions (température, vent, etc) satisfont aussi à l'quaton dont il s'agit. Cette équation de base peut être résolue dans le cas analytique et dans le cas général non analytique et les opérations mathématiques que comporte la solution (opération d'advection par un champ vectoriel horizontal, opération d'intégration pondérée suivant les méridients et son inverse) peuvent être effectuées rapidement et simultanément par électronique, ce qui nous a conduit à la construction d'un calculateur analogique Approprie à la construction atique de temps à courte et assez longue échéance.

[In this work, in part by higher Gião plume, the dense analytical exposure joins an argument in terms of letters, isotherms and other lines, a new type of rhetoric in the work of Gião; the second part, pp. 49-63, Raymond mining, reveals that the 2nd part of the"calculateur 'is not completed (p. 61) ; discloses hardware images (pp 62-63.) ; and wonders about the order of magnitude of the miscalculation of the 'situações météorologiques retrospectives', which should not exceed that of the observation errors; recognize up echoes of the controversy between (17) and # 26, and perhaps predict the Edward Lorenz problematic...]

86. "Recherches complémentaires sur les bases du calculateur météorologique Temp" (en collaboration avec F. H. Raymond) , *Geofísica Pura e Applicata*, Milan, 27, 121-155. (C)

[The pp. 12-13 indicate the treated formalities, the continuity equations, variation of pressures and trends. Pp. 19-29 introduce a novel language to graphically as being the"et al" treated or hyperbolic points in relation to the pressure centers; Pp. 33-34 deal with a new type of error, the analog calculation; pp. 34-36 study for the 2nd part

of the calculator, a better projection than Mercator.

Complete change of language on the part of Gião between these 2 consecutive publications since abandoning any reference to a perturbation theory.]

RECHERCHES COMPLÉMENTAIRES SUR LE BASES DU CALCULATEUR MÉTÉOROLOGIQUE « TEMP »

par ANTONIO GIÃO (*) & F.-H. RAYMOND (**)

Résumé — La formule de base, traduisant une propriété analytique d'une classe très générale de fonctions, est un corollaire du théorème fondamental démontré dans un mémoire précédent, d'après lequel, étant donnés une fonction continue $p(\varphi, \lambda, t)$ des points (φ, λ) d'une surface régulière fermée σ et du temps et le champ $\vec{H}_\sigma(\varphi, \lambda)$ d'un vecteur vitesse de transfert ou d'advection tangent à σ et ayant des lignes de flux fermées et régulières, il existe un opérateur spatial, linéaire, non singulier A tel que la fonction $A(p + \text{Const.})$ soit purement advective par rapport a $\vec{H}_\sigma$ (sans creusement ni comblement). Ce théorème peut être exprimé par l'équation $\partial p/\partial t = -\mathfrak{M}[\vec{H}_\sigma . \nabla p]$, où $\mathfrak{M}$ est un opérateur spatial, linéaire et non singulier, fonction de A.

La détermination de $\mathfrak{M}$ peut être faite, soit en comparant deux formes différentes de la solution générale de l'équation en $\mathfrak{M}$, soit en utilisant un raisonnement a priori très simple. On arrive ainsi au résultat $\mathfrak{M} = M$ avec $M = u^{-1} \int_0^n d\xi$ pour un certain scalaire $u(\varphi, \lambda)$.

Dans le cas où $p(\varphi, \lambda, t)$ est la perturbation de la pression sur la surface du géoïde l'équation $\partial p/\partial t = -M[\vec{H}_\sigma . \nabla p]$ résulte aussi, comme nous l'avons montré dans le mémoire précédent, de notre théorie hydrodynamique des perturbations. On montre ici que la même équation peut encore être déduite de l'équation de continuité associée à la condition d'équilibre quasi statique selon la verticale.

Comme applications de la formule de base (solution générale de l'équation en M), on étudie les problèmes suivants: 1° creusement et comblement en général; 2° creusement et comblement des centres et des cols; 3° mouvement des centres et des cols; 4° instabilité d'un champ moyen; 5° propriétés spatiales des champs $p(\varphi, \lambda, t)$ et des vecteurs d'advection $\vec{H}_\sigma(\varphi, \lambda)$ analytiques.

Après une discussion des erreurs de la prévision d'un champ $p(\varphi, \lambda, t)$ par la formule de base, du fait des erreurs des observations et du fonctionnement du calculateur, on examine quelques particularités du transfert ou advection d'un champ $f_\sigma(\varphi, \lambda)$ par le vecteur $\vec{H}_\sigma(\varphi, \lambda)$. Enfin, le dernier chapitre du mémoire donne des éclaircissements complémentaires sur la structure du calculateur électronique « Temp » (qui effectue automatiquement les opérations mathématiques de la formule de base) et expose l'état actuel de sa construction.

(*) Ing. ANTONIO GIÃO, 107 Rue Lauriston, *Paris* (16.e).

(**) Mr. F.-H. RAYMOND, Société d'Electronique et d'Automatisme, 138 Bld. de Verdun, *Courbevoie* (*Seine*).

87. “Un calculatore elettronico analogico per la previsione matematica del tempo” (en collaboration avec F. H. Raymond) , *Geofísica e Meteorologia*, 1, 48-49. (C)

[François Henri Raymond have been one of the forerunners of analog and digital computing in France. Away by De Gaulle civil service, was to join the staff of Honeywell-Bull until his death.

The collaboration Gião - and the success of the device # 44, both patented in several nations - will end in a financial dispute, that witness the letter # 46.]

1954

88. “Relations outre le creusement et le comblement des perturbations et leur déplacement”, *Geofísica Pura e Applicata,* Milan, 28, n.º1, 171-189. (C)

Author Summary – Gião, A., «Relations outre le creusement et le comblement des perturbations et leur déplacement»

Résumé On commence par définir le creusement et le comblement d'une function *p* du temps *t* et des points d'une surface régulière fermée en se donnant, sur cette surface, un vecteur vitesse d'advection ou de transfert tangent à [?]. Le creusement (ou le comblement) est la variation de *p* sur les particules fictives se déplaçant constamment et partout à la vitesse, A chaque vecteur et pour un même *p* correspond naturellement une fonction creusement *C* admissible a priori; mais une condition analytique très générale (l'intégrale du creusement sur toute la surface fermée du champ est nulle à chaque instant) , à laquelle satisfont les fonctions de perturbation sur les surfaces géopotentielles, permet de restreindre beaucoup la généralité des vecteurs d'advection admissibles a priori et conduit à des vecteurs de la forme: est un scalaire régulier, une fonction régulière de la latitude le vecteur unitaire des verticales ascendantes et *R*/2 une constante. Ces vecteurs sont donc une généralisation naturelle des vitesses géostrophiques attachées à tout scalaire régu-

lier. Dans le cas où *p* est la perturbation de la pression sur la surface du géoïde, le vecteur d'advection par rapport auquel on doit définir le creusement est précisément une vitesse géostrophique: on a alors un certain champ bien défini de température moyenne.

On déduit ensuite une formule générale de géométrie et de cinématique différentielles reliant la vitesse de déplacement d'un centre ou d'un col d'un champ *p* à son champ de creusement *C* et au vecteur d'advection correspondant. Cette formule peut être transformée et prend la forme d'une relation générale entre le creusement (ou le comblement) d'un centre ou d'un col et la vitesse de son déplacement, sans que le vecteur d'advection intervienne explicitement. On analyse alors les conséquences de ces formules dans les cas suivants: 1°) perturbations circulaires dans le voisinage du centre; 2°) perturbations ayant, dans le voisinage du centre, un axe de symétrie normal ou tangent à la vitesse du centre; 3°) évolution normale des cyclones tropicaux.

Finalement, on examine les relations qui existent entre le creusement ou le comblement d'un champ, le vecteur d'advection et la configuration des iso-lignes du champ dans le voisinage d'un centre.

Ces considérations permettent d'expliquer plusieurs propriétés bien connues du comportement des perturbations dans différentes régions.

89. "Relazzione fra l'Approfondimento e la colmatura delle depressione bariche col loro spostamento", *Geofísica e Meteorologia*, 2, p. 66. (C)

90. "Une propriété des fonctions continues spatio-temporelles sur les surfaces régulières formées", *Proceedings of the International Mathematical Congress*. Amsterdam, September 1954, vol. II, p. 342. (C) (apresentado *in absentia*)

[Again, the concern synthesis, the mathematical model that underlies the weather is implemented in calculating device. Here is the meteorologist assumed to inventor

that bases its work - # 72 - before the mathematical colleagues. The confused structure of this page is analyzed below.]

91. “Essais de prévision numérique de la pression”, *Journal Scientifique de la Météorologie*, 25, 167-196. (C)

1955

92. “L’énergie des perturbations et les deux régimes du mouvement des fluides en météorologie synoptique”, *Geofísica Pura e Applicata*, Milan, 32. (C)

93. “Le facteur de non-analyticité du champ de pression et la prévision numérique”, *Journal Scientifique de la Météorologie*, 27. (C)

94. “Sur la prévision des perturbations atmosphériques”, *Geofisica Pura e Applicata*, vol. 32, n.º1. (C)

Author Summary – Gião, A., «Sur la prévision des perturbations atmosphériques».

Résumé Le mémoire commence par une analyse des relations qui existent entre les notions d'analyticité, de non analyticité et d'unicité des solutions d'équations d'évolution d'un certain type et les notions de déterminisme, d'indéterminisme et de prédéterminabilité des phénomènes correspondants.

Ces résultats sont ensuite appliqués au cas des perturbations atmosphériques et l'on montre, en s'Appuyant sur la théorie des distributions, que les solutions d'une équation différentielle spatio-temporelle de ces perturbations, déduite par l'auteur dans des mémoires antérieurs, jouissent de la propriété d'unicité, ce qui justifié théoriquement l'application de cette équation en prévision du temps.

Finalement, ou expose brièvement un nouveau procédé permettant une détermination facile du facteur de non-analyticité qui intervient dans la solution générale de l'équation des perturbations.

93A.

BIBLIOGRAPHIE SCIENTIFIQUE

DE

ANTONIO GIÃO

PHYSIQUE THÉORIQUE RELATIVISTE ET QUANTIQUE
PHYSIQUE ET MÉTÉOROLOGIE PHÉNOMÉNOLOGIQUES
MÉTÉOROLOGIE DYNAMIQUE — MÉCANIQUE DES FLUIDES

Première Partie :
LISTES DES PUBLICATIONS
1925-1955

(1955-Capa de 93 A)

[This bibliography is the essential reference of this study.]

1956

95. "Introduction à la Climatologie dynamique de l'Amérique du Nord, de l'Atlantique nord et de l'Europe" (en collab. avec M. Ferreira) , *Geofisica Pura e Applicata*, 34, 101-150. (C)

Summary of Authors

Résumé Nous appliquons dans ce mémoire la théorie des perturbations, développ. ée antérieuremet par l'un de nous, à la déduction des principales caractéristiques normales des perturbations compatibles avec un champ moyen donné de

pression et de température. Cette deduction comprend la détermination: 1) de la configuration moyenne des perturbations dans les différentes régions étudiées; 2) des zones de creusement et de comblement et en particulier des foyers de formation et de disparition des perturbations; des trajectoires, vitesses, fréquences et amplitudes moyennes des perturbations. C'est à l'ensemble de ces propriétés moyennes que nous donnons le nom de «climatologie dynamique» d'une période donnée.

Après une première partie théorique, nous donnons des examples d'application des résultats généraux à la climatologie dynamique des mois de Janvier et de Juillet pour l'Amérique du Nord, l'Atlantique Nord et l'Europe.

[This memory would be awarded in the Italian Meteorological Institute Congress where it was presented.]

96. "Sur le comportement du vecteur d'advection des perturbations et du tourbillon vertical en altitude", *Geofisica Pura e Applicata*, 34, n.º1, 151-176. (C)

[In this paper, first memory of CIRMM, Gião is assumed as Director; cease to do so in the next volume to lose confidence in Bossolasco, and later break with the magazine - see # 14A].

Author Summary – Gião, A., «Sur le comportement du vecteur d'advection des perturbations et du tourbillon vertical en altitude».

Résumé L'important problème de «*l'advection des perturbations*» ne peut être traité d'une manière rationnelle et n'acquiert un sens précis qu'en étudiant d'une part les conséquences purement analytiques des propriétés générales de toute fonction de perturbation, et en utilisant d'autre part les résultats fondamentaux de la théorie des perturbations. On aboutit ainsi à préciser complètement la notion de

«vecteur d'advection des perturbations» et l'on montre que les importantes différences qui existent entre le mouvement des perturbations au niveau de la mer (commandé par un champ de température moyenne) et en altitude (où les perturbations se déplacent plutôt avec le vent moyen, du moins dans la troposphère moyenne) peuvent Être facilement expliquées par le comportement, suivant les verticales, *d'une même* fonction vectorielle de vitesse d'advection des perturbations, qui intervient d'une manière essentielle dans notre théorie des perturbations.

A l'aide du champ moyen de température et de vent entre l'équateur et les pôles (du sol jusqu'à 20 km d'altitude) , nous déduisons le champ moyen du vecteur d'advection des perturbations et le comparons au vent moyen. Cette comparaison donne l'explication de plusieurs faits empiriques importants. De plus, on peut en déduire les limites de la région où il peut y avoir en altitude des « ondes longues » compatibles avec la conservation du tourbillon vertical, ainsi que la longueur d'onde caractéristique de ces perturbations.

Dans la deuxième partie du mémoire, nous montrons qu'une transformation simple de l'équation des variations de pression de notre théorie des perturbations conduit à une équation généralisée du tourbillon vertical pouvant être comparée à l'équation classique du tourbillon que l'on déduit des équations de l'hydrodynamique. Ceci permet de se rendre compte dans quelle mesure on peut admettre en altitude la conservation du tourbillon vertical, propriété qui peut être considérée comme un cas particulier de l'équation des variations de pression.

97. “Analyse géostrophique des champs de pression et de température”, *Geofisica Pura e Applicata*, 35, 73-93. (C)

ANALYSE GÉOSTROPHIQUE DES CHAMPS DE PRESSION ET DE TEMPÉRATURE (*)

par ANTONIO GIÃO (**)

Résumé — Le mémoire commence par la déduction de l'équation générale d'évolution des champs géostrophiques. Cette équation fait intervenir une fonction (S) du gradient de pression et de la température qui joue un rôle essentiel dans la discussion des conditions de stabilité des champs de pression et de température.

Les configurations théoriques du champ de pression, lorsque S est spatialement constante, constituent des familles de champs auxquelles appartiennent les champs stationnaires. Ces familles permettent d'analyser tout champ de pression complexe en le décomposant en une somme de champs partiels simples possédant des propriétés de symétrie par rapport aux méridiens passant par leurs centres.

On peut baser sur cette analyse géostrophique une méthode pour la classification rationnelle des types de temps, qui est appliquée ici aux champs moyens de Juillet et de Janvier en Europe.

98. "Sur les champs de pression et de température quasi-stationnaire de la région alpine", *La Météorologie*, Jan, Jul. 1957, 283-290. (C)

1957

99. "Le problème du Temps en cosmologie relativiste", *Memorie Soc. Astr. Ital., Supp. lenti* n.° 2, 1-27. (A)

[French text of the conference entitled"relativistic cosmology" presented in the Astrophysical Observatory of Arcetri University of Florence on 12 November 1956. appears in this text a new argument: the existence of a non causal three-dimensional universe that"sweeps" Ente Mathematical Not Random according to its orthogonal complement - the vector time. It is established again, as in (77) , a comparison between the new and general relativity theory Gião. Exposure extraordinarily clear. In this sense, perhaps the most well done text Gião in scientific matters.]

100. “Ondes de surface”, *Geofisica Pura e Applicata*, 37, n.º1, 237-267. (C)
Author Summary – Gião, A., «Ondes de surface».

Résumé Le but de ce mémoire est de démontrer quelques nouvelles propriétés générales d'une classe de fonctions (les ondes de surface) très importante par son rôle en physique et en géophysique.

On commence par la démontration d'un théoréme fondamental qui établit l'identité de l'ensemble des ondes de surface et de l'ensemble des fonctions pour lesquelles, à tout instant t_0 et en tout point A_0 de leur domaine d'existence, on peut écrire une proportionnalité entre intervalles de temps (situés, en général asymétriquement, de part et d'autre de t_0) et rayons des domaines circulaires centrés en A_0, telle que les moyennes temporelles et spatiales correspondantes soient égales. Ce théorème permet d'écrire, en termes finis, la solution des équations aux dérivées partielles de toute onde de surface.

On applique ensuite les résultats généraux: 1° à la variation diurne de la pression ce qui permet de voir que ce phénomène peut être considéré comme une onde de surface et donne la loi fondamentale en $\cos^3$ latitude pour l'amplitude de l'onde semidiurne progressive; 2° aux ondes de variation de la pression synoptique. Pour ces ondes de variation on établit les relations qui existent entre leurs paramètres caractéristiques et on détermine finalement leur configuration théorique.

[Os textos 99 e 100 têm duas referência”António Gião 107 Rue Lauriston – Paris”, e”Istituto Geofisico de l’Universitá de Génova”; o seu cartão de visita contém a menção”Director” do Centre International de Recherches sur la Meteorologie de la Méditérrannée, sediado naquele Instituto, que é dirigido pelo fundador, Mario Bossolasco.]

101. “Premier programme de recherches sur la climatologie dynamique (avec un exemple d’application) ”, *Geofisica Pura e Applicata*, 37, n.º1, 268-284. (C)

[Programme for Research, illustrating the methodology developed in SIMM in January 1956, and pointing its generalization in network during the International Geophysical Year.

The text is assumed as the 2nd memory CIRMM, presented at the meeting of its members in Genoa, the 27/04/1957. In stamped sheet preceding the text, this center is Bureau President J. Roulleau, Vice-President a Greek, and Directors Bossolasco and Gião, identified by the Paris-Genoa location, plus a secretary; and a Board integrating 9 meteorologists from places like Washington, Belgrade, Tel Aviv and Cairo.

The program of this new science is expressed as the balance of a sufficiently long time:

a) Trajectories and average speeds of disturbances;

b) Respective frequency and mean amplitude;

c) ”le creusement et le comblement" average of these, in particular their foci formation and disappearance;

d) Medium configuration in the vicinity of these centers.

The methodology Gião proposes, as in 1939:

1) Determination of average observational properties;

2) theoretical deduction of these, from the mean fields of temperature and pressure;

3) Comparison Between 1) and 2).

The case study does, on January 1956, involves the French circum-Mediterranean stations, Corsican, Algerian and Tunisian. Price inscribed on the cover of the monograph:. $ 1.00]

1958

102. “Field equations of any differentiable variety”, *Portugaliae Mathematica*, 17, 63- 83. (E)

[It is the text of a conference in Dublin on 26 March.]

Recension by A. J. Coleman (MR) **MR0103757 (21#2521) 83. 00**

If $a_{\alpha\beta}$ and $b_{\alpha\beta}$ are the first and second groundforms of a V_n imbedded in a Riemannian V_{n+1}, and $G_{\alpha\beta}$ and $H_{\alpha\beta}$ are the Einstein tensors formed from $a_{\alpha\beta}$ and $b_{\alpha\beta}$ respectively, then the author considers the "field equations", $G_{\alpha\beta} - \gamma a_{\alpha\beta} = T_{\alpha\beta}$, and $H_{\alpha\beta} - \delta b_{\alpha\beta} = U_{\alpha\beta}$, where $T_{\alpha\beta}$ and $U_{\alpha\beta}$ are symmetric tensors. By counting conditions, including the Gauss and Codazzi equations, the author concludes that a necessary condition that $a_{\alpha\beta}$, $b_{\alpha\beta}$, $T_{\alpha\beta}$ and $U_{\alpha\beta}$ be determined by the above equations, is that $n = 4$. Further, by imposing the requirement that the solution be determined by a "natural" set of Cauchy data, it follows that V_n must be of class 1 with a normal hyperbolic metric. These results convince the author that his equations are more significant than the field equations of general Relativity. The values of γ and δ are studied, the existence of a family of space-like subspaces of V_4 with elliptic metric is established, and a term is obtained which "has important consequences in astrophysics (formation of the spiral arms of the galaxies)".

[A detail that the recension paid no attention: here is expressed for the first time the continuous creation of matter.]

103. "Sulla variazione annuale dei test fisicochimico D di Piccardi e la cosmologia relativistica", *Rendiconti Accad. Naz. Dei Lincei*, ser. VIII, vol. XXV, fasc. 1-2, pp. 1-6. (A)

[A meeting that was attended of Piccardi, hereinafter also decisive in the work of Gião. Image # 73 illustrates the phenomenon to explain.

29 and # 30 realize this fascinating line of research, detailed below.]

103A. "Sur le calcul du gradient thermique vertical dans l'atmosphère" (en collab. avec J. Roulleau) , *Comptes Rendus Acad. Paris*, 247, pp. 2407. (C)

[Finda that was empathy with De Broglie, now their contributions to the Academy of Sciences will be presented by André Danjon.]

1959

103B. Science, Philosophy, Religion, Conference in Reguengos de Monsaraz (#5).

104."Basis of a dynamical classification of climates", *Beiträge zur Physik der fr.*

Atmosphäre, 32, 109-120. (C) Conferência em Dublin, 27-3.58.

105.”The general problem of dynamical Meteorology: An introduction to numerical weather forecasting”, *Geophysical Bulletin*, n.º 17, School of Cosmic Physics, Dublin Institute for Advanced Studies, 110 pp. (C)

[About this book wrote Almeida Costa (1971) and Pires Gonçalves, 10 years later, which would include”important phenomenological developments'.

Unaware of what they understood as such. Relief in this work the last referêcia the 'Temp' calculating device that developed with Raymond, and its advantage over”Scan computers'. It was written although this title contains a complete bibliography on perturbation theory.]

106.”Sur la variation avec l’altitude du gradient thermique vertical moyen dans l’atmosphère”, (en collab. avec J. Roulleau) , *Comptes rendus Acad. Sc. Paris*, 250, pp. 896. (C)

107.”Le gradient vertical dans les champs barotropes”, *(*en collab. avec J. Roulleau) , *Comptes rendus Acad. Sc. Paris*, 251, p. 1549. (C)

SÉANCE DU 10 OCTOBRE 1960. 1549

MÉTÉOROLOGIE. — *Le gradient vertical de température dans les champs barotropes.* Note de MM. Antonio Gião et Jean Roulleau, transmise par M. André Danjon.

On montre par un raisonnement nouveau que le gradient vertical de température dans un champ barotrope ne peut prendre que quatre valeurs dont la plus importante est la moitié du gradient adiabatique classique.

108.”Propriétés du gradient thermique vertical dans le champs barotropes” (en collab. avec J. Roulleau) , *Notes de l’Etablissement d’Etudes et de Recherches*

Météorologiques, Paris, n.º 52, 10 pp. (C)

109. "Interprétation relativiste de la variation annuelle du test D physicochimique de Piccardi et sa signification cosmologique", *Comptes rendus du Symposium International sur les relations entre phénomènes solaires et terrestres en chimie-physique et en biologie´*, Presses Academiques Européennes, Bruxelles

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Abstract

According to some results of previous papers by the same author, a complete system of field equations can only be derived when the fundamental variety or container of a universe is considered as a hypersurface of an enveloping space.

The field equations are first of all deduced and the physical meaning of the different tensors and scalars that they involve is then explained. The non trivial solutions of the field equations necessarily belong to two different types. In one of these types, the cosmological parameters are constant and the containers of the solutions are fourdimensional varieties with normal hyperbolic metric (i.e. space-times). One of these non trivial solutions, which is denoted by U_4, can be considered as a representation of the physical Universe. In the other type of non trivial solutions of the field equations, the cosmological parameters are scalar functions and the containers of the solutions are closed threedimensional varieties with elliptic metric. One of these solutions, which is denoted by U_3, is a threedimensional Universe having the fundamental property of exploring or scaning successively, in a continuous and irreversible way, the physical Universe U_4, thus introducing in it a real evolution, in other words a genuine Time. The elliptic metric character of U_3 has the consequence that the contents of this Universe must be fields of pure stress without a material support or bearer.

There is an important interaction of U_3 and U_4. The action of U_4 on U_3 is evident, since U_3 is a hypersurface of U_4. The corresponding reaction of U_3 on U_4 takes place through the energy sources that correspond to the non-conservation of the energy-momentum tensors of U_3. The global aspect (at the cosmological scale) of the action of U_3 on U_4 has been analysed by the author in previous papers. It has important astrophysical consequences (continuous creation of matter, formation of the arms of the spiral galaxies, etc).

[#29is the process-verbal Congress where he was introduced.]

1960

Document: Order, Government Gazette, 27 April.

[The parties omitted in # 74 appeared before the Thesis - the listing of recensores the work of Gião, as well as the description of the phenomenological physics.

One point that drew attention,"formulas that are applied from day to day, the meteorological services around the world." Interviewed Prof. John Corte-Real, he identified the equation of the trends of most interest to mathematicians than for physical, because in it the 2nd member of the errors prevent any precision prognosis. In any case, they were not in Lisbon on service run by Amorim Ferreira. This point shows a boundary line through the life and work of Gião, the key difference between the two methodologies professions.

The Minutes of the School Board transcribed below is stricter around the curriculum than the present order.]

110."Le champ de température dans quelques types de mouvements atmosphériques" (en collab. avec J. Roulleau) , *Mémorial de la Météorologie Française*, Paris, n.º 47, 48 pp. (C)

[Return to publish in Office - now renamed 'Direction Nationale de la Météorologie"which he had written (12) , (13) and the controversial (17) ; the director is Louis Viaut, a co-author of Dedebant. The key issue is the study of the

vertical movements of the atmosphere.]

111.”Thermodynamic expressions of fluid motion and their applications”, *Revista Faculdade de Ciências de Lisboa*, 2.ª série, A, vol. VIII, Fasc. 1, 73-114. (A)

Recensionby G. MacDonald (MR)

MR0144780 (26 #2321) 86.99
Gião, António
Thermodynamic expressins of fluid motion and their applications. (French, German summaries)
Univ. Lisboa Revista Fac. Ci. A (2) **8** 1960 73–114

The author attempts unsuccessfully to manipulate the continuity equation and equations for the conservation of energy and entropy into such a form as to provide a means of discussing the general circulation of the atmosphere. The stated reason for the extensive algebra exercises is to obtain the velocity field in an atmosphere without considering the equations of motion.

Reviewed by *G. MacDonald*

[By extension, this strong criticism affects all work co-authored with Jean Roulleau.]

[Timely this point, the testimony of Prof. Furtado Coelho: occurring swearing around Easter, Gião immediately replaced Veiga de Oliveira in the Regency of Mathematical Physics. However, discipline terms of books present in AHMCUL show that was Veiga laying the ratings.

Prelude to a misunderstanding between two scientists who also disagreed with professional misconduct, as seen in # 31, the first page of an unprecedented Gião.]

1961

Publishes its courses:

110 A.

UNIVERSIDADE CLASSICA DE LISBOA (CLASSIC UNIVERSITY OF LISBON)
FACULDADE DE CIENCIAS (FACULTY OF SCIENCES)

CELESTIAL MECHANICS

According to the lessons of Prof. Dr. Eng. Antonio Gião

Edition of the Student Association of the Faculty of Sciences of Lisbon

110 B.

Mathematical physics

TYPES OF EVOLUTION AND STRUCTURES FUNDAMENTAL

1960

[The graphics simulates the look of the covers]

[There are two editions of this course - one without indices, which ends at p. 104, and another read in whose index # 75, and arrives at p. 112.

None of these issues presents the second part of the course - the Emna, according to the testimony of Prof. John Corte-Real, as we shall see # 92

The course has a markedly linked to research Antonio Gião profile.

The first part includes the work of 40 years and tensor calculus. What would not, then as now, easy to teach a course in the 2nd year.

The general relativity begins in chapter II.

The Hamiltonian formalism and statistical mechanics (called"statistical field" are introduced). Chapter IV focuses on wave mechanics.

References, as always scarce, did not reflect continuity to the tradition of the Faculty of Science, where Prof. Veiga de Oliveira, to teach Rational Mechanics did intensively applying Linear Algebra. However, years before, David Lopes Gagean had introduced the tensor calculus in that discipline.

The lack of contact with colleagues, including the Wizard, then Dr. Raimundo de Oliveira Vicente, would be an excuse for pedagogical difficulties, which dramatically. Documents # 93, # 94, # 96 and # 98 may allude to the fact.

We recall the testimony of Prof. Furtado Coelho - Instituto Superior Técnico, it was tradition to teach the theory of relativity. Mira Fernandes, in his last course in 1958 (according to Professor John Rubim) and Antonio da Silveira, made him, unlike the teachers of the Faculty of Sciences this year; therefore, Furtado Coelho, then Engineering student who attended classes as free auditor, was the one to follow

the lessons of Gião.

Very close to your research, remember Furtado Coelho, the Gião classes would introduce a term of continuous creation of matter.

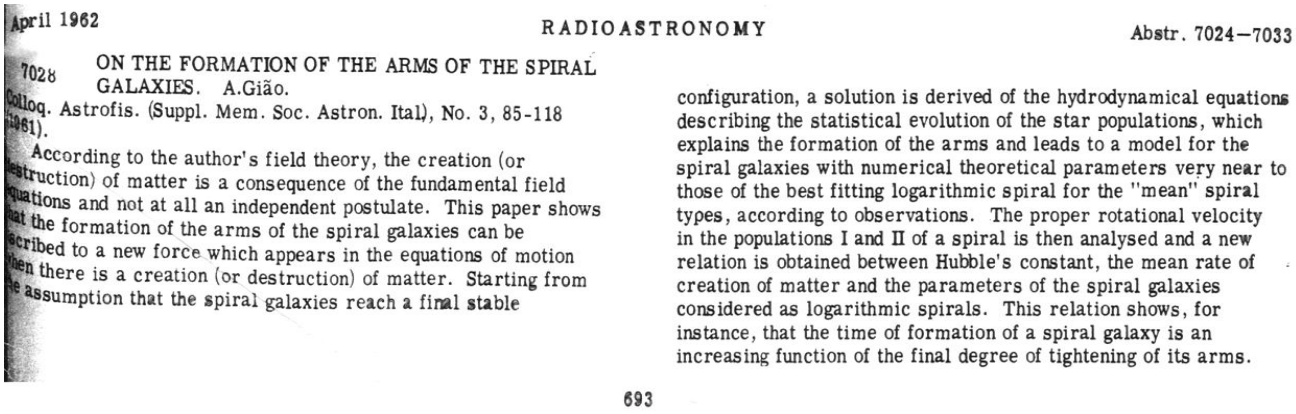
Note: The course of celestial mechanics, unqualified, declared as monographic, which focuses on the problem of N bodies, is not analyzed]

112. "On the formation of the arms of the spiral galaxies", *Memorie Soc. Astron. Ital.*, Supl. n.º 3, 85-118. (E)

[For the first time in this work, Gião quotes Milne and Bonde, thus implicitly standing in opposition to the theory of relativity and the big bang model.

Includes the term of creation and destruction of matter, which aims to relate to the shape of the spiral arms. Strangely, the author can not decide between these two antagonistic words, creation / destruction, which also does not quantify. It is thus to ignore the reader which of these two mechanisms is observed in each of the galaxies. The text reproduces a conference in Italy, announced an invitation card, # 76. It is the first of its two publications on topics of Celestial Mechanics.]

Recension in Physics Abstracts



April 1962 RADIOASTRONOMY Abstr. 7024–7033

7028 ON THE FORMATION OF THE ARMS OF THE SPIRAL GALAXIES. A.Gião.
Colloq. Astrofis. (Suppl. Mem. Soc. Astron. Ital), No. 3, 85-118 (1961).

According to the author's field theory, the creation (or destruction) of matter is a consequence of the fundamental field equations and not at all an independent postulate. This paper shows that the formation of the arms of the spiral galaxies can be ascribed to a new force which appears in the equations of motion when there is a creation (or destruction) of matter. Starting from the assumption that the spiral galaxies reach a final stable configuration, a solution is derived of the hydrodynamical equations describing the statistical evolution of the star populations, which explains the formation of the arms and leads to a model for the spiral galaxies with numerical theoretical parameters very near to those of the best fitting logarithmic spiral for the "mean" spiral types, according to observations. The proper rotational velocity in the populations I and II of a spiral is then analysed and a new relation is obtained between Hubble's constant, the mean rate of creation of matter and the parameters of the spiral galaxies considered as logarithmic spirals. This relation shows, for instance, that the time of formation of a spiral galaxy is an increasing function of the final degree of tightening of its arms.

693

113. "The fundamental physics and the atomic structure of matter,"Archives of Univ. Lisbon - New Series, No. 3. (A)

[University Extension Course on Nuclear Power, where he attended, among others,

Delfim Santos (* 9). It will be Apeciar at # 79 ABC eloquence of the artwork. The model for the prospective Gião around a particle, # 79, is put in comparison with the other potential authors proposed. The simple image inspection shows how better will be to Gião for giving as a natural way to mass particle (not being addressed to load) the ball between 2 minimum. Note 2 style changes:

- Comparison with other theories that patent is (121)
- The quality of pictures, due to the hiring of a graphic artist by the Gulbenkian Foundation (White Jorge testimony and José Barbeito)]

114. "Cinématique et dynamique de l'espace en rotation", *Portugaliae Mathematica*, 20, l53-l93. (E)

[Where cites, in the bibliography, but uncritically, Veiga de Oliveira (perhaps a development # 31). Quote a colleague Sciences School was act not happened again in the work of Gião unless the controversy that occurred five years later. Only José Pinto Peixoto would reciprocate, citing Gião.

Important thematic innovation, point to the relativistic formulation of the homographic rotations, subject Veiga treated classically. Includes the mass change of the calculation of a particle in a Schwartschild field. - What today would be called black hole]

Recension by Y. Kozai (MR) **MR0140539 (25#3781) 86. 99**

In this paper the author treats some problems on kinematics of rotation of space both in classical dynamics and in general relativity.

In Chapter 1 the author finds a new representation of the operator of rotation. The representation is uniquely determined by an instantaneous angular velocity of rotation and has great advantages in treating problems as compared to the classical representations of Euler and Cayley. The operator of rotation is then applied to a study of homographic motions of a system of N mass points without external force. A differential equation for a homography factor is derived from the relativistic field equation rather than the classical equations.

Chapter 3 is devoted to the metric structure of rotating hyperplanes by means of the relativistic field equations. The metric tensor of the rotating space in an equation of the conservation of the energy-momentum tensor introduces the relativistic equations of motion in a rotating frame. These equations lead to the relativistic generalization of Corioli's theorem. In Chapter 4 the author derives a new form of the relativistic energy equation. As an application of the energy equation, variations of the set mass of a particle in Schwarzschild's field are analyzed.

114A.”Il fenomeno biologico nel Quadro dell’Universo relativista”, Minerva Medica,

[Farther content Intervention of Exact Science that no chooses not to cite the update # 77 that will do to your bibliography (93) A) , and that will leave unfinished.

The summary then published intervention, is at # 30.

It will be the penultimate text dedicated to the theme of Piccardi. I could see no reason for this departure.]

1962

115.”L’équation relativiste de l’énergie et l’hypothèse solaire de Piccardi”, *Rendiconti Accad. Naz. Lincei*., (8) , 32, 181-184. (A)

April 1963 GRAVITATION . RELATIVITY Abstr. 5329–5342

5338 RELATIVISTIC ENERGY EQUATION AND PICCARDI'S SOLAR HYPOTHESIS. A.Gião.
RC Accad. Naz. Lincei (Italy), Vol. 32, No. 2, 181-4 (Feb., 1962). In French.

An energy equation derived from the author's field theory implies that changes in the potential energy of a particle are associated with the creation or destruction of matter. The theory is used to provide an explanation of the hypothesis that the motion of the sun and earth through interstellar space gives rise to certain periodic physico–chemical effects. A semi-annual variation is shown to arise from the fact that the solar velocity is not directed towards the galactic centre. R.A.Newing

Recension by W. Rindler (MR)

MR0147287 (26 #4804) 85.99
Gião, António
Sur l’équation relativiste de l’énergie et l’hypothèse solaire de Piccardi. (French)
Atti Accad. Naz. Lincei Rend. Cl. Sci. Fis. Mat. Nat. (8) **32** 1962 181–184

By casting the relativistic energy conservation equation into a special form, the author shows that one can deduce from it a complete justification of the “solar hypothesis” put forward by G. Piccardi in connection with his “physico-chemical test *D*” [same Atti (8) **21** (1956), 84–86; ibid. **23** (1957), 419–421; ibid. **24** (1958), 427–429].

Reviewed by *W. Rindler*

116. “Esquisse d’une nouvelle analyse du problème des N corps”, *Rev. Fac.*

Ciênc., Lisboa, 2 Série, A, vol. LX, Fasc. 10, 5-34. (E)

[Second and final article of celestial mechanics. Again resulting in a seminar in Arcetri, the 21.5.1962 (p. 5) ; Gião example of writing style, the work focuses on the determinants of the Hamiltonian Keplerian problem whose synthetic solution is applied to the problem of N bodies.

A p. 31 considers two types of evolution, confined to a finite domain, and the resulting dispersion or breakdown, alluding without citing the results of Hopf and Poincaré.

A p. 33 gives an account of the beginning of this work in the CCC.]

117. “Le phénomène Biologique dans le cadre de l’Univers Relativiste”, Biologia, vol. 3, Fasc. 2-4, 131-145. (A)

[Article fascinating for its ingenuity. Mentions the relationship between U3 and U4 universes as a cause of transformation in colloidal media, alludes to Piccardi thematically to suggest that the origin of life may be in the interaction of these two worlds. Cites the DNA strands as possible sensors such interaction.]

1963

[With the creation of a magazine by the Gulbenkian Institute of Science, which is run by Gião, this retains access the service by”reviews" international without going through any”referees" national. Now is this title that Gião publishes preferential-cially. Is the author of most volumes. Also Cadet Anthony and Joseph Si-Mões Perei-ra then publish their books).

In addition to monographs, the magazine's publisher Gulbenkian also the IN-TO Cosmology and Distributions Congress.

Join thus the 19 books that this collection will be author or co-author, who edited at 6 in Paris in the 30s, to Dublin in 1959 and 2 courses of the Faculty of Sciences. It

is therefore arguable claim that arithmetically Gião co-authored 28 books; if there was it to write their course notes, will then have been the sole author of 23 of them.]

118. "Sur la loi de distribution de Maxwell-Boltzmann", *Arquivo do Inst. Gulbenkian de Ciência*, Lisboa, vol. 1, n.º 1, 1-30. (E)

Recension by J. Naze (MR)

MR0160601 (28#3812) 82.62
Gião, António
Sur la loi de distribution de Maxwell-Boltzmann. (French)
Arquivo Inst. Gulbenkian Ci. Sec. A Estud. Mat. Fís.-Mat. **1** 1963 1–30

On obtient la loi de distribution d'équilibre statistique d'un système relativiste de N particules à partir d'un schéma hamiltonien. L'évolution du système versl'équilibre statistique est ensuite étudiée et le théorème H déduit des considérations précédentes.

Reviewed by *J. Naze*

January 1964 STATISTICAL PHYSICS Abstr. 77–87

79 ON THE MAXWELL–BOLTZMANN DISTRIBUTION LAW.
A. Gião
Arq. Inst. Gulbenkian Cienc. A (Portugal), Vol. 1, No. 1, 30 pp. (1963). In French.
A discussion of various generalizations of the Maxwell–Boltzmann law to such cases as relativistic systems and systems where mass can be created. The Maxwell–Boltzmann law is derived by a method based directly upon analytical mechanics.
D. ter Haar.

[An analogous to the problem of N bodies, between celestial mechanics, statistical mechanics and relativity.]

119. "On the relation between the total pressure variation and the field of mean temperature", *Arquivo do Inst. Gulbenkian de Ciência*, Lisboa, vol. 1, n. º 2. (C)

120. "Application de l'équation de la diffusion à la détermination des circulations zonales" (en colab. avec J. Roulleau et R. Pereira Coelho) , *Arquivo do Inst. Gulbenkian de Ciência*, Lisboa, vol. I, n.º 3, 101-130. (C)

Recension by W. F. Ames (MR)

MR0157766 (28 #997) 85.35
Giao, António; **Roulleau, Jean**; **Coelho, R. Pereira**
Application de l'équation de la diffusion à la détermination des circulations zonales. (French)
Arquivo Inst. Gulbenkian Ci. Sec. A Estud. Mat. Fś.-Mat. **1** 1963 101–130

The authors consider the application of the general mass transport equation

$$\frac{\partial T}{\partial t} + \mathbf{V} \cdot \boldsymbol{\nabla} T + (RT/c_v) \operatorname{div} \mathbf{V} = (c_v)^{-1} \frac{dQ}{dt}$$

to a study of the circulation in the earth's atmosphere. Actual solutions for the diffusion coefficient, velocity and temperature are obtained in terms of the latitude variable φ in portions of the southern hemisphere. Good agreement with experiment is obtained. The mathematical techniques are those of an advanced course in ordinary differential equations.

Reviewed by *W. F. Ames*

[It is now applying the methodologies fluids of Mathematical Physics, which increasingly becomes the vocation of Gião.

Some rare and positive aspects:

- A good fit to the observed data.

- Transdisciplinarity and international team including a French meteorologist and a Portuguese mathematician high-caliber].

121."On the Theory of Cosmological Models with a special reference to a Generalized steady-state Model", *Arquivo do Inst. Gulbenkian de Ciência*, vol. 1, n.º 4, 135-230, (A) , in *Cosmological Models*, onde também escrevem P. Jordan, Y. Thiry, G. McVittie e H. Bondi.

In the bibliography Gião announces:

121A."Bases de la Physique Théorique I. Géométrie des Hypersurfaces et Physique Fondamentale",

from which 7 cyclostomes copies exist in the Library Fund adopted by the Higher Technical Institute Foundation. It will be an extension of your first lesson that

NATO seminar.

There was a quote to the contribution to the 1963 Congress, by H. Klotz.

"*A note on Gião's Theory of Cosmological Models", Monthly Notices of Royal Astronomical Society, 1964.*

[The home page is # 78, and the text content points in adjusting Gião model the data with physical significance. Thus, in P. 256 points the unacceptability of various solutions of Einstein's equations, which does not contemplate electromagnetism, for the following mention the possibility of a singularity of Schwartzschild be electrically charged. The rest of the work points to the model of compatilizar Gião"amended" with such a scenario.]

Recension by Y. Kozai (MR)

MR0182439 (31 #6662) 85.99
Gião, António
On the theory of the cosmological models with special reference to a generalized steady-state model.
Arquivo Inst. Gulbenkian Ci. A Estud. Mat. Fís.-Mat. **1** 1963 135–230

This is a note of five lectures delivered by the author at the International Summer Institute on Cosmological Models held at Lisbon, September, 1963.

The titles of the five lectures are the following: (I) The complete field equations; (II) General consequences of the complete field equations; (III) Three-dimensional solutions of the anisotropy field equations; (IV) Theory of the cosmological models; (V) A generalized steady-state model.

Reviewed by *Y. Kozai*

Recension in"Physics Abstracts"

13669 ON THE THEORY OF THE COSMOLOGICAL MODELS WITH SPECIAL REFERENCE TO A GENERALIZED STEADY-STATE MODEL. A. Giao.
Arg. Inst. Gulbenkian Cience. A (Portugal), Vol. 1, No. 4, 135-230 (1963).

A course of five lectures delivered to the International Institute on Cosmological Models held at Lisbon in 1963. (1) The Complete Field Equations (methods of derivation—fundamental insufficiencies, such as use of arbitary postulates and incompleteness of independent unknowns—physical interpretation of geometrical entities). (2) General Consequences of the Complete Field Equations (properties of metrics—changes of the homography parameter). (3) Three Dimensional Solutions of the Anisotropy Field Equations (three dimensional non-trivial solutions—origin and properties of time—hydrodynamical form of the contents tensors—interaction of universes). (4) Theory of the Cosmological Models (prerequisites of a model—internal and external metrics—field equations—cosmological hypersurfaces with no proper energy sources—the Einstein hypercylinder—the Sitter hypersphere—the Hubble cosmological model—the steady-state model—null geodesics and asymptotic lines). (5) A Generalised Steady-State Model (the steady-state hypothesis—physical and geometrical properties—global geometric properties—astrophysical consequences—general motions of matter).

[University Activity:

Gives a negative opinion in the contest to Full Professor at Instituto Superior Técnico:

António César de Freitas

"Aspects of the Study of Fluid Dynamics

Thesis submitted to the competition for professor of Rational Mechanics discipline of IST."

Prof. César de Freitas would have access to the Chair later in General Studies of Mozambique.

The other opponent, Prof. Tables and Costa, would also not be approved.

And a positive opinion to:

António Ribeiro Gomes

"On the main part of the gravitational field in general relativity

Dissertation for the doctoral examination in mathematical sciences at the Faculty of Sciences, University of Coimbra"

António Ribeiro Gomes is now Professor Emeritus at the University of Coimbra, and member of the Academy of Sciences of Lisbon.

The manuscripts of both opinions are the Casa Antonio Gião.]

1964

122.“Propriétés locales et globales de l'opérateur laplacien”, *Arquive from Inst. Gulbenkian Science - Courses and Seminars (8) , Lisbon*, 95 pp. (E)

Recensão por W. F. Ames (MR) **MR0170024 (30 #265)** 31. 30

This long paper generalizes a number of well-known results of potential theory for the Laplacian and d'Alembertian operators in N-dimensional Riemann spaces. Let $C_{N-1}(r)$ be the boundary of an N-dimensional hypersphere $S_N(r)$. Let $\Delta p, \overline{p}(r), \overline{p}(C)$ designate the Laplacian of p and mean values of p over $S_N(r)$ and $C_{N-1}(r)$, respectively. One then obtains the two important results (for $k = 1, 2, 3, \cdots$)

$$\Delta^k p = N^k \left(\frac{d^{2k}\overline{p}(C)}{dr^{2k}} \right)_0, \quad \Delta^k p = (N+2)N^{k-1} \left(\frac{d^{2k}\overline{p}(r)}{dr^{2k}} \right)_0,$$

where $(\ )_0$ denotes the limit as $r \to 0$.

Other considerations include a divergence theorem, Green's formulae, elementary solutions of Laplace's equation, the wave equation and Poisson's equation. The general Dirichlet and Neumann problems are discussed.

[Referred to the importance of the results.]

123.“A new form of the sea level tendency equation” (en collab. avec J. M. Barbeito) , *Arquive fromGulbenkian de Ciência*, Lisboa, vol. II, 3-44. (C)

Recensionby W. L. Gates (MR) **MR0180364 (31 #4599)** 86. 34

By assuming hydrostatic equilibrium, the continuity equation may be integrated over height to yield the socalled tendency equation. For a rigid level lower boundary and for vanishing vertical mass flux at infinite height, this is

$$\frac{\partial p_\sigma}{\partial t} = -\int_0^\infty g\nabla_h \cdot (\rho \nabla_h)\, dz$$

in the authors' notation, where p_σ is surface pressure, g is gravity, ρ the density, ∇_h the horizontal del operator, $\mathbf{V}_h$ the horizontal wind velocity, z the vertical coordinate, and t is time. By making the further (but unstated) assumptions $\partial p/\partial t \to 0$ as $z \to \infty$, $\nabla_h \rho = 0$ and $\nabla_h p_\sigma = 0$, the authors then introduce the geostrophic wind for $\mathbf{V}_h$. After manipulation, they arrive at the form $\partial p_\sigma/\partial t = U\partial\Psi/\partial\lambda$, where U and Ψ are empirical functions of the synoptic situation, and λ is longitude. This form is then applied with atmospheric data in three cases. The accuracy of the computed pressure tendency is mediocre.

{Rather than a really "new" contribution, this paper represents an overworked application of simple concepts, and completely ignores the well-known limitations of the use of the geostrophic wind approximation. A more fruitful approach is to use the geostrophic or balanced atmospheric models. These formulations lead to a relatively non-sensitive determination of the surface pressure tendency, in contrast to the present paper.}

[Negative criticizes Gates -"mediocre accuracy" and end brackets.]

124."On the weighted advection", *Arquive from Inst. Gulbenkian de Ciência*, Lisboa, vol. II, n.° 2, 49-82. (C)

Recensão por W. F. Ames (MR) **MR0174838 (30 #5030)** 35. 06 (35. 79)

A function $p(\varphi, \lambda, t)$ of time t and coordinates (φ, λ) of a regular closed surface σ is an advection function if p satisfies the equation $p_t = -M(p_\theta)$. p is said to be "pure" if the operator $M = I$, and "weighted" if $M(\,) = u^{-1}\int_0^u (\,)du$ (averaging operator). Direct and inverse forms of the weighted advection law are, respectively, $p_t = -M(\mathbf{H}\cdot\nabla p)$ and $p_t - \mathbf{\Lambda}\cdot\nabla(p_t) = -\mathbf{H}\cdot\nabla p$, where $\mathbf{\Lambda} = -u\nabla u/|\nabla u|^2$. Analytic solutions for the pure and weighted advection equations are obtained. The general analytic solution of the weighted advection equation is

$$\hat{p} = p + C = \exp\left[\int_{\varphi_0}^{\Phi} G(\varphi, \varphi_0)(M^{-1}(\log \hat{p}_0))(\varphi, \lambda)\, d\varphi\right],$$

where p_0 represents the initial field, M^{-1} is the inverse of the averaging operator $(M^{-1}(f) = \partial(uf)/\partial u)$, and $G(\varphi, \varphi_0)$ is a well defined weight function, such that $G(\Phi, \varphi_0) = 0$.

A necessary condition that the initial field $p_0(\varphi, \lambda)$ must satisfy to ensure the existence of an analytic solution of the weighted equation is

$$\partial[M^{-1}\log \hat{p}_0]/\partial\theta = M^{-1}[\hat{p}_0{}^{-1} M(\partial p_0/\partial\theta)].$$

When this condition is not satisfied by the initial field, the solution is generalized to $\hat{p} = \exp[M(\beta^{-1}\{\beta M^{-1}\log \hat{p}_0\})]$, where $\beta = \beta(l, \theta)$ is a constructable non-analyticity factor.

The weighted equation is applied to the pressure perturbations on a geopotential surface. If the advection vector is a zonal vector field, the weighted advection function must have the general (analytic) form $p(\varphi, \lambda, t) = p_1(\varphi, t) + p_2(\lambda, t)$. There follows a development of the zonal mean temperature for the southern hemisphere as $T(\varphi) = 301.5 - 37.7\sin^2\varphi$. Remarks are appended on the application of the averaging operator and its inverse to differential and integral equations having the form $M^{(q-p)}(f) = g(x)$.

[Ames, unlike Gates, continues to enjoy the Gião work positively in the pages of the same *Mathematical Reviews*.]

125.”Influence des sources thermiques sur la circulation zonale” (en collab. avec R. Pereira Coelho) , *Archive from Inst. Gulbenkian de Ciência*, Lisboa, vol. II, n.° 3. (C)

1965

126.”Le comportement des fonctions d’onde sur les lignes d’univers des particules élémentaires”, *Archive from Inst. Gulbenkian de Ciência*, Lisboa, vol. III, n.º 3. (A)

127.”Fourier transforms and the continuation of functions”, *Archive from Inst. Gulbenkian de Ciência*, Lisboa, vol. III, n.° 2. (E)

128.”About the existence of matter,”Book of Homage to Professor Fernando Fonseca, University of Lisbon. *Archive from Inst.Gulbenkian de Ciência*, Lisboa, vol. III, n.° 2. (E)

[The pp. 144-145 of this particularly dry texto opens two alternatives for the interaction between U3 and U4, which would be the creation of matter or its transfiguration; Region argues in favor of this hypothesis, and shows aspire to deduction of the fundamental constants of nature from the geometric properties of this interaction. A grand dream.]

1966

[As a result of the controversy analyzed in Book 2, where a work of José Simões Pereira, driven Gião, is criticized by Sebastião e Silva and Veiga de Oliveira, Gião publishes:]

129.”Sur la déduction des équations intégrales de l'équation de Fourier par le tenseur d'Oseen”, *Revista da Faculdade de Ciências de Lisboa* (A) , Fasc. II, n. º 11, 205-206.”Fourier transforms and the continuation of functions”, Archive from Inst. Gulbenkian de Ciência, Lisboa, vol. III, n.° 2. (E)

Recension by W. F. Ames (MR)

MR0232109 (38 #435) 35.79
Gião, António
Sur la déduction des équations intégrales de l’équation de Fourier par le tenseur d’Oseen. (French)
Univ. Lisboa Revista Fac. Ci. A (2) **11** 1965/1966 295–297 (1965/66)

F. Veiga de Oliveira [see #434 above] discussed a method due to the author [J. Phys. Radium (8) **11** (1950), 219–226; MR0036100 (12,58b)], showed where the error was and proposed a correction. This paper notes that this “correction” is in error and presents the correct form.

Reviewed by *W. F. Ames*

[Neither John nor Ames are aware of the repetition of a mistake.
Make out a much more detailed analysis of”An error Gião".]

130.”The inertia principle in wave relativistic mechanics”. *Tribute to Professor R. Sarmento de Beires in its jubilee*, Univ. Port,75-90. (A)

131.”Climatologie dynamique de la France et des régions avoisinantes”, *Archive from Inst. Gulbenkian de Ciência*, Lisboa, vol. IV, n.º 1. (C)

132.”Vortex perturbations on a mean field of motion”, *Archive Inst. Gulbenkian de Ciência*, Lisboa, vol. IV, n.º 2. (C)

133.”On the Fourier continuation of functions: theoretical complements and examples”, *Archive from Inst. Gulbenkian de Ciência*, Lisboa, vol. IV, n.º 3, 101-131. (E)

Recension by G. Doetsch, **MR0204984 (34 #4819)** 42. 25

For an earlier work of the author [the same File 3 (1965) , 71-149; MR0190626 (# 32 8038)] are some theoretical indicated additions and a large number of samples for the Fourier continuity of functions of graphic representations, which refer to the preparation of barogramas according to the method.

134.”Climatologie dynamique de la Péninsule Ibérique”, *Archive from Inst. Gulbenkian de Ciência*, Lisboa, vol. IV, n. º 4. (C)

[Extensive reading note Suzanne Daveau, in Finisterra, vol IV, No. 5, 1969, which patents the appreciation of a Geographer by the work carried out since 1925. The witness of their own,

When interviewed also expressed the appreciation of Orlando Ribeiro, member of the Advisory Council for Science, by Gião and their work]

134A. « Rapport sur la”Recherche Scientifique Fondamentale” au Portugal

Présenté ao Comité Scientifique de l’OTAN, à Lisbonne, le 13 Octobre 1960 par António Gião »

134B. « Développement et Justification de quelques points du rapport sur la Recherche Scientifique Fondamentale au Portugal, par António Gião.»

[Invite the Region to provide such testimony could have Prof. party Alves Martins, a member of that Committee. The aventadas-creation solutions basically large research institutes were not followed.

A similar suggestion, later by Antonio da Silveira, was to take place and to the Institute of Mathematical Physics. Jorge Calado (2006) analyzes otherwise - stated that the two main figures of Mathematical Physics, Gião and Silveira, saw recognized its merit when driving, each of them,”his" Institute].

Publishes a new physics syllabus Mathematics, # 81.

[Not access the second part of the course, certainly focusing on Emna, according to

the testimony of Prof. John Corte-Real; the first seems far more appropriate, in pedagogical terms, than the course of 1961, many problems came to cause.

Deserved however the following comment Student:]

From de book"Livro de Curso da Faculdade de Ciências1962-1966."

Conhecem este senhor
De aspecto tão impecável
É o nosso professor
De Física Matemável
Dizem que há já muitos anos
Antes de tudo existir
Quando o nosso criador
O Mundo quis construir
Só tinha dificuldade
Na questão da dimensão
E resolveu recorrer
Ao bom Professor Gião
E este logo demonstrou
Que quatro tinha de ser
E diz-nos ainda a lenda
Que, mesmo sem perceber
O Criador assim fez
E, justiça seja feita
Apesar de tanta arte
A coisa saiu direita
Mas nós, aqui mergulhados
Em milhares de variedades
E de espaços de Rimane
Pensávamos lá ter saudades
Dos nossos antigos mestres
Que, embora complicados
Faziam as coisas certas
Não nos deixando enganados

(Know this gentleman
So flawless appearance
It is our teacher
Matemável of Physics
They say that for many years
First of all there
When our creator
The world wanted to build
Only had difficulty

In the size issue
And decided to appeal
The good professor Gião
And this soon proved
Four had to be
And still tells us the legend
That without even realizing
The Creator did so
And justice is done
Although much art
The thing went right
But we, here dipped
In thousands of varieties
And spaces Rimane
We thought there to miss
Of our old masters
That although complicated
They did the right things
Leaving cheated)

Empregamos o termo”matemável”[ilegível]
com a dupla intenção de rimar com
impecável e lembrar a ligação, embora remota.
desta cadeira com uma cadeira a que se dá o
nome Matemática.

(We use the term”matemável" [illegible]
with the double intention to rhyme with
clean, remember the connection, however remote.
this chair with a chair to which it gives
name Mathematics)

(Courtesy of Profs. Cândido Marciano and JP Carvalho Dias)

"License October 01, 1966 to October 01, 1967, in order to be absent for the study, in the performance of official duty assigned to it (by authorization of the President of the Institute of High Culture).

Request the President of the Institute for Advanced Culture, March 1966:

"Official Mission for one year from 1 October of the current, to carry out research in the Mathematical Physics, Theories about Unitarian problems of Gravitation and Electromagnetism, and perform some lectures in French and Italian universities."

[Existing document Transcription in Personal Services, Faculty of Science. No documents written supports, but everything suggests that the decision to leave may be correlated with the scientific controversy in the Faculty of Science, which Gião does not come out winner.]

1967

135.”The space, time and life," Speech given at the Palace Manuel, Evora. (D) [News in”A Defesa”.]

136.”On the structure of particles”, *Archive from Inst. Gulberikian de Ciência*, Lisboa, vol. V, n.º1. (A)

137.”On the wave continuation of functions”, *Archive from Inst. Gulbenkian de Ciência*, Lisboa, vol. V, n.° 2, 79-117. (E)

Recension from G. Doetsch **MR0228845 (37 #4424)** 35. 76

The points of a finite *D* area of three-dimensional space are represented by *P*, the points of the regular surfaceσ A and by the time *t*, there is a continuous function$f\ (A,\ t)$ inσ for$t < 0$. The following problems are solved: (a) Determination of the necessary and favorable conditions for$f\ (A,\ t)$, so that in*D*may exista regular solution $\Psi\ (P,\ t)$ from the equation of the wave $\partial^2\ \Psi/\partial t^2 = c^2\ \Delta\Psi$, which takes into σ the values $f\ (A,\ t)$ and satisfies the boundary condition $\partial\psi/\partial n = 0$ (normal bypass). (b) Determination of $\Psi\ (P,\ t)$ and boundary values$\Psi\ (A,\ t)$ to$t > 0$, if the initial values $\Psi\ (P,\ 0)$ and $\partial\Psi/\partial t\ (P,\ 0)$ are known. By”continuity of the wave" of a function$f\ (A,\ t)$ given inσ to$t < 0$ means: the boundary value $\Psi\ (A,\ t)$ to$t > 0$ the wave function $\Psi\ (P,\ t)$ determined in *D*, which for$t < 0$ inσ assumes the values presented$f\ (A,\ t)$ and fulfills the boundary condition $\partial\Psi/\partial n = 0$. To apply the theory, temporal continuity up to two barogramas observed for a period of time, using for such different values of the constant *c*. The results are compared diagrammatically curves, with the actual physical continuity of barogramas.

Document in the personal services of FCL

"António Gião, Professor of FCL, appointed Director of the Astronomy Bureau."

Order published in the Government Gazette, n.º 195, Series II, of 22 August 1967.

[In that capacity, would be reissued as the Centre monographs some of the previous years in particular publications related to the Celestial Mechanics. The other author to publish this collection will Raimundo Vicente.]

1968

138."Ergodic properties and waves" (em colab. avec Jorge A. Branco) , *Arquivo do Inst. Gulbenkian de Ciência*, Lisboa, vol. VI, n.° 1. (C)

139."La variation de pression au niveau de la mer en tant qu'advection pondérée", *Arquivo do Inst. Gulbenkian de Ciência*, Lisboa, vol. VI, n.º 2. (C)

Charter London, 12/19/1968, (Personnel Services Sciences School) :

"Hon. Mr. Gabriel Costa (and my good friend).

I am again being treated at the hospital (...) London (...) "

1969

140."On some properties of the isallobaric field" (en collab. avec Jorge A. Branco) , *Archivefrom Inst. Gulbenkian de Ciência*, Lisboa, vol. VII, n. º l.

[Posthumous edition, due to the death of Antonio Gião June 3]. (C)

[The preface that was never printed, by the will of otherwise Egidio Boyfriend (according to Jorge White, reportedly stated that Gião would be"very discredited")]:

We regret to announce that the present work is the last contribution to science of Prof. António Gião. He is died just when we might yet expect many results of his outstanding capacity. His life was entirely devoted to the high problems of mathematical Physics, theoretical Meteorology and Philosophy.

It was for us a great honour to collaborate with Prof. Gião and a pleasure to know his superior and unique personality.

Jorge Branco

[Ephemeris of a colleague with whom he maintained close.

The obituary notice # 82, extract from"The Word" which records at the same time the obituary by Almeida Costa and the absence of institutional figures at the funeral Scientist, loneliness testimony that passes away.]

Medical Certificate

Lamb arsenic,

"Sick since 1/16/1969, totally unable as a teacher (to 18/01/1969)."

[On the death, it is replaced by Luis Castro Meireles Freitas, who previously taught topography, and it was"in charge of practical work" of Mathematical Physics, as regent.]

Poem by Ruy Belo

Necrologia

Portugal tem nove milhões de habitantes.

Lisboa talvez tenha um milhão

Nada disto me pode consolar, bem sei.

Morreu António Gião.

Eu não o conheci, nunca o conhecerei.

(Obituary

Portugal has nine million inhabitants.

Lisbon may have a million

None of this can console me, I know.

He died Antonio Gião.

I did not know, never shall know.)

++++++++++++++++++++++++++

I want to retain the final sentence of Antonio Gião, to say goodbye to Jorge Branco, who had gone to dismiss death bed at the Hospital of the Red Cross:

-”To what a Man can get!"

1981

141. The Portuguese Society of Authors notice:

PROFESSOR ANTONIO region

Evocation of his life and work followed by an anthology.

Includes the following Gião texts:

- Prayer [transcribed and interpreted in # 7]
- Nocturne
- Absence
- Vers l'Italie
- Mésopotamie [dated March 1943]
- Two Days
- Faust Actuel

[part of which is reproduced in # 10 and # 11 and analyzed # 12; outos extracts part of the conference # 6, 1967.]

- Consideration of Poetry
- About a sentence of André Verdet [Translation (142) , which is reproduced in # 8]
- Science, Philosophy and Religion [of the conference # 5, made in 1959]
- Response to an inquiry

[I think is the 'La Parisienne' magazine, 1959, entitled”Ce que nous devons to

Einstein 'that also responded, among others, Arnaud Denjoy, Marcel Boll, Maurice Gex.]

- About Teaching Mathematics Physics.

[Document not been identified or dated, but on the content and face the testimony of Prof. Furtado Coelho who was then present, interpret as being the discourse of Swearing-in 1960; I reproduce it below.]

[Although not signed, I am inclined to attribute the organization of this volume to José Pires Gonçalves, who twice -. Antelóquios in the lectures # 5 and # 6, demonstrated better meet the scientist and his work]

1986

142.”Sur une phrase d'André Verdet” *inPierres de Vie*, Hommage à André Verdet, Ed. Françoise Armengaud, Editions Galilée, Paris. (D)

[A tribute to the man who had interviewed in 1941. The volume includes texts by other authors, p. ex. Edgar Morin.]

3. 1. SOPHIE SPIRA GIÃO (1904/1999)

With the passing of the scientist, the strong personality emerges Wife.

Because the details are scarce - spent part of last year out of Reguengos, and the House Gião file contains little information on it was necessary to use secondary sources (Sonia Romao et al (1996) , Ilídio Gaspar et al (1998).) and interviews (Luís Gonçalves Pires).

Relief on # 83 photograph of a meal at”The typical Restaurant Beech", the 29/04/1971, where the signatures identify, alongside Sophie Maria the Old Coast Writers to, Isabel da Nobrega, Ana Hathely, Wanda Ramos, IN de Mello e Castro, Fernando Grade and mathematics teacher Emilia Giraldes.

The record # 97, the Rectory of the Universi Lisbon, reiterates the lack of identity of the Mother of Gião, patent of autobiographical notes; Sophie tries to solve that mystery, as is documented in poignant letter of 31.10.1969 reproduced in # 95.

Finally, because the handwriting does not match the Gião and looks feminine, the manuscript # 85 lists securities of non-scientific texts of Gião.

Some of them come to light in (141) , others were not found. I attribute this page to Sophie plume.

3. 2.PROJECTS NOT DONE

This is not an exercise in virtual history of science. Perhaps by his tendency to isolation, Gião is not infrequently a defeated personality.

Makes attempts and know failure. In the previous paragraph I listed an impressive list of publications, and the act of publishing is itself a prize, even when the text is misunderstood - or ignored negative book reviews target.

I now present the less bright side, one whose only memory rests at Casa Antonio Gião.

The first letter - # 97 - Gião that addresses the community is written as a student.

I know of who directed her and was no answer. His works of that time did not seem to refer to the meteorological phenomenon mentioned. This will be the first project certainly doomed to failure.

The unpublished documents # 86, # 87, # 89 and # 91 witness your mood and motivation on the dates appear - in 1937 the first 2, 1939, and 1961.

86 is the first of several projects (1937) to star in a meteorological organization at European level. It is an ambitious document, eloquent, well structured, signed by an ambitious young scientist, with work done in various branches. It aims to create an institution and a line of publications.

87 reveals less ambition, but points to a need of the hour - the network of meteorological observatories linked by wireless telegraphy.

The reader can compare the dates of these Gião projects and acts listed in biographical news Wehrlé, at # 20, the date of 1938. The conclusion that emerges is that both are responsive to the needs of the European meteorological community.

What Gião aims to do and can not is done by Wehrlé. # 88 is the confession of their failure. The attachment with the adherent personalities the initiative was not, however, maintained.

Two additional comments to # 86:

- Last reference to Wehrlé, who is incompatibilizado 4 years, which appears in Gião bibliography;

- Annex II, a characterization of the literature was relevant to the writing of”lines of force at the thought of Gião", and will be in the”Hermeneutics"

The project # 89, dated 1939 is already in Portuguese. Does not aspire to leadership of a European network, being appointed to the implementation of a mathematical model. The National Weather Service, who will be born in 1946 under the direction of Prof. Amorim Ferreira will not use these models-inspired prediction equation or trends of Lewis Fry Richardson - considered inaccurate; Dedebant and Wehrlé later Gates recensor, would have objected or would argue in the same way towards Gião.

It is here an invisible line of demarcation between two types of meteorologists mathematicians commo Fry Richardson and Gião, and physical-all other such names.

As previously seen, marriage, war and internal exile will change the readings of Gião and his work. His area of interest now includes particle physics and cosmology.

The document # 92, 1946, is representative of a series of letters, almost identical, addressed to Fermi, Schrödinger, Pauli, Bohr, Lichnerowicz (at least) in order to come with them to create a magazine,”are based Physica".

In this letter, stemmed an exchange of ideas with Schrödinger, from 1946, which further analyze some points. But the magazine will not come to birth.

The next project will be directed to Azeredo Perdigão 15 years on

The approval requested will not take place.

In the chapter devoted to his work within the Calouste Gulbenkian Foundation the same story is told from the viewpoint of Azeredo Perdigão.

3.3.A PROJECT PARTIALLY DONE - PHYSICS MATHEMATICS IN SCIENCE COLLEGE

This paragraph is the juxtaposition and interpretation of documents with contrasting content.

The first documents translate character of nobility and high idealism; the last two, the absence of dialogue between Gião and his assistant, both between and students and, implicitly, between Gião and colleagues.

On the Teaching of Mathematical Physics (Portuguese Society of Authors, 1981**)**

When in Paris, I received the news, quite unexpectedly, that the Council of Professors of the Faculty of Science, University of Lisbon had decided unanimously to propose to the Minister of Education my appointment to the position of Full Professor of Mathematical Physics I confess to have been torn apart by some both opposite and contradictory feelings.

I could not help the struggle between the desire to accept so kind and honorable invitation of the Faculty and the desire, almost instinctive, to preserve that precious and so rare today independence should I largely the environment necessary for the formation of my scientific work.

If the main characteristic of an intellectual temperament is almost impossible to be interested, effectively and passionately, for problems that can not be related to the topics for which they have lived forever and without which, conversely, almost was not possible to maintain a sufficient interest for existence, then it is natural to fear, first of all, that the teaching occupations require to leave this area where everything is familiar and where everything is presented, as it were, as a reflection of our personality.

In addition, the communication of knowledge that we are exterior, which are not part of our vital concerns, is a work that seems incompatible with the true scientific spirit, whose requirements are rarely met in the present state of the universities. For the role played by Professor justified fully, so that it is much more than a simple scholastic player that can easily be found in the books, it is obviously necessary to feel every moment their creative activity and their way of transfiguration the problems that are dealing with. Only then established between teacher and student that exciting environment, almost magical nature, in which both participate in some way in the formation of science, thus creating the necessary conditions for the emergence of vocations or leaving at least indelible an intelligent admiration and justified by the principal foundation of human dignity: the selfless activity of reason. Is this the ideal of higher education, which we should try to approach us.

However, examining the particular case of mathematical physics can be found that it takes up, from this point of view, a privileged situation, because it is perhaps easier here than in any other science reconciling the demands of the general culture communication with the fundamental need to keep alive the spirit of inquiry. Indeed, the interdependence of the different parts of mathematics physics is so sharp, the interaction and osmosis of the theories so intense, the domain of the great principles so vast, it is almost impossible to consider separately any cell of the body in evolution where the currents of ideas little by little will produce a tendency for the end unit to the cosmological synthesis.

As a result of these fundamental circumstances, who spent his life trying to contribute to this synthesis with all the energy available to it, will necessarily be taken to print the result of this effort the same in their teaching activities, approaching so almost automatically, and by the virtue of science, ideal situation in which teaching and research as it were confused and reach an intellectual category of higher nature.

These considerations and the like that is useful to speak here, managed to dispel my scruples and cheer my spirit. It is with pleasure that I assume the functions Professor of the Faculty of Sciences of Lisbon, where I will certainly find, along with all my colleagues, understanding, support and friendship.

[Understanding, help and friendship, words that will be seen along the School Board Minutes, do not describe the attitude that Gião found, nor who returned within the Faculty. The chapters around to an error of this Teacher, presents dramatic documents in this regard].

[This is the Charter on the entry into service at the Faculty of Sciences, presumably published by José Pires Gonçalves, in"Evocation of the Life and Work of Antonio Gião" (1981).]

In the light of intentionality above eloquently expressed to be read # 92.

After described the scope of this science, and developed its chapters them the course of 1960/61, documented in # 75, Gião explains that the second part of the course should address the Ente Mathematical not random, exposed in this document to more clearly and persuasively than in letters to Majorana, Einstein and Schrödinger.

The testimony of Prof. John Corte-Real confirms that it was so.

The classes did not go smoothly.

Witness the letter # 93, whose reproduction unfortunately omits the last line. As is usual in academic life, students complain about the teaching of disciplines, establish contradiction between the methodologies of Professor and Assistant (Raimundo Vicente) and propose alternative valuation methodologies.

The message recipient is called António de Oliveira Salazar.

The letter # 96 dating allows the response to the event - the August 9, 1961, ended its first full year as ruler, Professor complains to Ramos and Costa, Director of the School, to anyone who asks to take action. Consulted the"Match of the Faculty of Sciences Registration" this year, there have been no response.

The letter # 94 is a draft, and do not know whether will have been sent to the

School Board. Shows the anger of the Teacher to the boldness of the classes. The fact is that the Minutes of this body do not mention the situation in subsequestes dates. Only the Wizard will come to be regularly criticized in writing. And when that happens, Gião will be there to defend it, as will happen a year later, raising the document # 98, proof of Teacher's loyalty to his assistant at a critical moment.

The existence of any sequence of these cards can reveal several factors:

- The awe the name of Salazar;
- The practice of Olympic distancing of some Professors;
- The censurância, as well identified by Bragança Miranda (1985) ;
- Yet the oblivion of an episode so unusual remains mysterious.

Neither Salazar File nor the Council Minutes refer this dispute. Who made a purely institutional history not relevaria this.

It was necessary to tame the House Gião file, interviewing Prof. Rui Kitties, student immediately after class, to clarify the dispute.

But were felt some consequences:

- Gião will come to be replaced in Celestial Mechanics indirectly, when in Minutes, which is written and Sebastian Silva”is considered owner" of that chair, now governed by Veiga de Oliveira, as he had in the last 50.

- Assessment in Mathematical Physics will be simplified when under books, two years after this episode, numerical grades are being replaced by the term”admitted" bet each of the enrolled students...

In short - the pedagogical project is mathematics has, since its first year, a patent failure among students and finds little solidarity among colleagues.

4. GENERALHERMENEUTICS

Given the aforementioned difficulty decrypt most of its work, hermeneutics in Gião will focus not on texts but on the difference between them and their evolution. The scientific text is itself a form of truth - semantics - is corroborated by experience, or rebuttal. But there is also a social or pragmatic truth - scientific text communicates the author's ideas to the reader. The quote, the opinion of the referee, the recension of the reviewer are significant acts in this reading frame. The information compulsada in Timeline can then be divided by themes and personalities.

Noted the book reviews in the Timeline will be accounted for theme the positive reviews (+). (negative (-) , neutral (0) and distant) (D)

Philosophy of Science

Rarely are summarizing object.

Generally published by agencies of the Portuguese Society of Mathematics, texts as (40) + - (48) +0, (73) , (74) , (77) reiterate the following topics:

- Physical existence is the necessary consequence of not arbitrary mathematical existence (variant of the ontological argument).

- This fact allows us to determine the dimensionality of the physical universe with the number of independent constants in a tensor. In his Fundamental Theory, Eddington had argued not very different way to find the inverse of the constant value of fine structure...

- The likelihood as an approximation and not as wave equation solution.

- Consequently, the absolute determinism in particle physics.

These points are taken to an international forum in (82).

Six years later, in (98) are evident in cosmological concerns, the subject of time:

- The scan U 4 by U3 (two universes that solve disjoint parts of the set of equations that govern the Emna).

- The creation of matter, responsible, among other things by the spiral pattern of galaxies.

The route (113) (117) (128) (130) , all of it is designed synthesis interventions carried out in Portugal.

On page 11 (113) , criticizes the double Gião Louis de Broglie solution, as well as the interpretation of Bohm and Vigier, presented as a form of"experimental neo-positivism". On the next page verbera unitary field theories (Einstein, Schrödinger, Jordan, Kaluza-Klein) , essentially the characteristics of arbitrariness and incompleteness.

Proposes to the particles a way of defining potential blood cells, or tubes in space-time.

In (117) suggests that the interaction"transfiguring" U3 / U4 is because of the creation of life.

And (128) repeats a concern very topical - the deduction of the constants of nature - h, c, masses of particles from of a single principle's explanatory-see Labousserie (2004/5)

It will be noted that the latter text, in Portuguese, had no international reading. Other philosophical nature of work is (31) , (77) and (98).

The profile of reading (31) will ++ D, counting as positive reference Braffort, the summarizing Zaycoff and far the H.T.C.

The early mathematical modeling – texts 6, 18, 20 (++).

The search for the wave concept and its spread in meteorology, it is clear from the student days in (6).

In this single work (20) dedicated to hydrometeorology, Gião relates this with the cloud type. Point that he will not develop.

The 2nd + mention is the quote in MIT PhD (James Murdoch Austin).

From the beginning of Frontologia to the Theory of Disturbances.

8, 13 (+) , 14, 17 (-) , 19, 21, 23 (+) , 27 (+) , 29 (-) , 30 (+) , 36 (-) 37, 47 (+0)

The mention - 17 will be long reading Note Dedebant and Wehrlé (1935) ; the

words + 27 is the reference by Costa Lobo (1935)

The interest of the Gião Frontologia, translated in their Bachelor thesis (8) , will come to deepen the encounter with Bjerknes.

The sequence 13-14-17 marks the Gião of institutionalization as a great author in meteorology, defender of his mathematization under equation trends, which deserves to Prof. Corte-Real criticism of errors of the same order of magnitude of the results. What it will cost critical as the Wehrlé - praising (14) , to criticize (17) in terms which are analyzed as # 16.

The theory of spontaneous disturbances is part of a deterministic philosophy, so contrary to the Dedebant and Wehrlé - and is applied:

- The atmosphere (23) , (29) , (37) and (47)
- The solar dynamics (36)
- A general theory (30)
- As scientific knowledge synthesis in the text (27)

Later, the theory of spontaneous disturbances will be incorporate in the draft Phenomenological Physics, and is yet another approach to the 60s Gião apparent in Scientific Data Centre projects.

Phenomenological Physics

21, 23 (+) , 25 (+) , 31 (++D) , 34, 35 (-)

In 21 is for the first time the distinction between properties”entretenues" spontaneous and a physical body.

In (23) , which also include the former category, analyzes the relationship between scale of the phenomena (in the atmosphere) and temporality forecast.

The phenomenological said analysis is performed at the conclusion of (25) - suppresses the causality limitation to the study which is directly observable.

(34) expresses the aim of reducing the complexity of the study of weather phenomena wave equation.

(35) supports the ability to forecast any term, which, it is known from Lorenz, is

not feasible.

Finally, the 228 pages of (31) , mentioned above, explain the phenomenological theory Gião, seeking to restore its credibility, perhaps five years before affected by the vehemence of Dedebant and Wehrlé.

Physics of Particles

This line of work consists of two very different sets:

38 (++) 39 40 (+ -) , 41 43 (0) 46 (+0) , 54, 57 (all from 1946 to 1948) , to which is added the text of the novel microelectrão in Book2) , and other quite distinct (126) , (128) and (136) in the 60s.

The concern of (128) is unique in the work of Gião, when trying to enter under potential attraction / repulsion of particles, what was then known about the weak and strong interactions.

Often spoke of errors in the work of Gião. It's up to who first writes a thesis on it hierarchize them.

I believe should reveal the 38-46-57 trilogy that which can be seen as the biggest misconception in understanding a physical reality, known from his prediction by Dirac - antimatter.

Perhaps by its overly systematic anti-physicalism, Gião saw in charge and mass of the particles mathematical solutions, and ingenuity, proposed explanations identical - pairs of conglomerates electron / positron - to explain the proton and a neutron, seen as not elementary.

Let's see in detail.

In (38) proposed a cosmological principle's, which are”deduced" the propositions:

- The necessary existence of the universe of”corpuscles compounds" - proton, neutron, hydrogen atom of which the exact weight is also”inferred."

- That would not be elementary (point) corpuscles but made of”closely together" electrons.

- The impossibility of existence of antiprotons, at least at the time when the

universe had its minimum radius - under a Sitter's cosmology.

The quotation marks around the word deduction involve legitimate doubt that of a syncretic ontological principle - the Emna - may be a logical consequence of the above statements, essentially independent of each other. I prefer to say that the author argues these texts intelligently persuasively, that did not produce however, the patent conviction in quotes or clearly positive reviews. But it should be noted that the benefit of the doubt was given to him for a while, by Nobel holders with de Broglie and Schrödinger.

The topics listed in (46) are:

- The container of each elementary particle (emnon) is a four-dimensional space of class C, with three-dimensional border.
- Conditions for the internal and external metrics such space.
- Existence and necessity of this container, the Emna.

After the introduction of microelectron and the radioactivity explanation β - extensively discussed in unpublished # 26 - is introduced the concept of micro-photon spin 1 / n.

No more such thought-entity again be mentioned.

In (57) are”less":

- The need for the existence of particles resulting from the merger of emnons.
- The protons and neutrons differ because the number of electrons having the further neutron microelectrons of order 2.
- The spin values similar to those seen.
- Impossibility of existence of antiprotons early universal expansion.

So far, proposals were repeated in (38).

The new themes are:

- There are 919 pairs of electrons in each neutron, and a pair of microelectrões, 918 with only the proton.
- The merger of electrons occurs without mass loss, loss this is 0.075% for pairs of microelectrons.

The text ends with the calculation of magnetic moments and astrophysics application.

In addition to the EMNA, none of the ideas expressed in this trilogy will continue, so little being known them critical or self-critical references.

Interaction between the field and the particles

Synthesis of two of the major concerns of Gião, this line of work marks the 40s and 50s.

Title - 42 (++) 49 (00) 51 (++) 52 (0) 53 (+) 55 (+) 59 (0) 61 (+) 63 (++) 64 (+) 68 (+) 69 71 72 (+) 78 (0) 79 (+) 80 (+) 81 (++) 83 (++) 101 (+)

In the language of the last works of Gião this area, it is the properties of the external metric of space-time, which would define electromagnetism.

Note that is the scientific area where Gião of current is greater, and positive reviews prove it. It is the area in which H. Babcok and P. Blackett have observational and experimental data to support the theory.

n (63) is the calculation of the value observed in the magnetism of stars and Earth.

In the trilogy 68-69-71, Gião assumes, perhaps the only time in his work, develop a theme other Authors - the wave model of De Broglie photon.

In (78) , (89) , (101) in the context of targeting mathematical conferences, Gião innovates by using the language of differential varieties, and in the latter deals with the relationship between the two universes, here designated W3 and W4.

The action on one another will be used in the test Piccardi explanation.

(83) is a syncretic caught with ending an era in Gião research, which will return to the weather.

In part I - mass of the photon, Gião consume the break with De Broglie, regarding the interaction with the graviton, particle of spin 2 -”hypothèse souhaitable peu" - since for Gião, only the spin ½ particles were elementary.

Part II - differentiation between charge and mass in relation to their fields.

See reappears microelectrão discretely, as well as unnecessary coincidence at the

same point of the two loads, weight and power.

In Part IV, shows great hope in simplifying induced by the work of Dyson, Schwinger and Tomonaga; a line of studies that Gião not come to go.

Between (83) and (101) mediate seven years during which Gião not return to fundamental physics.

Perhaps the most reasonable explanation lies in the enthusiasm put in collaboration with Raymond for the design of a scientific computing device. Or, in silent distance towards De Broglie....

Analog and numeric calculus

Two completely different documentary sequences - patent records (84A) , the description of the analog calculating device (84) , investigations for the support (85, 86) , and numerical calculation of topics - 90, 92, 105 to precede the work in anticipation, advection, climatology, which constitute the core of the publications of the Scientific Data Centre.

Surprisingly no book reviews any of those jobs.

The patented calculator consists of two parts (as in 84A) :

- A numerical integrator.

- A plotter of contour lines and flow lines. (84) publishes the first component photos. (85) decides on the type of error inherent in the integration process, and the mechanisms best suited to imaging. (91) presents an application, and (92) is the mathematical complexity of the root inaccuracies.

The subsequent silence, and the letter # 46 have suggested that the second component has not been built. The digital computer was to overcome these problems pioneers.

It is, however, in 1959 the objectives on the basis of computer”Temp" is the north, during the course done in Dublin, (105) comparing this project, which seems more appropriate for him that the”universal digit computer" - and these are computers that Gião will find in the center that will direct two years later...

That is, this assessment Gião commits a true error of perspective.

Rational and celestial mechanics

As a component of mathematical methods of physics inspired in the treatment of fluids, there are five texts that Gião works celestial objects as solid - the Sun, the Earth, the stars, including the Sun - the same as formerly, with Wehrlé, treated as fluid.

(44) (++) - calculation of the moments.

(53) (+) - the only one that includes observational data

(61) (+) - which solves the problem of inclination of the magnetic axes.

Also face the N-body systems, (116) , setting conditions for almost intervals or, alternatively, as their disintegration system.

(112) (+) is one of its most eclectic and innovative work. Faced with the problem of the spiral arms of galaxies, this one (it rare) review of theories to conclude with the stability of the spiral shape from the continuous creation of matter - which does not fail to remember the current search dark matter, which plays the same role.

This theme is reiterated in Cosmology text 1963 as an association of the type of spiral age of the galaxy and the radius of the universe .

Science reporter Gião

2-11 a 12-27

The texts (2) , (11) and (12) are inserted where the autobiographical notes cease.

The evolution from 11 to 12 is a first outlet to the"Republic of the Wise" and the entry into the day-to-day one of the most reputed observatories. Dominated by the figures of Bjerknes and Bergeron is in them that Gião see take shape:

- The methodology of work that unsuccessfully tries to spread in the thirties.
- The new science of frontologia.
- Mathematical models that will culminate in the theory of spontaneous

disturbances.

(27) , the 1933 report in Lisbon.

Will this event be the place par excellence of the ruptures of young and energetic Gião:

- That he does so - driven by mathematical considerations - with the model of Bjerknes, approaching its own unit phenomenology.

- That he did not expect the de-authorization Gião in their own land, set by Dedebant and Wehrlé in violent study # 16. Costs understand how Costa Lobo, then present, was inattentive to what happened.

It is simultaneously its exit from the establishment, the cessation of opportunities, the age of the projects that we read ago.

Reader of other scientists

(7) – the meteorologista Defant, one of his mentors

(45) e (58) - math books

(50) and (66) - quantum mechanics, with an emphasis on Louis de Broglie, who remains close in 1949.

(77) - the text above Beauregard Coast that is based on the criticism of relativity, where he will meet with the thought Piccardi

Meteorology

Surprisingly, the texts published in Italian magazines in the 50s, all summarized in the Chronology, are not subject to recension. It occurs to mention the + (94) , since the joint monograph with Manuel Ferrreira was awarded at the conference in which it occurred.

I do not analyze the Dynamic Climatology, whose assessments are fully positive, because nothing would add to Professor Suzanne Daveau.

The book reviewers:

- Listing the revised Zentralblatt, Reviews Mathematics, Physics Abstracts, 35 are Reviewers.

- In each of these respects, a outweighs name, respectively

- W. Wenzel +++ - +

- Strachan C ++ - +++++

- R. A. Newing - 13 entries +

Among the negative book reviews is mention of R. Emden (in relation to studies on the rotation of the Sun) , the Synge (the heat equation of the solution, causing the controversy in the Journal of the Science Faculty) , and the Gates on the numerical inaccuracy, subject to that, when pointed out by Dedebant and Wehrlé, Gião shown insensiblidade, insisting that the errors were in the data - the letters - not the template.

5. THEMATIC ANALYSIS

The previous chapters cover a recurrently diachronic analysis.

The following items will lead to revisit now with the global perspective, and sometimes reread the acedidida documentation.

The logic that I will begin by probing the other side of Gihon, the human being outside of working hours. The following is the correspondence, and from it, access to one of the three areas that I chose privilegiar- meteorology.

We had already made a brief timeline about the history of this branch of physics, preceding the more detailed progress in the scientist's life time. Because two new chronological milestones will be needed for the 2 other areas to study: the fundamental physics and the cosmology, treat these in independent paragraphs. How will do in relation to Piccardi problematic.

Finally, also independent, institutional narrate stories, where the teaching is to place the Faculty of Science and research focuses on the Gulbenkian Institute of Science. This division of functions, surprisingly, come to be at the heart of new conflictualities.

Relief in 5.1 the following documentary sources:

I-”causalité et Déterminisme" # 4.

II-”Science, Philosophy, Religion," delivered in 1959 Conference, Reguengos de Monsaraz, # 5.

III-”Space, Time and Life" lecture delivered at the Palace Manuel, Évora, 1967 # 6.

III- A Gião poem played by three students of the University of Évora, # 7.

IV- A text that I am the author, # 8, published in Istanbul (2007) integrating:

a) the reference in the book to a Friend historian;

b) a posthumous text (142, Gião 1986) ;

c) a love poem and a medal, # 9 - both designed and dedicated by Antonio Sophie.

V- The Innocent's song # 10 on their”Faust Actuel" image of a mathematician

and benevolent Demiurge.

Reading this selection shows some invariant:

- Being Mathematical not random, patent in I) , II) , IV) a) , IV) c) , V) ;
- The ternary justified structure I) and illustrated in IV) c) ;
- Faust as drama contemporary sage in I) , II) , V) ;
- Prayer, in III) , IV) b) , V) ;
- Sandwich recurrence rationalists - Descartes, especially - and mystics -Boehme and John of the Cross;
- Switchover in IV) of Ilioukine of anti-Semitism in a) with the admiration of the people of Gião Temple builders, c) ;
- Fear or horror moments arise in I) and II above) ;
- In general, with different senses, present in the physical universe, the idea of transfiguration.

5.1.ANOTHER GIÃO

The work of analyzing oral texts of poetic inclination is more thankless than the recensor of scientific texts. This can aspire to make it clear what they read; that is doomed to disjoint parts of a whole that is worth to be comprehensive. I will therefore only reveal some significant units in any way a substitute for reading.

Analysis of the Conference # 5 - Science, Philosophy and Religion.

In the 1st page (40) - denotes the common idealistic perspective to the authors cited, Kant and immediately afterwards (p. 41) , Pascal, Nietzcshe. A Zen poem to the mystery of the moon.

- P. 42 -”The uniqueness of the Cause, which coincides with the beginning of true religion" with Akhenaten, outburst of the individual in history, understood as inspiring the monistic view, opposite the Chaldean, where the beginning of the science is mixed with superstition.

Moses, the route of the Cause and Law. Probable identifying Gião with Akhenaten.

- P. 44 - The Pythagoreanism as imperfect science by resting in too rigid notion of number. Verbal and esoteric delight of the Pythagoreans.

- P. 45 - Silence, base of Philosophy. Philosophy of Science as corruption, calling for”Reason further than the ratio could give" in response to a requirement of the Heart.

- P. 47 - Gião identifies the most beautiful page of Christian literature as Denis the Pseudo-Areopagite.

- Pp. 48-49 - Gião Descartes assigns an importance previously only given to Akhenaten, to proclaim”of a strong and proud way, autonomy and uniqueness of Reason". Little importance of Cartesianism in Physics.

- Pp. 50-51 - Reading, with Spengler, the concept of emergency”Faustian" associated with the gothic world.

[There will come later, to write a”Faust", reproduced in part in SPA (1981).]

Criticism of the Newtonian method - the laws are dependent on the observer.

- Pp. 52-57 - Einstein tensor calculus, the Is Not Arbitrary.

The universe conceived as a triptych; the absolute determinism (message that will not last, except for Zareh and Cordebas, the only ones that echoed on this point.)

- P. 58 - Ungrund, the baseless, philosophical analog EMNA.

- P. 59 - Boehme”This world is not passive... devoured by the desire to really exist," and later,”lighting the world of mathematical entities by contacting the Cause".

- Pp. 60-64 - Confrontation with Evil: Defender of a single possible world (philosophizing version of EMNA?).

Grounds in Rhineland mystic - the first element of the triptych, which is the universe be the Ungrund of Jakob Böhme.

Draft mathematical translation of a mystical vision.

Interaction between the Cause and Ungrund.

Redemption of need in time.

- Finally, the wonderful defense techniques as a condition of freedom.

- P. 65 - poem, to be commented on.

Another poem is intercalated in the lecture -”oh mathématiques severes" of Lautréamont

The conference is a wonderful piece of history of human thought, in which the great movements of the spirit correct the shortcomings of the foregoing. Culminating in Ungrund Boehme, in their interaction with the Cause, and search engine of thought, expressed in Ricci calculation and Emna with explanation for the existence of the universe.

Analysis of the Conference # 6 -”Space, time and life"

We recognize this page anguish mentioned by Pascal voice in 1959. conference Here the author is more elusive.

Opens, however, the psychological time in Augustine to reach Bergson.

The citation Eckhart (p. 69) ”Time is what keeps the light to reach us" is evidently a statement relativistic, which Gião not say with elegance.

P. 70 - resumed the theme of its 1938 volumes, the essential difference between human language-the verb and the matemáico symbolism, more suitable to this expression of the mysteries of space and time, that assumptions.

In # 5, the reference was the Ricci calculus; Here, the geometry of Minkowski, expression of the Kantian noumenon (p. 71). Whose better structure disassembles the illusory discontinuity integral part of the notion of matter, this illusion (p. 92)

”The Universe is the cloak by which the Being protects the Nothing" (p 93). Gião refers to a dark dream - Nothing, of whose interior filtered”a strange light."

Its cosmological vision, Gião reveals something more of himself to writing a new Faust. Whose speech with mathematical allusions (pp. 75-77) is treated below.

A p. 78 introduces the theme of the U3 and U4 2 universes, whose interaction (p. 79) ”the material world is like a dream immaterial universe in contact with the pure

form of geometric universe."

It is a step to the continuous creation of matter, Gião cosmology.

Here is expressed in reverse order of occurrence in the scientific production Gião as Hoyle (author that neither prose nor Gião library include) , the need for two creations, the life, and the matter.

The evolution that occurs in Spengler player that is Gião - apollonian declaring in 1959, it is assumed, eight years later, as a benevolent Faustian.

#7 – Prayer

Context:

It is the final poem of the 1959 conference.

Originally written in French.

The authorship of the analysis is the Drªs Sonia Romao, Maria João Antas and Sandra Pereira

Stresses the themes of # 5 -a upward epic number to Freedom, and the philosophical duty of silence and solitude. A point where the students once met with the temperament of Gião.

Synthesis

The various aspects of the personality of Antonio Gião.

Reading the two conferences, made after the glimpse of numerous articles and some correspondence, only allows now realize, clearly, some character lines:

- The Gião introverted, misanthropic, autobiographical, that quietly runs through childhood to the handwritten notes.

  You only have been known to few - Sophie, Josefa Rita Pires Gonçalves, those who - in the interview correspondence, not public - or who - by his words, in letters found in Notes, or poem, have been expression of affection.

- The enthusiastic scientist from 1924 until the exit of France, in 1941. Apparently extrovert, interpellating the community with investigations and projects, is a pair

of meteorologists and proudly live success, rarely shared.

- The nervous wise reminiscent Prof. Rui Pinto (personal communication) , or angry, choosing the pretext and the time to break Wehrlé, who owed so much; the central subject of the breaks that later lives, and will suffer stoically (interview with George White). In the long downward course that begins with criticism of Synge and ends with the withdrawal of Simões Pereira, stubbornly persists in what, despite the value of Truesdell and Ames and their concordance, was nothing but a mistake.

The ruptures with De Broglie and Bossolasco, poorly documented, may or may not be part of this character trait.

- The silence that accompanies some of the themes that seems to give up (the phenomenological physics in 1942, the microelectrão in 1947). Its persistent belief in both find no other element in addition to the report to the Gulbenkian in 1964.

- The self-taught Gião renewing the issues after the war, in texts sometimes confused with an excess of calculations and a language so often poor.

- The teacher is no longer a dilettante in 1960. In what may have been his first steady job (hypothesis that sustain to test, I could not find from previous occupational ties) that focuses the interaction between senior colleagues or other sections without the pass message for students - do not you know disciples at the Faculty of Sciences; however, free auditors IST, formed by Antonio da Silveira, as Furtado Coelho understand it; coming from the Physics Course, John Corte-Real remembers him as a good Professor of Mathematics But this is not the sentiment expressed by students in the 1966 yearbook...

- The pioneer who in 1963 created the Scientific Calculation in Portugal, and also dare enter into the cosmology of continuous creation, in direct opposition to since community consensus around the Big Bang.

- The man who fell ill and despaired with a kidney disease, consequent drop in the last year of life (George White, interview). It's probably the one that writes the Notes Autobiographiques.

- The author illustrated perhaps revealed in some of the manuscripts that have not been preserved, and patent in two conferences preceding the many other crucial changes:

    - The 1959, one year before the return to Lisbon;

    - The 1967, since the early days of his illness.

- In them are reflected unusual poetic, musical and philosophical erudition, always on the side of the mystics, such as timbre of atheists or agnostics. Incidentally see the text Ilioukine in # 8 - the EMNA will be the”scientific" alternative to the God of the Old Testament....

- The final poem taken from Faust is a pedagogical vision of how the universe could or should have been provided with mathematical structures. Poetic and theatrical version of Being Mathematical Not Arbitrary?

Review of mathematical ideas in Innocent's Song (# 10)

A bridge to cognition in Gião?

The author on the study, which in cosmology advocates the expansion of a finite space, allowed to this text fascinated by longings for the infinite, the hallmark of the five-dimensional countinuum, which U4 and U3 are sections.

Let us consider the order in which the concepts appear in this poem:

- Current infinite
- Real space
- Continuous domain
- Ball
- Countable spectrum of operator
- Own values and stable
- Arbitrary index solutions
- Solutions of transfinite
- Series and their sum
- Series representing any curve

A little later:

- The whole and the one
- Aleph-zero, trans finitely closed
- Aleph-one, and continuous
- Decryption of space and time

To immediately criticize:

- The secular error Western
- The”demon" of experimentalism
- The unreality of the physical laws

As it turns out, there is an analogy between the poetic expression and aspiration of all mathematizing a priori.

Out of curiosity, another mathematical metaphor will occur in Faust.

Will sleep,”ephemeral operator".

The interest most of these notes, in the context of this thesis, is that they are recurring. Checking back the medal # 9 and its dedication to Wife, see reiterate to operators”deltas" and”nablas". The timing of the conference # 6, listen Gião to report a dream.

Note the ubiquity of at least two factors that Whittle's unconscious Gião:

- The very strong Oedipus complex, as reflected in autobiographical notes, outstanding after Gião until the demand of the Mother, by Sophie;
- Dreams / colorful images / metaphors of scientific significant - infinity / abyss, the ubiquitous operators....

Interpretative hypothesis - the interconnection between # 4 and # 10

The result seems to be a deep belief in mathematics as the only way to the truth, evident in many of his texts, is the enunciation style of a principle which”corollaries" (itself independent) appear derivatives; is the intrinsic self-reference to the concept of arbitrariness not be the mathematician (additional hypothesis is not assumed as

such) becomes physical; consequent antipathy by many other instances of less rationality - positivism, experimentalism, indeterminism and even relativism... Note that the points set out above appear after the 2nd war, in scientific work Gião.

But, for example, the books 3, 1938, 1 year before projects to 1 year later these are not vitiated carecterísticas style. What happened at the long exile in Reguengos to change the already mature scientific practice Gião? What have been your vision in those years?

It is something that only the lectures of this chapter seems glimpse news readings, Boehme perhaps more than others; Another type of mathematics; and intellectual solitude in Portugal then, that seems to awaken to publish profusely after the Armistice, and reinsert in successive networks of scientific and artistic interaction.

I think there surprised that transition in the document # 4,”causalité et Déterminisme". It is a aphorisms sequence, still presented as independent. An author is called into question, (Bertrand) Russell. The phenomenological physics is present-which points to the 40; physicalism is being abandoned - texts of the 20s and 30s; reflections on the error will not be continued in their work; and yet there is the ubiquity of the Cause as opposed to causality or the postulation of Being.

It is a Hawk seeking groping. Dated, I think, by this host of reasons this text as the first years 40, cotejemo it with his poetry since.

We have a text ("Mésopotamie") dated the victory at Stalingrad (SPA 1981) which, despite the title, is dedicated to the USSR; another will be the text of 1986 as public IV) b) cite”la vraie Patrie" - the philosophy-before praising the Mediterranean and noted S. Paulo (comment to a poem of his 1952).

In the medallion dedication - undated - the fascination with the temple and the people of Israel and the Holy Temple in ritualized and tabernacles; reference to heaven-earth binomial.

In the Song of the Innocent - that dato 1967 when Giao says is ending Faust - the final verses mention”sublime hauteurs" and”les jealous."

Note the evolution of metaphors, all geographical, from the horizontal to the

vertical (from physics to mathematics?).

Venture because writing that desfisicalização of Gião science accompanying the original route to the mathematics that is the postulation of Being Mathematical not random, the gradual transition of poetic images in the zenith direction - the God who so rarely mentions when it takes unbeliever. Although analyze therefore the various highlights of this fundamental physics Gião - the emnon, the cosmological model, the explanation for Piccardi-are so many moments of this poetic demand, which began during the war - the search of the Absolute.

5. 2. CORRESPONDENCE

The reading of Gião epistolography allows find some inflections in their way of being in the world.

Proceeding chronologically:

- Letter # 85, p. 337, 1925.

The young student of Coimbra questions the”observations de votre station" over a”grain of lignée" had caused”importants dégâts" from 5 to 9 February 1923.

The questionnaire focuses on the detail charts exact measurements of the instruments on the ground, the wind aerológicas polls, description of clouds, the station topography.

Predicting the failure of some measures, suggests precisely alternatives.

The term party,”salutations empressées" expresses an urgency that certainly was not matched.

- Letters # 15, p. 124 (29/02/1926) and p 123 (03.10.1926).

He spent a year. In Strasbourg, Gião has already conspicuous. General Delcambre, Director of the Office of National météorologique Paris, calls for Wehrlé the instruments of budgeting (1st letter) , and this invites Gião the vistar Office in Paris, in particular to meet Jacob Bjerknes; such a meeting would occur later in Bergen.

In the 2nd letter, is Wehrlé who sends data obtained two months earlier in Perpignan, to support a study of Gião.

- Letter # 19, p. 151 (2/9/1936).

The two researchers are incompatibilizados. Region lived however in Bergen (Bjerknes) , Oslo, Brussels (Jaumotte) , worked in the Office and drifted up.

Not identified the recipient of this letter, whom Gião sends a refused work at the Congress Edinburgh Weather Association of Geodesy and Geophysics same International Union assembled a year earlier in Lisbon, where Gião simultaneously introduced their work and had been criticized by" deux personnes Seules"that made up the Bureau. Region calls for a serious discussion and calls the other party to take the Edinburgh news of this marginalization.

- Letter # 88, p. 345 (12.06.1937) certainly sent to a vast range of meteorological institutions.

Two months before Gião launched the project # 86 - Organisation d'un Bureau de Recherches

Scientifiques sur la Prévision du Temps. As well as the subscription of shares for the publication of a daily newsletter, and a course of mathematical prediction.

The 5000 budgeted francs, just collected 2000. States waive temporarily the idea. The letter does not indicate that you have the returned before announcing it will seek other funds. Two years later, the project # 89 which features deepens the mathematics component, not coming to talk about the course or the networking activities.

In 1946 start correspondence with relevant figures of Physics - Albet Einstein, Quirino Majorana, Erwin Schrödinger, in that order.

Let us study for what you write:

- Letters to / Einstein - # 11.

The first is written by Gião in Reguengos, the 16/01/1946.

In it, Gião accompanies his monograph (38) and asks the master your opinion.

The answer comes on 19 March. Einstein claims other duties and has no opinion on the EMNA. Is nevertheless a technical issue in the interpretation of two formulas.

The 1st letter was in French, Einstein answered in English. Exactly one month later, it is time to reiterate the concept of Gião Emna, and weave critical comments to

the application of probabilistic concepts in particle physics, Einstein's response to a sentence; to pass after the microelectrão exposure as an alternative to”hypothétique neutrino". These points will not come to be answered.

I quote the following final letter, undated, Einstein, poured German:

Ex.^{mo} S.^{r} Gião!

I Sincerely admire the consistency with which developed its general thought of”être mathém non arbitraire". I can not claim to have really understood their ideas in its entirety, for example the question”reality versus statistical" within your system. For now, I, however, ask you just one question, for which I have no satisfactory answer.

Implicitly acknowledged that considers the equation

$$R_{ik} = 0$$

as right, in the case of pure gravitational field (without prejudice to the cosmological constant). However, these equations define completely the gravitational field.

However, according to this theory, the yik must furthermore satisfy the equations (25) , (26) :

These equations, however, affect the pure gravitational field in a way not allowed. How will it be possible to overcome this difficulty?

[I thank Prof. Furtado Coelho kindness of this translation.]

How to explain the resulting silence Gião?

I quote extracts of a letter of 1-II-1950 to Dr. José Gonçalves Pires:

(...) ”A French newspaper published a photocopy of a Einstein's manuscript page where come the famous" 4 equations”that constitute the" heart”of the new theory.

Judging by these equations (I've known him for over 20 years !!) , I see nothing sensational in the”new" theory.

These are minor modifications of well-known things and who can not give anything. It is really amazing that Einstein has again proposed this type of trial. (But he already has 70 years) ”....

It is recognized here the haughty tone in which Gião will express the Schrödinger (Einstein would only have half the true theory) along with the general acceptance of Einsteinian theories bad unified field.

In other words, Einstein's lack of interest can not be hurt Gião.

Most affected seems Gião a letter of 03/22/1947, written from Paris to a party who can not identify by 2 dashes:

- The vocative

"Cher Monsieur le Professeur"

-”Je serais three heureux de venir to Ghent..."

in response to a call implies that teacher.

Extract three points that account for Gião susceptibility, and consequent difficulty in maintaining stabilized scientific realações:

-”L'objection of the Lemaître, par contre un contenu réel et peut être discutée utilement. Elle semble Provenir cependant de la brièveté mon exposé...”-

one of the rare times that Gião agree with a critical, in this case the Abbot who conceived the Big Bang.

-”M. Louis de Broglie the chi jai parlé de la question microélectrons, m'a conseillé of m'adresser to MJ Thibaud de l'Université de Lyon,...”

- And is forward to Gião finds:

-”Nous sommes... tombés en vue d'accord dune collaboration eventuelle afin d'entreprendre des experiences dans le sens voulu par la théorie.

Des clichés montrant les spectres discontinus des moments magnétiques de ces particules, conformément à ce que l'on pourrait s'attendre d'après la théorie, m'ont alors été montrés par M. Thibaud.

Plus d'un mois après j'attends encore la copie d'un de ces clichés qu'il m'avait promise. Il est donc clair que M. Thibaud ne veut pas que j'utilise ses expériences, aussi étrange que ça paraisse."

The theory in question is the paragraph around the microelectrão and the many documents that we can see - # 21 to # 28, and also a letter to Schrödinger, # 68.

The only letter I attribute to Quirino Majorana is respostaa Gião in the same year, on 27 February (61 # P296). This Italian physicist should not be confused with Ettore nephew, who died in 1938. In the original typewritten seems difficult to identify the letter Q.

Duma utmost courtesy, claims its condition experimentalist to not fully understand the EMNA. The sense of an absolute existence, Majorana says, corresponds to a non-human power, balances the relative world of physical experience. And rescues is an aphorism Poincaré to counteract the fact that a mathematical relation can set a family of physical theories, unlike the ID that will in the writings of Gião.

Correspondence with Schrödinger is richer.

Begins December 1947 - # 65 - with a comment Gião to an Austrian professor of text on a theme dear to Patrick Blackett, the magnetism of the rotating masses. Region refers to the texts published in the CRAS.

This letter in English, Schrödinger have responded in French, a language he uses in Gião # 68, when, in response to that scientist, correlates 4 threads intertwined in his work, the Emna alluded briefly, the internal and external metrics, the latter connected to the electricity, which constitutes said Gião (p307) the other half of relativity addition, a complete theory; the other 2 themes will be the microelectrão; and again the magnetism of bodies in rotation. It is not known what was the Schrödinger's response to this testimony of intellectual ambition and integration of many branches

of physics.

René Cordebras writes - # 66 - Region in January 1948, demonstrates awareness about his work as a meteorologist, agree to have read 7 times 3 phenomenological physical volumes, Gião questions about their latest research, and briefly presents its own system thought that includes calculating a logical device.

67 is the letter, written two months later by Zareh Nubar, a mathematical physicist discreet native of Alexandria, which will illustrate how the leader of the Armenian community. The letter shows how your thinking converges with the Gihon, the motto”Rien n'est Arbiraire" which will be title of one of his books.

Traces of this correspondence invariant:

- Gião not hesitate to contact the major scientific figures;
- None of them seem to understand the EMNA;
- Closer aspects of experimentabilidade - particles, magnetic measurements do not appear as misunderstanding of targets;
- Less relevant figures, however, show the Gião a superlative admiration.

Correspondence # 12 illustrates a possible moment of degradation in relation to Maurice de Broglie, a shorter reason; an earlier time that in that look cool contacts with Louis de Broglie.

The texts are witness to the cordial relationship between Gião and ZALUAR Nunes Teachers and Marques da Silva, and the competition between the two *Portugaliae*.

The March 3, 1949, Gião writes Marques da Silva counting as a de Broglie Maurice article would have been brought by ZALUAR Nunes, and the discussion comes from it being published in Portugaliae Mathematica, or counterpart *Physica*?

Five days later, on letterhead of this magazine, whose seat is the Physics Laboratory where he and Manuel Valadares had been removed, Marques da Silva opposed to each point of the letter of Gião.

Implied between the lines, seems to be the most prestigious and solidity in the mind of Gião,

associated with Mathematics magazine; the wound honor of his correspondent; the real difficulties of maintaining Physics magazine; and the role of mediator assigned to Zaluar, who had been one of the first teachers dismissed by the regime to integrate the Paris academy where Gião returned to reside. A useless misunderstanding, in short, typical of the difficulties of repeated reaction in Gião history.

The misunderstanding is told otherwise, in a letter of ZALUAR the Marques da Silva.

Dated 14.02.1949. On paper with the stamp of Portugaliae Mathematica, says the right step”Shipping... copies for Valadares, A. Gião, Rui. L. Gomes and Lydia (...) ”.

It may be inferred that Gião know Ruy Luís Gomes. What will be relaxed further.

In 1949 the Faculty of Science is stripped of Teachers - see # 13, taken from the University directory.

Try to fill the depletion in Applied Mathematics teachers inviting Gião.

This invitation would not succeed.

Pool # 14 demonstrates how the incident took place.

The first letter considered, Flávio Resende, is 10/07/1949 and is strongly relevant for several reasons:

- Flavio is the only scientists away in 1947 returning to the teaching of Science;

- Will come to distiguir up as the main connecting thread between the generation of 40 and the future of the College as regards the encouragement of young researchers, quality in relief in the”Teachers Memories Scientists" (2001).

- Takes an intermediary between the School Board and Gião as representative of a call;

- Recalls that he himself had proposed, three years before the invitation to Gião to a new chair of physics;

- That, against their will, such an invitation out to Dedebant;

- Today, the invitation would be for Mathematical Physics (Mathematics Section) , and Professor of position hired.

10 days after Gião answer (p 113.) , And speaks volumes to not accept the

invitation unless it was no contest - we have seen it in the Timeline.

The letter from p. 114 of 29 August seems to be Flávio Resende (as regards Gião response by letter) and goes to Victor Hugo de Lemos, President of the Mathematics Section.

It is again interesting for several reasons:

- Demonstrates the address Lemos has activity in an insurance company;

- Uses intermediaries again, whether Vicente Gonçalves, to account for the requirement Gião; is of ZALUAR for information about this (in a country where teachers were expelled by the Estado Novo, one of the expelled became informer more engaged colleagues to the regime...)

I quote from the letter of August 10, Resende to Gião, the opinion of the President"and therefore the majority of the" - pp. 115-116:

ta.Entendem ser isso uma imposição à Faculdade,ser caso até hoje
único e não terem nenhuma garantia de o seu comportamento futuro
não ser perturbador da harmonia existente!...

Remember to coming Dede ABNT for the College in 1947, a year after the creation by Amorim Ferreira National Weather Service; the enmity between Gião and those scientists would arise suspicion of disharmony? Guess yourself, but do not know the taste.

The College will take 10 years to accept the conditions of Gihon, which responds favorably to the invitation, as can be read on p. 117.

In these 10 years, Gião had made his career, returned to meteorology, will direct an institute in Italy.

The letter 14, p. 118, his oldest employee, now Colonel Manuel Ferreira, undo a mistake - the Institute for whose direction Mario Bossolasco convidadra Gião was a facade title. Questioned by Ferreira, who expect other support that institute that gave rise to its award-winning monograph. Region explains the deception that had fallen, the institute was a front and Bossolaco a 'dictator." Explained as the absence of such subsidies as consquência the fictional character of CIRMM. Not without

remembering that”spontaneously" Colonel had associated to a”program" and”a theory that belong to me only." This system was the dynamic climatology. Leaves at the end:

"What a nuisance having to justify myself! I do not need to justify myself and therefore I leave to your decision whether or not you think we should keep our relations on the same footing ever.”

The military with working for 17 years (Geographical Society) responds to May 20 - p. 121 - an almost illegible letter, resuming the relationship.

Personality for which neither the contact in the house where dwelt, nor been with the Staff of the Air Force permitram find any data.

A common thread in this letter and in what directed to Raymond - # 46, the touch of intellectual humiliation it inflicts to the recipient.

.....

The existing match in Antonio Gião house, only in rare cases has continued - a letter and your response.

Let us quote, as exceptions to this rule, the numerous letters exchanged with the following authors:

- Piccardi (see section below).
- Bossolasco
- Babcock
- Blackett, the experimentalist who received the Nobel Prize for Physics in 1948.

As I analyzed the four sets of letters above inventoried. But correspondence becomes necessary to refer to framework around the other themes.

Character traits that identify:

- For with Einstein, modesty and silence in the face of criticism.
- For with the Faculty of Sciences and their teachers, arrogance.
- Around the Maurice de Broglie, difficulty dealing with conflicting interests and institutional.

- Around the Bossolasco, some resentment.

- To Manuel Ferreira and Flavio Resende, the consideration of true friendship.

Friendship Flavio Resende and Gião, as reflected in letters, will be expressed in again when creating the Gulbenkian Institute of Science, as well as a match that will last until the end Resende's life. They would then also walk by Sebastian Silva and the, Almeida Costa and Kurt Jacobsohn, the most committed teachers in research, and in the case of the last 4, in fostering a new generation of scientists.

5. 3. THE METEOROLOGIST

The story of the young meteorologist begins in eloquent terms of autobiographical notes, as a result of meetings with remarkable men - Carvalho Brandão, the teachers who were teaching patent programs at # 55 and # 56: Defant, Bjerknes, Jaumotte, with whom the interaction is poorly documented - and those who prefaciarão their first books, Delcambre and Wehrlé.

The relationship between Gião and Philippe Wehrlé know a succession of approaches and ruptures that, when repeated with other authors, will mark the style of Gião in their contacts with the scientific community.

What I will demonstrate in a document sequence.

Early days of correspondence with Philippe Wehrlé, letters # 15, which again shows Gião scientific autonomy from its School of Strasbourg, the call made in Portugal.

The relationship began with a letter from the Director of Gião Organisation Nationale météorologique. It will be noted the continuing strong interest in raising a meeting with Bjerknes:

These letters are prior to the encounter between both - Gião and Wehrlé - the Congress of Constantine (1927).

The text (14) , 1930, of Gião, is prefaced by Wehrlé.

Work (22) , 1932, is a co-author of two scientists. This text continues to be

referenced, up to 90 years - the only working Gião to maintain today.

In Meteorological Congress in Lisbon (1933) , there is the strong criticism which is reproduced in full at # 16. Masterfully structured text. Begins by noting that”l'un d'entre nous l'avait three chaleureusement Preface", with reference to (13).

Praises the”incontestables gifts scientifique d'imagination" of Gião, appropriate to a theory, but not to their applications (17).

Begins by criticizing an idea of the theory - the”entretenu champ" (I) , (. P 128) , to the next page verberarem the concept of disturbance - patent in so many titles Gião - and denounce as idiosyncrasy the concept of energy per unit volume. P. 131 is the”spontaneous disturbance" declared tautological concept because the terms are equivalent to; and then the quotes will deconstruct concepts such as the principle of adaptation, the global functions, issues that will come Zaycoff innovative cosiderar volumes in 1938; criticism continues with the simplicity involved in reducing contact actions to friction, to ask at p. 136 up, emptied the equations of their content, there is theory...

On the next page Gião cite a phrase in the same Congress UGGI (Lisbon, 1933)

"La valeur d'une théorie de dynamique météorologie ne se mesure qu'à son application a la prévision quantitative du temps".

And it is envisaged that such accuracy is insufficient, as argued in the immediate pages. Except in the case of an application (17) , which proves to be exceptional, the absence of relief, contrary to the general assumptions Gião. A p. 141 refers simulations in Paris in the winter of 1931, with the presence of three scientists. Region justified the failure of these with the vagueness of the letters; the completion of two authors is the theory being”totalement erronnée".

On the final page realize an alternative design that joins one (I) ”champ de probabilité" (II) to a principle of”moindre dissipation d'énergie".

(I) will be the motto of the phenomenological physics Gião.

(II) will result in the random mechanics.

(III) and (II) are essentially contradictory.

None of the theories that begin here to separate avenge.

The creation of Random Mechanics by Dedebant and Wehrlé was considered extremely important by such diverse thinkers as J. Tiago de Oliveira and Jean Petitot (private communication both.) However, the memory of its creators clouded up.

Who are the two co-authors?

We found their sheer photographs in”Participants in the Second Conference on Atmospheric Ozone", reproduced in # 17.

Debate and Wehrlé have been linked to meteorologists Vichy regime, Dedebant have taught Lisbon in 1947. The first article of both on Random Mechanics is then edited in *Portugaliae Physica* - Dedebant (1946)

The controversy between the two Gião and meteorologists still another magazine; it is the text (28) , 1936, where curiously Gião verbera”Herren und Wehrlé Dedebant" by reversing the order of the co-authors, the purpose of another intervention in these congress in Lisbon. Criticism of Gião fills pp. 331-338; the Dedebant response preeche pp. 339-349.

The document that follows is a response Flyer by Gião, - # 23, which seeks to ridicule the”théorie" of his opponents.

A congress of new UGGI where Gião communication is rejected, and the letter # 24, lamenting the persecution that both you move follows.

Every reason to believe they would not cross.

The documents show how the controversy rose in pitch, assuming a persecutory nature. But it is not the narrator of this story take sides.

The three scientists follow the search for truth in Physics by increasingly divergent paths at the end of life, and also Dedebant Wehrlé were to take some disagreement. (In his”L'Univers Aléatoire" Wehrlé, installed in Switzerland, criticizes the work of Dedebant, exiled in Argentina, on the physics of movements faster than the speed of light). It is the degree of freedom that it is for physical - not all antagonists representations come to be refuted by experience - this is the theme that *Weltbild* Wehrlé developed in the work above.

A comment made in the spoof # 23 by Gião to two French meteorologists:

Note the allusion to the College of Pataphysique, avant-garde artistic movement that grew burlesque. The reference Alfred Jarry author is. It is therefore difficult because of a mood scholar.

Who was Wehrlé in 1938?

Titles on your"*Notice des Travaux Scientifiques of Mr Ph. Wehrlé*" at # 20,

are illuminating - it is the most qualified of the continental meteorologists. A man who is not convenient for an adversary.

At the points indicated by arrows, have succeeded in those projects where Gião failed in 1937, # 86 and # 87, and two years later, # 89.

Study for these projects.

87, p. 339. Gião starts recklessly, giving the existence of Recherches Bureau for granted and speaking in the first person singular. In the last paragraph reveals the important fact that a sum having been allocated in the 1930 UGGI Congress in Stockholm, for their quantitative prediction tests, which consisted precisely in disputed (17). Instead of mentioning the accruing disagreements, Gião refers to the lack of organization and most urgent tasks - a denial. And find two complementary objectives for Bureau- a daily newsletter, and a school. Calls simultaneously to the co-financing of the newsletter and sending investigators to this school (virtually existing).

Annex I, p. 341, informs about the size and the 7 sections of this journal. Are interesting sections II, with the weather charts of the day; III, with the prediction testing, divided into A and B, the differential models A, based on providing discontinuities in the stability fields; and B integration models, in turn subdivided into I and II; this applying the theory of fields, another of spontaneous disturbances. And Section IV, every day would be mandated to compare the different methods with each other and with the observed reality. Annex II based bibliographically, with works by Gião, each of the methods mentioned.

Four months later, the initiative has failed and there is the letter # 88, announcing a

math weather center, whose project will come two years later, now written in Portuguese. Will be # 89.

In p. 347, typifies 3 activities this center: a retrospective quantitative analysis;”daily practice" forecast; and the theory. Point 3, p. 348 - theory - is the richest, listing the previous methods to the field”entretenu", those who are part, and the”phenomenology" - had already left the 3 volumes (31). On the next page, in C. 2. b) identifies the mission of”launch new theories." From there, in solitude, Gião will deal until the end of life.

A p. 349 identifies the mathematical formulation of each method. P. 350, items”Personal" and 4 involve a larger team than they have in the center that directs 24 years later in Lisbon.

The list of publications (point 5) is plethoric: includes daily newsletter (b) of the Bureau, a Memorial (c) similar to the Office National météorologique - may turn out to be the model of”files" that comes to driving under the auspices of the Gulbenkian Foundation, and a set of texts (a) more teaching; the unreality # 87 was accentuated because...

It is not impossible that the foundation of the Portuguese Meteorological Service in the period Dedebant visited Portugal has been implemented without Gião partly as a result of these problems.

It then Gião disintegrated community of meteorologists. After a short solitary path by phenomenology, and the years 1946-1951 around the fundamental physics, is as inventor who Gião returns to the science of his youth.

Collect up several years of activity related to project calculating machine, sometimes called Temp as other *Tempête*:

- Copies of different securities of the same patent at # 44;
- First page of the specification, # 45;
- Letter to Raymond realizing serious financial situation associated with the invention # 46.

In summary:

1- The patent registration was effected in France, UK, Italy, Sweden, USA;

The French specification - # 45, as well as English, included in # 44, have a face value, prospective commercialization of this signal;

2- Gião describes in two texts of the first performance of the device, which displays the photo;

3- The project ends - guess by the letter to Raymond - a vultuosa debt.

4. The breakdown of the US patent-2 patents in analog calculation domain mentioning those of Gião and Raymond; not will be discussed below;

5- José Pires Gonçalves relates in the preface to the 1959 lecture, an organ patented by Gião appropriate to the music of Bach. I found another reference to this invention.

Since then continue to work in meteorology. It will be co-author in France Jean Roulleau. Notes that with this type will be presented to CRAS by astronomer André Danjon. Will again write a book in Office National météorologique successor, then headed by Louis Viaut. But most of his texts is found in Italy, where in 1953 contact (# 71) with Bossolasco and Piccardi, and a joint monograph with Manuel Ferreira is awarded.

Do not mind this branch of science at the Faculty of Science - where Dedebant teaches; after having come Amorim Fererreira Pinto Peixoto asssistente and successor; the wizard this will be a Gião Student and researcher that service directed by Amorim Ferreira; this is John Corte-Real. (These data were obtained from the Terms of Books gifts Weather in AHMCUL.)

It makes for Meteorology - a branch of physics in science, where it is seen as a mathematician; but at the Gulbenkian all their annual reports - # 47 to # 50 - integrate projects in Meteorology.

The recognition of his work will come with # 80, the Faculty of Letters, by the hand of Suzanne Daveau. Region is the kind of science that geographers need then.

Analyze the work Daveau. First (p. 328) the scope of the study is relativized by

cover only five years, and eliminate the measurements above 600m.

To cite two fundamental contributions of Gião - the fact that the disturbances are transported by advection currents and not by wind, contrary to common sense; and dividing the peninsula climate year phases designated 1) and 2).

It describes the identification of disorders of the birth of outbreaks, to complete (p. 331) that the study be refined to the point of establishing the monthly averages, as well as local nuances, by setting up and as an example, the comparison between two stations in Serra da Estrela.

Is it fair to epitomize precursor Gião in the application of mathematics and physics to the Humanities?

6. GIÃO, PHYSICSOF PARTICLES?

To address the microelectron, to whose discovery judged is connected, it is historically address the particles (a more detailed reading is Isabel Serra, Francisca Gonçalves and Elisa Maia 2011)

Brief history of elementary particles

In 1801, William Herschel identifies the”heat rays" and in 1801 Johann Wilhelm Ritter called”chemical rays", later identified as photons, corresponding respectively to infrared and ultraviolet radiation.

1895 - W. Roentgen discovered the X-ray

1897 - J. J. Thomson identifies the electron.

Alpha particles are discovered by E. Rutherford in the decay of uranium, and the gamma-ray identified a year later, by P. Villard.

1910 - Controversy between Millikan - to receive the Nobel in physics in 1923 - and Felix Ehrenhaft, who plays the measured values the experience of the oil drop as revealing the existence of a”subelectron" with lower load that measured by Millikan. The story will not give you reason. Gerald Holton (1978) deals extensively with this debate.

It is again Rutherford who will come to identify the gate in 1911, the atomic nucleus in 1919, and to provide for the existence of the neutron in 1919. It had been the first person he, in 1917, to transmute one element to another, when converted the nitrogen oxygen through the nuclear reaction

$^{14}N + \alpha \rightarrow {}^{17}O +$ proton

In the products of this reaction recognized the particle radiation obtained in previous experiments in which the hydrogen gas was bombarded with alpha particles, thus obtaining nuclei of hydrogen. This result is only reported in 1919, showed that hydrogen nuclei were a part of nitrogen nuclei (and hence inferred that probably the same applies to other nuclei.).

Thus Rutherford concluded that the hydrogen nucleus is reasoned that component, and the other core particle, which he designated by proton designation appears first in 1920.

1927 - PAM Dirac anticipates the concept of antimatter, with the positron. In 1930, Wolfgang Pauli proposed the neutrino to preserve the conservation of energy, angular spin momentum conservation in beta decay. To this ef-to added a particle undetectable Pauli termed”neutron" to the electron and the electron already known to be beta decay products. When James Cha-dwick discovered in 1932 a neutral nuclear particle with more mass to which he also called neutron, Enrico Fermi,that had already carried out a theory of beta decay, is taken to propose in 1933 the term to describe the neutrino particle suggested by Pauli, and so resole-see the confusion has arisen.

1933 - Jean Thibaud is the first to discover the annihilation of electron-positron pairs.

1934 - Forecasts by H. Yukawa the existence of the meson as a mediator of the force that binds the nucleus.

The first Yukawa meson candidate at the time designated mu meson (or muon) was discovered in 1936 by Carl David Anderson in the decay products of cosmic ray interactions. Although the muon had about the expected mass of the particle predicted by Yukawa, over the next decade to its descober-ta was clear that was not the mediator of the strong nuclear interaction, but be composed tava anates like a heavier version of the electron, and is in fact a lepton not a meson. Only in 1947 the true Yukawa meson was identified, the meson pi (or mixer) , mediator of the strong interactions, by Cecil Powell, Lattes and Giuseppe Occhialini. That same year are discovered the meson and baryon K Lambda. In up quence of spinning top discovery, Yukawa received the Nobel Prize for physics in 1949.

What other particles arose during the life of Gião?

- The antiproton in 1955 with Emilio Segrè.

– dois dos três tipos (“flavors” ou sabores) de neutrino, identificados respectivamente em 1956, por Clyde Cowan, Frederick Reines e seus colaboradores, aquele que foi proposto por Pauli para explicar o decaimento beta, e em 1962 o neutrino muónico, descoberto por Leon Ledermann, Melvin Schwartz e Jack Steinberger. Finalmente, em 1975, quando foi descoberto o terceiro tipo de leptão, o tau, no Stanford Linear Accelerator, logo se admitiu que teria também um neutrino associado, mas o correspondente neutrino só seria anunciado no verão de 2000, muito depois do falecimento de António Gião.Vale a pena também referir que o fenómeno da oscilação dos neutrinos (entre oelectrónico e o muónico) é primeiro sugerido em 1957 por Bruno Pontecorvo, inspirado pelas oscilações do mesão K, e o correspondente formalismo matemático é desenvolvido por Pontecorvo nos dez anos seguintes.

The work we examine below present the microelectron as an alternative explanation of Beta radioactivity, keeping energy conservation but excluding the neutrino - is sometimes said (.. Eg in De Broglie text) that the neutrino is equivalent to a pair microelectrão / micropositrão. Are the texts # 25 communications to the CRAS Thibaud, De Broglie, Vieira and Gião, and take place at a later time by written by Einstein in 1940:

"Concerning his results in the elementary charge, I do not believe in his [Ehrenhaft's] numerical results, but I believe que nobody has the clear idea about the causes producing the Apparent sub-electronic charges he found in careful investigations."

This is how and where the shadow of the great heretic, Ehrenhaft, whose name appears only in the final letter, which underlies this research.

The story of a particle that did not exist after all can begin to be counted from the following documents:

- Correspondence with the Nature, # 21, around the refusal of an article.

So the chart p. 154, Dr Spira, Sophie's brother, to refuse text # 22, anticipates publication in CRAS (# 25, p 165.) To propose the Gião to present their results in a scientific society; renewed rejection, the May 29 (p 155.) , after learning the publication by CRAS; Region will no longer contact the Nature.

The scientist is not only # 23 shows that Manuel Valadares discuss with him the issue.

- # 25 includes the most relevant literature on electrino - the first 2 texts, Jean Thibaud and Louis de Broglie; and microelectrão, more general concept, the mining Gião and apparently confirmed by experimental data Glaphyra Vieira. Whose satisfaction to publish patents in letter # 24.

The letter # 24 shows the enthusiasm with which ZALUAR and Valadares team welcomed Vieira's article included in # 25, at the time seemed to be the confirming experience of a new theory. But... the longing Professor Lydia Liu, a close collaborator of both, could not remember the episode - the belief that development may have been ephemeral...

But there were students who have preceded us in this search.

To quote Ilídio Gaspar et al (1998).

"The existence of micro electron mean of elementary particles whose own mass, charge and the spin, are smaller than their own mass, charge and spin of electrons, is one of the most important consequences of cosmological theory that if Gião endeavored to develop a view of a synthesis of general relativity and wave mechanics.

According to this theory, the spectrum of the masses [(m 0) n] and charges (en) of elementary particles in the universe is given by the formulas:

$$(m_0)_n = \left(\frac{2\pi c}{h}(m_0)_e^2\right)\frac{1}{n^4\sqrt{\alpha n}}$$

$$e_n = \left(\frac{e^2}{h}\sqrt{\frac{(m_0)e}{a}}\right)\frac{1}{n^4\sqrt{\beta_n}}$$

(m0) and*e* were the actual mass and charge of the electron, a numeric constant that does not depend only on the number of protons and neutrons of the universe in its early phase expansion and finally αn andβn the values themselves, (n = 1, 2,... ∞) the connected laplacianos operators respectively in internal metrics and external forms of space-time. Common electron match n = 1 and for n > 1 has a number of micro-electrons. For micro-electrons, heavier and loaded (n = 2) has the following values:

$$(m_0)_2 = \frac{(m_0)e}{32} \qquad\qquad e_2 = \frac{e}{32}$$

It can be stated *a priori,* some phenomena where the micro-electron at least for n = 2 should be manifest. One of these phenomena is the issue βcontinuous of radioactive substances.

Indeed, as he can not have, according to our theory, neutral elementary particles and own less than the mass of electrons, neutrinos (sub-atomic particle very small mass and no electric charge) that is necessary to examine these phenomena to ensure energy conservation, really should be a pair of electrical particles opposite signs and having a considerably lower mass that electron.

These are the characteristics of the micro-electrons, so that one can examine the following scheme for βcontinuous emission phenomenon.

We assume that N neutron nuclear becoming a proton P + releases an electron (e-) and a radiation frequency of v according to the scheme:

$$N \rightarrow P+ + e- + h\nu$$

This transformation corresponds to the nucleon, the passage of a state of energy E0 to Eph state and it can be assumed that the Eph form a continuous spectrum such that (Ef) max - (Ef) min, is of the order of 30000 or 40000 electron volts.

In turn, the radiation v, by the well known process of the embodiment of photons produces pairs of electrical corpuscles, which microelectrões be admitted,

the phenomenon that was busy.

One has to$h\nu$ -> e_2^-+ e_2^+neglecting naturally to the microelectrões n > 2 whose influence is not done almost feel here.

The result of these two changes will be:

N-> $P^+ + e^- + e_2^- + e_2^+$, with evident conservation of charge.

There are also conservation of spin because it results from the theory that each microelectrão has a spin±1/ (2n) in units n/ (2π) means±1/4 for n = 2.

Energy conservation should be enforced by micro electron, it is seen that there is issue of a e-electron weak energy which concerns the issue of a pair of microelectrões great energy and vice versa, so that the micro-electron emission spectrum should have, unlike the emission spectrumβa decreasing intensity.

Furthermore it is assumed that the photons are in question is discontinuous frequency spectrum, are even microelectrões and its power spectrum should be a perfectly symmetrical ray spectrum of the zero deviation abscissa report of the spectrum halves are produced by micro-negative electrons (e_2^-) and the other half microelectrões the positive (e_2^+).

Under these conditions the known spectrum of the issue shall, in their fine structure, a way staircase where each level corresponds to a spectrum radius of micro-electron, the width of these stairs are due to the fact that nuclear proton neutron prove that has energy varied from (Ef) and max (Ef) min. This schematic theory can be determined by adjusting the Fermi theory, it is actually exist micro-electrons must in principle be able to photograph aβ, ray spectrum, the spectrum of the positive and negative microelectrões. Reports that in experiments done by Madame Vieira in the physics laboratory of the Faculty of Sciences of Lisbon, under the direction of Valadares, became acting a magnetic field about 300º on the issuing of a strong source of RaC + RaD + RaE, and was obtained with very long action, a thin-ray spectrum overlapping the classicβspectrum alongside the negative spectrum and thin beams perfectly symmetrical to the first, the positive

side.

The intensity of the rays, the rays corresponding to the same on each side strongly decreases for low energies.

All this seems as to what can be expected assuming the micro-electrons.

In fact the energy of two maximum intensity rays, calculated course in the event where they will be due to the usual electron has also been found to 5 MeV, which far exceeds the maximum energy of the continuous emissionβto natural radioactive sources used in these experiments.”

All texts # 25 testifies to the priority of Thibaud (mentioned above in correspondence, as jealous to share their results) , the physical from Lyon who in 1933 observed the electron annihilation / positron predicted by Dirac. Above show the seriousness with which De Broglie views this possible particle, questioning the zero load associated with the neutron.

A problem which had already lost the urgency, when Gião the attempts to resolve, the concept of *hyperemnon*.

In CRAS also text Gião with similar content to refused in Nature, (# 22) as well as part of the first title (47) publish in *Portugaliae Mathematica*.

Finally, the text of which had been Glaphyra soldier with a cocktail reception, and that seems to attest experimental evidence then judged objectively.

The longest manuscript of Gião, integrates data from previous and takes a historical character; I am pleased to integrate the Thesis this original Gião announced as forthcoming. However, for reproduction of technical reasons, the text printed here transits of two home pages for Chapter II.

The omitted EMNA section repeats in a similar way to the above (38) and (47)

P. 172 - the argument focuses, apparently confused or syncretic form of a globular ElementAt particle in a framework where the density tensor”partielle" energy-momentum is given by (18 a) , and the”efforts of frottement négligeables”. However, the friction part of the dissipative systems, and these are unrelated to the quantum

relativistic scenarios and then... asssim as particulates are not necessarily globular, neutral and neither the mass nor the loaded mass and without...

At this point the reader becomes hermeneuticist. The dense explanation, mixing concepts, will follow the rest of the document.

On the next page, and by passing to an infinite limit is calculated a set of eigenvalues of operators laplacianos particles - will be loads and pasta- pp. 174-176. The following is studied the spin, the magnetic moment - p. 180 - that is, p. 183, calling for a potential Coulomb representation within the electricity blood cells (underlined). A p. 184 introduces umtema curious, the consequent effects of the Offset between the mass of cells and power (underlined).

Page 185 tries, with a quote De Broglie, reconcile this theory with the relations of uncertainty.

Rather, Chapter II is an ordered display of a possible explanation of beta radiation. The bridge to other explanation being made - the Fermi that prevailed - on pages 192 to 195. The key is to replace the neutrino by microelectronic pairs of antagonistic load. A p. 195 introduces the relationship with the photon, and the concept of particle fusion appears with the [] notation in the immediate page. A photon range would result of such a merger. A p. 204 introduces the photon spin 1 / n refers to the photon contribution to the field”gravifique-mésonique".

The final chapter explains the experiential results of Vieira and Thibaud.

No wonder the internal consistency in this work combining many disjoint elements of physics original form. It is not impossible that De Broglie had objected to its publication.

The micro-electron will be the subject of correspondence with Loyal Benham - # 27. Benham, who came to be nominated for the Nobel Physics is concerned with the explanation that Gião gives results of Thibaud, and is proposed to publish on the subject. To refer to the results of Blackett a more classic theme, the magnetism of bodies in rotation.

In the last letter - # 28 - first appears the reference to Ehrenhaft, noting the interest

of physicists who left school in Vienna to confront these two lines of research the School of the applicant, Weinzierl, belongs. It is 1951, the year that the microelectrão theme was asleep. Expected results of the new part of Vieira, and aspires to compare the duration of life among the various species of electron....

After the 1951 Weinzierl letter, occurs only a discrete instance of the word”microelectrão" report in the Science Data Centre 1964.

It runs out so the inheritance of a doubt, proposed half a century earlier by him who is the greatest rebel of twentieth-century physics, Ehrenhaft.

And it remains a conceptual question - with this work, it can be said that Gião made particle physics?

7.THE COSMOLOGYIN GIÃO'S LIFE YEARS

This chapter is inspired by Helge Kragh (1996). The biographer Dirac devotes its attention to the oscillation between the theories of continuous creation of matter and models of type big bang that configures the history of science, to the physicalist paradigm introduced by Peebles.

The argument Gião - even when exposed to refute other cosmologies - and Klotz are internalists.

Kragh, on the contrary, gives a rolling direction where the observations are integrated.

1917 -A. Einstein and W. De Sitter expose their models of the universe, as so-tions of Einstein's equations of general relativity, both static and both with cosmological constant, but as the Einstein had the matter of De Sitter was empty. De Sitter shows that as a result of the metric, the clocks seem to go more slowly the farther are the observer. As the frequency is reverse time, the light must be received less frequently, and the more shifted to the red as farther are clock.

1918 - MacMillan published an article on stellar evolution whose consequences will influence the later models on the models of the steady state. 1921 - Walter Nernst speculates on the possibility of eternal recycling ra-dioatividade can avoid death by heat (heat death) of the universe, that is, the this-the maximum entropy of the universe, thus ensuring a steady universe, which Nernst preferred. In later publications between 1928 and 1938, Nernst develops these ideas in a cosmological vision of a stationary universe, with the creation and destruction of matter-des.

1926 - Robert Millikan argues that the existence of cosmic rays is argument for a non-development scenario, with interstellar formation of the spokes.

1927 - The expansion of the universe is defended by Lemaître.

1928 -Hubble going to the Netherlands to attend a meeting of the IAU and once there discusses the situation of nebulae with local experts. Your collaborator Milton Humason later recalled that Hubble would then decided to examine the issue of redshifts in confrontation with the Sitter's theory. While Humason devoted himself to

determine redshifts of more galaxies, Hubble examined by various methods distances to those galaxies whose redshifts were measured.

1929 - Hubble's Law, proportionality of the expulsion speed away.

1931 - big bang hypothesis by Lemaître.

1933 - Formulation of the cosmological principle by Milne.

1937 - Cosmology Dirac, derived from Large Number Hypothesis, includes the continuous creation of matter.

1938 - Pascual Jordan reformulates the Dirac theory.

1946 - George Gamow explains the creation of the elements in the origin of the universe.

1947 - Fred Hoyle and van Albada propose as an alternative to creating these inside stars.

1948 - Alpher and Hermann Provide radiation from cosmic background under the big bang, the Hoyle, Bondi and Gold Mathematically formulate the stationary universe.

1951 - Exits the encyclical of Pius XII on cosmology and religion; McCrea has a steady state solution with cosmic negative pressure.

1952 - Two important books,”Cosmology" Bondi and”Creation of the universe" Gamow.

1955 - Sciama explains the creation of galaxies in a stationary universe: the radioastronómicos data Ryle are only compatible with an evolutionary universe.

1962 - Satellite Observations refute the symmetrical creation of matter and antimatter proposed by Hoyle and Narlikar; Zel'dovitch proposes a big bang”cold", unlike Gamow.

1963 - Lisbon Congress; X-ray observations invalidate the”hot" scenario of continuous creation; discovery of quasars; Novikov presents the cosmic background radiation as decisive argument in favor of the big bang.

1965 - Penzias and Wilson identify this radiation; singularity theorems of Hawking and Penrose.

1968 - Sciama leaving the steady state model as incompatible with the redshift of quasars; Hoyle and Narlikar suggest covert creation of matter in a pulsating universe, returning, without declaring, some results of Gião.

In a different context - the relationship between philosophical options of state and models of the universe, Loren R. Graham (1972) , will contrast the doctrines of Soviet schools (Ambartsoumian, Novikov, Zel'dovitch) , inspired by materialism, and English (Milne, Bondi) , markedly idealistic bent.

What is the place of Gião the cosmological argument? What is happening in the Lisbon meeting in 1963?

Here are some of the exhibition's strengths by Region of your system:

1. Your adherence to non-empty Sitter's model with proportional radius hyperbolic cosine time.

2. Its higher affinity for models of continuous creation of matter - Bondi, Jordan.

Gião supports the”slight deformation" of this scenario the existence of matter whose creation is continuous, the tensor formalism - which contrasts with the introduction, most innovative of a scalar field, by Jordan in 1963 Congress.

Another point is in tune with the spirit of the time, looking for a size of 5 chronotope, to remember the theories of Kaluza-Klein, of which the Thiry article exposes a variant.

More original, the distinction between internal and external metrics, justified by a distinction between Gauss equations and of Codazzi.

Really there is interdependence between Gauss and Codazzi equations, and the Gião himself acknowledges this in the lesson given in 1963 in Lisbon and published in the volume”Cosmological Models" (Publication of the Gulbenkian Institute of Science) on page. 32. But that does not mean they can not play the role that Gião want. To clarify recall here how to establish their Gauss-Coddazzi of equations that relate

intrinsic and extrinsic curvature of a hypersurface with the Riemann curvature tensor of the 4-dimensional array where the hypersurface is steeped

$$R(\partial_i,\partial_j)\partial_k = ({}^3\nabla_i K_{jk} - {}^3\nabla_j K_{ik})n + ({}^3R^m_{ijk} + K_{jk}K^m_i - K_{ik}K^m_j)\partial_m$$

where the tensor second order K represent the extrinsic curvature of hypersurface and R is the fourth order tensor Riemann. Based on the above equations, we can obtain the Gauss equation

$$R^0_{ijk} = {}^3\nabla_i K_{jk} - {}^3\nabla_j K_{ik}$$

and equations of Codazzi

$$R^m_{ijk} = {}^3R^m_{ijk} + K_{jk}K^m_i - K_{ik}K^m_j$$

The technicality of this distinction, parallel to the existing between gravitation and electromagnetism is not accompanied in the discussions of that meeting by any of the participants.

The *genius logi* was the theories of continuous creation, because only observational astronomer McVittie is then inserted between the defenders of the Big Bang.

Define the context of the meeting. At the hearing, especially European scientists. Among those who were to excel in the future, Hawking, three years before his thesis on the singularities; Gunzig, which will become one of the promoters of the inflationary scenarios and the Higgs boson; Milton Munitz, then professor of Cosmology and Kantian philosophy in New York.

Among the Portuguese, employees and Gulbenkian in Lisbon and Coimbra Teachers, of the younger generation. José Sousa Ramos will be one of those present.

The conference center, the steady state theory, it was then a minority in the community. But how well states Lepeltier (2010) , was not rational leave this family of theories. And the reasons why they would be abandoned were physical arguments - the source of light chemical elements (helium, deuterium and lithium) , the cosmic background radiation. These had not yet received the verdict of observation - so it was logical Gião and others defend this model, still undefeated competitor models

with big bang. I would add that the arguments put forward by Lepeltier, both physical, have received little attention Gião, who was interested in viewing cosmology as geometrical problem.

Gifts Hermann Bondi, before quite often quoted by Gião, representing the version inspired by Perfect Cosmological Principle, that is, in large-scale uniformity of spatial and temporal tissue. It was the most forceful opponent of Gião, given this privilege mathematical construction at the expense of physical observation.

Pascual Jordan, on the contrary is an original variant inspired by the five-dimensional Brans and Dicke formalism rather than by numerical considerations Dirac, but converging with the latter in the main result - the discontinuous creation of matter. The text is structured by Jordan looking for experimental confirmation came not to be obtained.

It is however to intervene more unique meeting since argues with the continental drift as geological evidence of their cosmology. Based on a generalization of the relativistic field equations, Gião maintained that none of the cosmological models usually discussed, including the steady state model, were admissible. Their alternative was what he called a generalized model of steady state in which the constancy of the ma-artery density was replaced by the constant own energy density (the sum of the energies associated with the mass and pressure). Other than that (which contradicts the Perfect Cosmological Principle) , Gião was taken to an oscillating cosmological model with a period of 16 billion years, including creation and destruction of matter.

The point, however, that stands out is the dualism that does not abdicate, given by 2 U4 universes (which is the”content" of a”continent" the five dimensions) , and U3, orthogonal to the vector time).

According to Prof. Orfeu Bertolami, Gião have acted as a mathematician in the middle of physicists, and one of the points of your model already then could be seen as contrary to the observation was the exponent in the spatial distribution of radio sources, required for the solution to Olbers paradox.

This paradox is one of the founders aporias, to René Thom (* 10) , in the history of modern science. Solutions for the non-observance of a uniform light, day and night, that would be the logical consequence of a uniform universe, infinite, etrno and static, appear as denial of each of these assumptions, and represent some of the major themes of the twentieth century:

- The fractal structure of the universe, proposed by Nottale;

- The finiteness of this, in space and time, or to expand beyond the observable horizon;

- The aging of the light seen by Pecker and Vigier.

A universe in the Big Bang scenario presents an exponent -3 for the density of quasars as a function of distance; the steady-state model with uniformity in space and time infinite scale, presents the exponent -1.5, and -1.8 are observational data, validating the creationist scenario since reconciled with the evanescence of time in radio sources.

Quoting again Orfeu Bertolami, cosmologies theories have a meta-theory is the observation, and the attitude of the mathematical today is to select them, not for philosophical reasons or *a priori*, but the accuracy with that suit.

Reverse, bold, and out of the mainstream was also at this point, the thought of Gihon, and have been perhaps one of the reasons why this little eco had and did not work.

Of feedbacks in Congress, I retain the circumstance of praise for Jordan, criticism of *a priori* by Bondi, and the attempt to improve the model by Klotz, # 87, which will give a product.

On the part ofGião towards the other speakers, retain the”aesthetic argument" filed against Thiry, lamenting the existence of an excess variable; in doing so, Gião shows up adverse to a projective interpretation and, by generalization, the theories of Kaluza-Klein (see Gagean, Costa Leite (1986)).

Already mentioned, the General Chronology and in the paragraph above, the intervention of Klotz (1964) is particularly sympathetic and tries to adapt the model

Gião to physical reality.

It starts by verifying that the Schwartschild solutions (singularities, or black holes) are not”embeddable" (mergulháveis) in S5, but only in S4 (respectively, the”container" of U4, U3) associated with the external metrics and internal, namely in the formulation of Gião, the gravitation and electromagnetism; what”Seems strange" (Klotz expression) , it can be loaded singularities...

An interpretation of independence in the Gauss-Codazzi equations different from Gião allows, according to Klotz, save the model - the EMNA and the need for size 4 - it compatible with the existence of singularities.

We are in 1964; since then no meeting in Gião or other authors refer to this model.

A silence in recent years, as Piccardi on the test that we shall see below; will these bold theories that Gião both believed to leave shortly after, in the 60s, he alludes, when he speaks of”raisons mon échec"?

The interpretation ofHelge Kragh

From reading D. Sciama, the biographer of Dirac includes Gião contribution in the wider context of the debate between the relativistic theories, which include the explosive birth of the universe, and the steady state type, where worth the”cosmological principle perfect”- generally constant density of matter in space and time, into line with the expansion observed for the continuous creation of matter. Ab initio, these theories do not rely on general relativity, but alternative systems, such as the kinematics of relativity Milne.

[The genealogy of thought Gião thus presented, does not derive from its previous concept of Ente Mathematical Not Arbitrary; so little of voie royale steady state - Hoyle and Bondi; so little of”explosive" modeling, for example in supernova -. Dirac and Jordan]

The analysis continues, p. 209, Kragh.

In this archeology of thought Gião find would be the 1952 model of McVittie - a man who repeatedly change your mind in re cosmological. This model inherits the negative pressure introduced by McCrea and postulates a gravitational steady state in an eternal universe, open, expanding the present and future, and contraction in the past. To McVittie, this model is considered the first fully compatible with general relativity.

Helge Kragh remembering:

"During the phases of contraction, took place the creation of matter, and during the ex-pansion, a corresponding destruction. In the model Gião the hub ble parameter varying in time, reaching a maximum during the expansion and contraction during its minimum. Although ignored by other researchers, some of its features reappear in theories developed by Hoyle and Narlikar few years later."

Will the *bubble universes* (*ibid*, pp366-67, and the eloquent fig.7.5)

> "Hoyle and Narlikar mentioned, the purpose that it was a" steady-state concept radi-cal removal,"according to Kragh, to explain the energy of cosmic rays and quasars. In 1966 decided to throwing overboard the usual context of steady state with a smooth, uniform creation of matter. This radical departure was obtained increases by a factor of 1020 the coupling constant of the C field, and thus the density of the universe. This led to entirely different universe, being the main feature the idea of separate universes bubble in which the process of creation was temporarily prevented and in which therefore the expansion was much faster than in your neighborhood."
>
> Ie, here and again: where exactly coincides with an innovative scientific break, the representation of Gião 60s is the more conservative side of the fence. So maybe its rooted belief in the absolute space has transported as innovative views as the following.

8. IN THE FRONTIERS OF SCIENCE

The focus of this chapter is part of the claim of absolute space, which initially passed by the refutation of the results of Michelson and Morley:

Look up the following list of texts that discussed the existence of the ether, extracted from:

Hector A. Munera (1998)

Michelson-Morley Experiments Revisited: Systematic Errors, Consistency Among Different Experiments, and Compatibility with Absolute Space.

The ether-drift experiment and the determination of the absolute motion of the earth. Miller, 1933.

On the Michelson-Morley Experiment Relating to the Drift of the Aether. Hicks, 1902.

On the relative motion of the earth and the luminiferous aether. Michelson, Morley.

Relativistic Interpretation (with Non-Zero Photon Mass) of the Small Ether Drift Velocity detected. Vigier, 1997.

Test os Special Relativity or Isotropy of Space by Use of Infrared Masers. Jaseja, Javan, et al., 1964.

Ether-drift experiments at Mount. Miller, 1925.

C. H.: A new experimental test of special relativity. Cedarholm, Townes, 1959.

New analysis of the interferometer observations. Shankland, McCuskey, et al., 1955.

*J. P.: No evidence for photon rest mass.*Wesley, 1997.

L'expérience de Michelson, réalisée en ballon libre. Piccard, Stahel, 1926.

*L'absence du vent d'éther ai Righi.*Piccard, Stahel, 1927.

A refinement of the Michelson-Morley experiment. Kennedy, 1926.

A repetition of the M-M experiment using Kennedy's refinement. P. Illingworth, 1927.

Repetition of the Michelson-Morley experiment. Michelson, Pease, et al., 1929.

Postulate versus observation in the special theory of relativity. Robertson, 1949.

Experimental estabilishment of the relativity of time. Kennedy, Thorharke, 1932.

C. H.: New experimental test of special relativity, Cedarholm, Bland, et al., 1958.

New experimental limit on velocity-dependent interactions of clocks and distant. Turner, Hill, 1964.

Improved laser test of the isotropy of space. Brillet, Hall, 1979.

Relative motion of the earth and the aether. Sutherland.

*Relative motion of the earth and the aether.*Sutherland, 1900.

*L'expérience de Michelson et son interpretation.*Righi, 1919.

*Über den Michelsonschen Versuch.*Kohl, 1909.

Sur la vitesse relative de la terre et de l'éther avoisinant. Brylinski, 1927.

*Sur le vent d'éther, Compt.*Piccard, Stahel, 1927.

The above literature, Gião quotes (especially in its communications to the CRAS) the arguments put forward by Miller, Piccard, Stahel.

A sequence of fruitful meetings to take place between both Gião and Piccardi - # 71, # 29, # 30.

I play a rare document, which gives Congress the care of the environment founder of a branch of science that may not have come to empower themselves by consensus.

Comment on Symposium # 29:

The original finding Piccardi is the variation in the results of experiments, throughout the year, be conceived as arising from the Earth helical motion before a property ether in absolute space, as seen in # 73. Region proposes a more radical interpretation. The experiment is to investigate and the percentage of cases in which the hydrolysis reaction by precipitation:

$$Bi\ Cl + H_2O = Bi\ O\ Cl + 2\ HCl$$

differ in speed between normal water"water activated", i.e. previously stirred by a glass rod filled with mercury procedure supposed to decrease the viscosity.

("Activated water" is a conceitro that remain valid, in the quarrel around the memory of water.)

Changing this percentage with the season, Gião proposes:

- The study in different latitudes.

- Measuring the sedimentation rate, and not just finding their difference, which led to criticism of Carmen Capel-Boute, for its technical difficulty involved.

The interpretation of Gihon, in Congress and in the text below is not a reaction to an ether or absolute space, but before interaction of both worlds E4 (space-time) and E3 (which doubles the absolute space).

Who are the mentors then this new branch of science?

Piccardi (the genius of experimentalist) , Capel-Boute (the organizer) , and Gião, the theoretical giving”greater dignity" to these studies

Region will again intervene in this respect, now a medical journal, and # 30 the publication of the abstract.

The Gião contribution is unexpected as discussed in books such as”Science of the integrated An absolute" (1977) , p. 210, the contemplative philosopher and social reformer Nataraja Guru, which refers to 25044 Piccardi experiments as proving the existence of a galactic field; and the effect”philosopher" of this same field, the study of the alchemical laboratory for Atorène (1981).

Perhaps the most bold text speculative synthesis of the themes of Miller (refutation of Michelson-Morley) , Piccardi, and Willelm Reich and the latest research is”Dynamic and Substantive Cosmological Ether" by James De Meo, Galilean Dynamics Vol. 7 n. 7 (2004) , where the wind of ether is seen replaced by”dark matter wind".

In the scientific community, the interest remains alive and based in CIFA / ICEF (International Committee for the Research and Study of Environmental Factors) , which are studied issues such as the interface between life and solar phenomena.

A current name associated with this scientific society, is to Ruggiero Santilli. But the Portuguese scientist, José Ramalho Croca, holder of Galileo-Santilli Award, is not

close these controversial theses...

The Italian tradition, partly arising from Piccardi of criticism of Relativity, was continued in the person of a disciple of Fantappié, Giuseppe Arcidiacono, author of"Relativitá Finale" text Gião had in his library, in the same pack that includes documents of Piccardi.

Therefore, it's hard to explain what have led Gião, little by little, to distance themselves from this school of thought which is still a reference.

9. THE SCIENCE COLLEGE BETWEEN 1947 AND 1969

Fragments will be studied these 23 years to be those in which the name of Gião came to be associated with what would be your longest job.

Already in previous documents, in correspondence correspondence associated with the lower end of these dates, and in the following chapter,”An error of Gião" are dramatic moments in their relations with the institution.

The emotional glow of these steps is missing from this Annex, whose writing is a result of access to the School Board Minutes books - consisting of all Professors - that Faculty.

Them to recognize parts of the story told before, but feutrée language masks the extreme hardness of the patent relations in documents and correspondence ago read.

However, other moments of unsuspected animosity will arise.

Each year will focus primarily on:

- The PhD in Mathematics and Meteorology;
- Transfers and Teachers contests in these areas;
- The minutes of that body, when related Gião.

1947

After 2 years of the creation of the degree process in Geophysical Sciences, the School Board Minutes Book, No. 8 (1942-1952) , notes, page 59, in the Minutes of the meeting of 18 January:

"It is then given by Prof. Cyrillo Soares the following proposal signed by him and Prof. Amorim Ferreira:

"We propose the extraordinary appointed assistant 1st Group (Physics) of the 2nd section of this Faculty the Snr. Georges Jean Marino Dedebant; graduate of the Ecole Polytechnique in Paris, head of the Meteorological Service of Morocco French (1923-30) , in charge of courses at the School Office Applications National météorologique (1932-34) , head of practical work of meteorology at the School of Aeronautics, professor Meteorological in the War College and Improvement of the

Higher School of Aeronautics Officers (1938-39) , Head of Service and scientific deputy director of the same Office (1934-43) , and author of valuable works of Physics and Meteorology. Lisbon, January 18, 1947”

The proposal is then approved unanimously.”

The discussion is continued on one sheet; then discusses the replacement Amorim Ferreira in Meteorology regency. Trancrevo:

"Prof. Flávio Resende (...) and believes that the Meteorological regency should be removed to Prof. Amorim Ferreira and offered to a competent Portuguese. Calls to the Act the following statement:

"I disagree with the choice of the Lord Dedebant until they are presented in this Council the negative of Portuguese scientists António Manuel Giao and Captain Ferrreira engineer who all consider as competent. I believe, therefore, that the Meteorological regency should be offered to any of those gentlemen and only after an express negative of you should consider if the delivery of this regency the Lord Dedebant.”

The Lord then Director proposes the Lord Dedebant for Regency Weather chair in Prof. impediment Ferreira Amorim.

The proposal was approved by majority, voted contrary Profs. Favio Resende and Asuncion Tower.”

The Dedebant entry takes place because, at the same meeting, in 2 phases. First is hired. Then, due to the unavailability of Amorim Ferreira, is voted his regency in the chair.

Comes the name of Gião but contacted meteorologist is your biggest rival. In the Faculty, with the antagonism of Amorim Ferreira implicit in this choice will not be physics calling for Gião. Two years later, will be penned by Flávio Resende that mathematics will appeal to you.

1949

PhD in Mathematics Humberto Menezes- of Partial Differential Equations - and José Sebastião e Silva -”The Analytic Functions and Functional Analysis".

First contacts with Gião, discussed above in epistolography.

1951

PhD Pedro Bruno Teodoro Braumann,”Partitions in the various branches of mathematics"

1952

School Board Meeting of 03.11.1952

It discusses (P. 97 Verse) the provision of the chair of Geography Mathematics (will become entregua Caesar de Freitas). In this regard, the order of the day drift, with Torre d'Assumption and Victor Hugo de Lemos to mention the lack of staff of the 2nd 1st section group. The choices between the provision of a chair are cited by tender that could have been the opponents”at the time Assistant Professor" Almeida Costa and Gião. Torre d'Assumption states did not oppose the invitation to this, that Lemos shows disagree. Vicente Gonçalves distances itself of both proposals (p.97) taking account of the possibility of competition by licensees Veiga de Oliveira and Gagean. On the same page:

"Professor Resende alluded to the consideration of other speakers, regretting what has been lost what he considers the opportunity to enjoy the collaboration of Dr. Gião (...) because the very lh'o declared that Dr. Gião not want to be Professor, and thus can be explained Dr. Gião had set as a condition his tenure by choice. This was the way, say a way to refuse to assist.”

A likely explanation for the 1949 mismatch.

António Almeida Costa, already Teacher Professor of Celestial Mechanics in Porto - acedera running for open position with the untimely departure Ruy Luís Gomes - he

moved as Professor Algebra Professor for the Faculty of Sciences of Lisbon. The Gião destinations and your are now intertwined.

Doctor to José Ribeiro de Albuquerque -”Theory of projective sets."

1953

Dr. Fernando is Veiga de Oliveira,”characteristic exponents, application stability."

1955

PhD Fernando Dias Agudo,”On the characteristic equation of a matrix."

1957

Received a PhD José Thiago Oliveira da Fonseca,”Waste Systems and rings Radicals" and Raimundo Oliveira Vicente,”The influence of the earth's inner constitution in the value of nutações".

1958

Received a PhCésar de Freitas,”The theory of distributions and the symbolic calculation of the electrical in the case of concentrated constant circuits."

1959

PhD in Geophysical Sciences of José Pinto Peixoto,”Contributions to the energy of the study of the general circulation of the atmosphere."

Minutes of the School of FCUL Book Council 9 - Dimension 1444 - 58verso-59 leaves

Session November 17, 1959 (...)

"Proposal-Report

We have the honor to propose, in accordance with the provisions (...) that is superior to request the appointment as a professor of the 2nd group of 1 st Section, Engineer Antonio Gião.

1) The proposed, after attending 1922-1927 the University of Coimbra, attended, from 1925 to 1927, the University of Strasbourg, where he obtained the diploma of geophysical engineer.

2) It carried out investigations at the Norwegian University of Bergen, in the field of Mechanics of discontinuities during 1927 and 1928. Then in 1928 and 1929, the Royal Meteorological Institute of Belgium in Brussels, held aerológicas experiences in collaboration with Bjerknes and Jaumotte.

3) In the field of Fluid Mechanics, did research at the National Office météorologique, of Paris, which lasted from 1929 to 1939.

4) In the period 1947-1950, the Poincaré Henri Institute of the University of Paris, conducted research and conferences on Unitary Field Theory and the relativistic wave mechanics.

5) From 1953 to 1957 in Florence and Genoa, and in 1958 and 1959, in Dublin, Antonio Gião Engineer pronounced conferences on relativistic cosmology, about mathematics Weather on theoretical physics, on hypersurfaces geometry, etc.

Joins this proposal developed a report on the work of Engineer Antonio Gião that reach the considerable figure of 107.

Section of Mathematical Sciences, Faculty of Sciences of Lisbon

aa) José Francisco Ramos and Costa - José Vicente Martins Gonçalves - António Almeida Costa.

- Present (...)

After reading this document has to vote as mandated by the Regulation and the proposal passed unanimously. (...)

Professor Secretary

Kurt Jacobsohn

[A wrong detail, the juxtaposition of Coimbra / Strasbourg dates.]

1960

Book 9 p. 55-56 (handwritten note -”these minutes should be passed to the p 61.")

Session June 17, 1960

"The new Director, Prof. Ramos and Costa, greeted (...) the new Teacher Antonio Gião. (...). Mr. President of the 1st Chamber announced that Prof. Antonio Gião is considered owner of Mathematical Physics Chair. On the agenda, the same teacher is elected Director of the Astronomy Department (...) ”

Integro a note, which in error is inserted below, which realizes an academic conflict:

Sheet 56 - Special meeting of March 10, 1959 (...) Licensee Antonio Batista PhD. The opinion of the 2nd Chamber that does not recommend the acceptance of the thesis was analyzed by several speakers and approved unanimously. (...)

[António Manuel Baptista was to teach at the Military Academy, doing remarkable investigations in the Portuguese Institute of Oncology, and to be one of the relevant figures for the popularization of science. The refusal is after the output by Professor who worked the Spanish Julio Palacios.]

Sheet 58 - Session November 17, 1959

(...) To charge Prof. Sebastian Silva and the Regency”Superior Analysis" in addition to his duties at the Institute of Agronomy. (...)

(...) On the agenda, the 1 st Section proposed to the Jury Licensee PhD David Gagean Profs. Sarmento Beires, Abilio Ayres, Sebastiao e Silva and Manuel dos Reis. At the proposal of Prof. Jacobsohn, it was decided to complete the jury with Mr. António Gião if this scientist accepted the appointment. The prof. Almeida Costa objected to this proposal which was accepted. (...)

Doctorate will be the 07/27/1960 David Lopes Gagean,”The Differential Geometry In order in the Unitarian Field Theories".

Sheet 63 - (...) ”The Snr. Director announced that a meeting of the Section 1. th Snr. Prof. Dr. Sebastian Silva and took ownership of the chair of celestial mechanics (...).

Sheets 63 and verse 64

"Council Session November 14, 1960 (...)

After SNRs. Profs. Almeida e Costa and Antonio Gião have withdrawn, the Snr. Director he proposed under the sole paragraph of art. 96 university Statute 1918, the degrees of doctors to those teachers were granted. After that was passed unanimously in the proposal, it was resolved to communicate to stakeholders the Council resolution.

Leaf verse 65

Session of the Council of 12 December 1960 (...) ”decided that conferences on the atom, in charge of the Faculty of Science, were made by (...) Prof. Antonio Gião (...) Prof. José Sarmento (...) Prof. Carlos Teixeira (...) , will take place between 20 February and 20 March.”

In those conferences that also participated Delfim Santos.

1961

July / August, students of Mathematics and Physics Celestial Mechanics complain Professor, Gião, and Wizard, Raimundo Vicente, and of difficulties and pedagogy of the chair.

The chosen partner is Oliveira Salazar. The specimen collected this letter, # 93, is the House Gião. Salazar Files and documents examined at the Faculty of Sciences have failed to find copies of this letter. The letter is undated and contains the list of subscribers.

Region reacts in 2 ways, maybe 2 times - writing to the School Board an indignant letter, # 94, and the Director demanding severe measures - # 96, the only document dated in August.

Neither the Acts of the Council, or the Register of Correspondence allude to the fact.

It is impossible not to communicate, and silence is the most blatant form of communication in a situation that borders on the scandal. The issue appears to have been muffled; Salazar and Gião will not have been bothered if guesses, and the Wizard will begin to be repeatedly molested.

Interviewed Prof. Rui Kitties, reminded students of the previous class to your contesting the notes of the chairs, that Sebastian and Veiga teachers would give them a point there, and Almeida Costa sought to appease a paradigm of what would happen five years later.

Occurs here reveal the concept of censurância expensive Bragança de Miranda, and guess that silence (omerta?) That this episode would be voted on a purely institutional history;

This case is just a skeleton in the closet workroom file House António Gião...

[A parenthesis on the history of tensor calculus at the Faculty of Sciences:

Daily News, July 31, 1925:

News headline:”In the Faculty of Ciencias - the doctoral ceremony assaistente of Mathematics, Vítor Hugo Duarte Lemos"

Title of the thesis:”tensor calculus"

The”Curriculum Vitae" David Lopes Gagean, 1956

Pp. 2-3, summary of mathematical physics programs:

1944-45, and classic Newtonian potential electromagetismo.

1945-46, of 2nd order PDEs and electromagnetic waves

1946-47, tensor calculus, Riemann geometry, geometry according to Klein

1947-48, mechanical analytical methods for tensor

1948-49, wave and quantum mechanics

1949-50, astrophysics and stellar statistics

1951-52 and 52-53, forms of Pfaff, Lie groups, Riemann spaces, affine connection, in introduction to relativity theories and unit

Would interrupt his teaching to be manager of”Stationery Fashion"

Conclusion: there had been tradition in the teaching faculty in the areas where Gião back to focus.

Some of Gagean courses have been demanding that the Gião.]

1962

Book 1443

P. 84 - Session of the Council of 12 February 1962

P. 85”e) Academic Examinations (...) admission of the proposed PhD examination in Mathematics Licensee Sciences John Cosme dos Santos Warrior".

The minutes transcribes a long opinion signed by all Teachers th Section 1. (Mathematics).

"Requested the floor after Professor Antonio Gião that dictated to the minutes the following statement:

"At the last meeting of the Mathematics section was resolved subscribe without prior examination of this doctoral thesis, the opinion on she wrote Professor Sebastian and Silva. On this subject however wish to make the following statement: the work that it should undoubtedly be regarded as unique, important if it is examined according to the criteria of originality and importance that is certainly the Professor Sebastião e Silva, but this criterion is not necessarily equivalent to mine. Moreover, it is difficult to quickly decide whether a work of this kind, when examined from a different point of view of Professor Sebastian and Silva, but equally valid, it should still be considered as important, or, conversely, as purely formal, without any truly constructive outcome, reducing as much to the axiomatization of existing theories and usually a sterile set of definitions and postulates, where little more than theorems They state the definitions themselves involved in it.Without calling into question the course authorized opinion of Prof. Sebastião e Silva, and no doubt also the author of the ability of the thesis in question for work of this kind, it is a natural consequence

that I want to examine it in the light of my criteria of originality and importance before taking over her a final decision...".

Asked the following word Professor Sebastião e Silva stated that find themselves in a difficult position to respond (...) then the orientation (...) Santos Guerreiro is the same as it has adopted in its work (...) The orientation in question should not be entirely barren and devoid of interest because it has given rise to the publication of several foreign mathematical works of named (...)

The die is cast:

- Gião seems to speak of a subject that has not studied and seems to be mistaken - his training in mathematics, in part a self-taught, could not allow him to understand the cognitive revolution induced by modern mathematics.

- Two Teachers become publicly opponents;

- Gião lose any credibility with mathematical generating J. Santos Guerreiro.

Doctoral 06/11/1962 -"Direct Theory of Distributions on the Range," by John Cosme dos Santos Guerreiro.

Council meeting on 12 October 1962 - p. 86.

"President [Ramos and Costa] announces that at the previous meeting of the 1st Section [Mathematics] exposures were assessed to some students about the 1 st assistant Raimundo Vicente It was decided to send you to these exposures to react".

Write that time Gião document # 98, appreciation of testimony by his assistant.

Although the letters to Salazar and hurt Gião response date back to the summer of 1961, the reference above allows another reading - the interpretation of the exposure of students who can be prevailed was that of a critique of Raimundo Vicente Assistant, more than Professor Gião; therefore found the"scapegoat", Gião could have withdrawn its letter to the Council, and it would solve the Florentine fashion.

1963

PhD Maria Luisa Galvão”On the Krull-Noether theory in semianéis"

Book 10 Quota 1444

Session of the Council of 16 October 1963

P. 36 (...) ”that it is recorded in the minutes a vote of congratulation for the conduct of the course on Cosmological Models, directed by Professor Antonio Gião, which participated in the lessons in this course. This vote was approved unanimously. Took the floor Professor Almeida Costa (...) stating that the scale of a mathematical Pascal Jordan expressed his admiration by Professor Gião”(...)

P. 40

Council meeting of November 13, 1963

[In p. 41 Vicente Goncalves leaves the post of Director of the Journal of the Faculty of Sciences and is replaced by Gião.]

1964

P. 87

July 31, 1964

First Session - Professor Secretary Election; are elected and Sebastian Silva and Gião.

Second session - Portuguese Delegation to 3 rd International Conference on the Peaceful Applications of Atomic Energy integrates Professors José António Sarmento and Gião (89 p.).

P. 90 - Passing of Professor Sebastian Silva and for the 1st Group of Section 1. th.

This change was made possible with the departure for retirement Ramos and Costa.

So are the professors 1. º Group ("Pure Mathematics") Vicente Gonçalves, Almeida Costa, Sebastião e Silva, being the 2nd Section ("Applied Mathematics") Gião and Veiga de Oliveira.

1965

No relevant element around the region seems to occur this year.

1966

1stCouncil meeting (p. 156)

[opening of the Scientific Data Centre in supporting disciplines of Faculty]

Council meeting of May 1, 1966 (pp. 169-170)

"Communication Direction

The Director informed the Council that Prof. Antonio Gião addressed to the President of the Institute of High Culture an application to be granted official license for a year, from 1 October 1966, in order to devote himself exclusively to studies on certain problems of Theoretical Physics. After rendered by Prof. Antonio Gião some clarification, the Council decided that the Director report favorably on the motion.

However the incident occurs in the Journal of the School.

Session of the Council of 29 July 1966 (p. 182).

P. 187 -"Professor Antonio Gião inform the Council that you can not continue to perform functions editor of the Journal of the Faculty (Section of Mathematical Sciences) , by asking to be replaced - The Council accepted the resignation of Prof. Antonio Gião"

P. 188 -"The Director communicates copy of the letter from Lic. JM Simões Pereira to the Dean announcing that he was withdrawing doctoral evidence."

It is the last Act signed by Gião as Professor Secretary. Will henceforth be less regular in their presence School Board. Where he remains silent.

Vicente Gonçalves rejoices in this year.

1967

Contest Results to Professor of Applied Mathematics:

J. Tiago de Oliveira (absolute and relative merit) , Peter Braumann (absolute merit) , Raimundo Vicente (not approved).

It is thus complete the picture of three Professors attached to this group.

That same year are sworn as Scholars Roland Fernando Dias Agudo, Joaquim José Dionisio and Jose Pinto Peixoto.

The next PhD in Mathematics, José Taborda,”About a new full problem of three bodies and its application to a astrodynamics problem" occurs in 1969, after the death of Gião.

10. GIÃO'S MISTAKE

The institutional climate of the Faculty in 1966 will be illustrated by several documents.

31 is the first page of an original unpublished, which accounts for the differences between Gião and Veiga de Oliveira. In almost identical name text that would publish Gião already would mention that Professor at the bibliography, without criticizing directly:

"Cinematique et dynamique de l'espace en rotation" (1963) , p. 153.

"Il there problèmes d'importants purement cinématiques chi n'ont pas été de façon résolus satisfaisante".

Contrasting views on a rational mechanics theme.

32 accounts for the distribution of Mathematics service in 1965-66, as well as the degree of each of the teachers involved. Institutional context for the conflict to be held.

34 to # 33 realize the very favorable book reviews of Ames and Corduneanu.

These are foreground experts, as attested by the part of your bibliography - # 36 and # 36 - which includes books that are authors or co-authors. People whose book reviews are presumably as credible as the vast work published. Constantin Corduneanu publish another book in 2012.

These book reviews refer to two very similar texts of José Simões Pereira, young fellow of the Scientific Data Centre which is oriented PhD by Gião. Publish a volume in the Centre and the Thesis in the Journal of the Faculty. These are works that embody the results of (67) and (70) of Gião, who had been critical of John Synge and the appreciation of Clifford Truesdell, respectively.

37 attests (with humor) that in the same magazine pages, and Sebastian Silva and Veiga de Oliveira found errors in the work Simões Pereira, previously published it; and Antonio Gião comes to amend the correction of the error.

The documents that follow are taken from J. Tiago de Oliveira file.

- The original # 38 of Sebastiao e Silva Note; the version published in the Journal

decreased reference to Tiago de Oliveira for a thank in footer.

The handwritten notes by Oliveira James show how these references may have been unwanted and unwelcome. In highly conflictual universe University then patent in the Annexes on the College and the Scientific Data Centre, the welfare involving the three players would not improve.

- The unprecedented document of 10 pages and Sebastian Silva”About Diffusion Equation", which analyze key points is not displayed. The document is undated, but states

"(...) Declare at a meeting of teachers, certain formulas are unfortunately wrong."

Such a meeting would certainly School Board, whose Minutes are silent about it - Omerta or censurância an umbrella organization in a State Enterprise?

Which leads to date the text to the following Gião response to criticism Veiga and its in the journal pages, since these Sebastião had simply criticize Simões Pereira.

"(...) Then came to recognize the urgent need to publish this note."

Essa publicação não virá a consumar-se. A argumentação releva da”corrente singeleza” apreciada por Fernando Gil (1989).

Begins with talk about the value of the error in science. For the (p.1) state

"In 1950, the" Journal de Physique et Radium”, vol II, was published the article" Sur les équations Integrales de l'hydrodynamique”by Antonio region. Now it happens that the resolvents formulas presented in this article, for the diffusion equations, are not right.”

The formulas are the same as in Synge criticized (67). But this is the first time that the negative judgment imposed on (70). The argument continued on p.2

"(...) Applying these formulas, (...) we arrive at conclusions equivalent to (...) if we heat a room heater one, however great his power, this will not have any interference in temperatora (...) Or (...) non-arbitrariness of sources or sinks (radiators or coolers, thermal interpretation) , as if they were entirely determined

by what happens at the initial time and the periphery.”

So far, Sebastiao e Silva argument by reductio ad absurdum of the physical consequences. Will now argue in mathematics matter. It is written in p.3:

"Since we'll see that the conditions 1) 2) e3) are overabundant and therefore incompatible in general (...) that it is an ill-posed problem."

Would later cite the recent thesis of Professor Neto Murta, to include the definition of”well put problem." But even in p.3, there is another aspect of this error published in 1950 and repeated 16 years later:

"What is most impressive is that the conditions of the data *overabundance* 1) 2) 3) , joins the lack of data on the condition 4) (...) "

To proceed with new counter-example.

-Also Ciclostilado and unprecedented Arises, Certainly be the same occasion, undated Also, in J. Tiago de Oliveira file, Veiga de Oliveira text”About the" sur les équations Integrales de l'hydrodynamique”."

Another criticism of the same text Gião in the pages of the Faculty of Science Magazine.

- Again written by Sebastião e Silva, and in the same spirit, comes # 39, and, as the aforementioned document aims to respond to Gião pages in the magazine; this document will have had, of course, like the previous, restricted movement to the School Board and a few more teachers, among them J. Tiago de Oliveira; would not be published.

The emphasis of Sebastian criticism focuses on the fact that the problem is”ill-posed". Nuance math Gião did not have.

[Here the analysis becomes critical in revealing a symmetry and a constant.

In Minutes School Board see how Gião verberara Santos Guerreiro, the first PhD candidate driven by Sebastian; here is this that objects - but in writing - the work of one doctoral student Gião. The pre-final phrase and Sebastian Silva in my Conference Call Transcript that episode,”Then the orientation (...) Santos Guerreiro is the same as it has adopted in its work," delivered by Sebastian, could apply mutatis

mutandis but with greater intentionality. The criticism of Simões Pereira had the object of his mentor, and hit the target.

Occur two informal reflections in this work to present formal proofs. The first is that”revenge" is best served cold. The second, this symmetry fraught narrative, is not symmetrical part, the mathematician always come out winner and physical loses.

Warrior for once, Sebastian for two, prestigious emerge. I dare adjectivate the two Gião attitudes defeated: perhaps introverted and discreetly silent in 1961, public and definitely unauthorized in this case. It will come certainly self-marginalization that they vote in school board, and divert all their serials to the Archives. Where no one will object to you.

We know this from personal communication from Professor Dias Agudo, this will discreetly contributed to the inserts calculations in Oliveira de Veiga criticism.

It is recalled that Tiago de Oliveira Dias and Acute were Extraordinary Teachers, unlike Gião, Veiga and Sebastian, Professors. Again, symmetry - an intermediate 2 degree Teachers support 2 on top of round at the point where both confront a higher degree colleague; there will be no violations of the hierarchy...

It was the time when the prestige associated with the Chair took away the teachers at other levels of academic discussion at the highest level. No wonder, therefore, that the debate did not include directly all those who took part in it.

- In letter # 41, of 23 June, Gião write to the Director of School, resigning from the Board of the Journal disagrees with the themes of Veiga and Sebastian articles - did not represent innovative science, as, according to him, should be the timbre magazine, but only controversial texts. It will then stop writing, keeping the pace of publication in the Archives who created and directs.

- The sequence of the 3 unpublished texts - 2 of Sebastian and the Veiga - makes you think in a Solomonic solution; the repeated criticism of texts were not published, and Gião away would the wording and the journal pages. No Acta, however, proves so be it; and any letters to accompany such texts, or proof of debate to that document was not accessible. Again this to censurância...

- The document # 40 Simões Pereira seeks, July 18, to give up the PhD evidence. After noting the unanimity with which his doctoral project had been accepted in School Board, says the notes”sufficiently enlightening" Veiga and Sebastian as dismissing the”no comment".

- # 42 is the sequence of letters that three eminent French mathematicians - Schwartz, Lyons, Treves write to Sebastian and Silva, criticizing a text (which does not have referred) of Gião. Surely (67) , (70) , or more likely, the date, the short answer text to Sebastian and Veiga in the journal pages.

Finally, # 43 plays a Professor interview José Joaquim Dionisio, demonstrating the ignorance and misunderstanding between colleagues, Faculty of Science, for Gião - often accused of unreliable, always distant epitetado.

I think Gião simultaneously gave shows of not understanding the errors and yet knew lose with dignity - that witness the tone of the letter to Prof. Sacarrão. Have also maintained self-esteem, patent enthusiasm manifest in their immediately subsequent conference # 6.

The next year will Gião teacher leave of absence - and the journey that does, is faced with the beginnings of the disease that is fatal.

In this year Oliveira Tiago replaces in Mathematical Physics, introducing the teaching of Stochastic Processes. At the end of 1966 and Oliveira Dias Agudo James already be Professors.

Balance in two vectors:

1 - There is a demarcation line in this conflict.

Region, Truesdell, Ames, Corduneanu are on one side. Physicists 2/1, mathematical others 2. respectable and respected people. The two mathematicians dominate the tools of modern mathematics.

On the other side of the barricade, Synge, Sebastian, James. Veiga, Acute days, and later, Schwartz, Lyons, Trier. A great physical, all other mathematicians. With the exception of Synge, all are of subsequent generations, two of them much younger. Schwartz and Sebastian are authors of the foreground on the theory of distributions,

and this is a branch of mathematics dictates modern, that Gião unknown.

2 - Gião reiterates error always be right against the circumstances and the evidence.

Its prehistory with the School begins in 1933 in a disagreement with Dedebant. Amorim Ferreira calls for Faculty passing over Gião, not getting to this place in physics. The College fixes the bug calling him for Mathematics, in conditions that Gião refusal. Years later, the Faculty accepts the conditions. Region chooses the closest assistant in interests. Students complain Salazar, is stifled, the assistant criticized. Region leaves a chair, replacing the wizard, lets sort quantitativamente-adapts the pedagogical, to intervene in scientific, criticizing the thesis of a Sebastian assistant. Who will come to condemn Gião of candidate's thesis. With lesser degrees of drama, the relationship with Veiga de Oliveira also does not flow. Region does not recognize the error in mathematics matter. And, in doing so, commits a more serious error in the social field. Is doomed to isolation. Fortunately, it remains a stronghold of refuge...

11. THE LAST ADVENTURE OF A SCIENTIST

Here are integrated and interleave:

- Successive triennial reports of the President, José de Azeredo Perdigão;

- Also signed by the President, the Work Programme, where the description of the Scientific Data Centre recognizes the Gião plume:

- The annual work reports by the scientist;

- Two moments of the difficult working relationship with the Mathematics Section of the Faculty of Sciences.

After the loss of institutional memory of scientific computing center, due to the 1967 floods in Oeiras, the essential reference is the text of Jorge Calado”Science", in A. Barreto (ed.) ,”Calouste Gulbenkian Foundation, Fifty Years, 1956-2006”. However, the Estate of Orlando Ribeiro allowed to reconstruct much of this memory.

The lines that follow are extracts of successive reports President, José de Azeredo Perdigão.

Note that this part of the study, the sources consulted harmonize and complete without contradiction. Azevedo and George Perdigão draft (2006) essentially transmit the same content, in more detail at first with a more critical in the second step. The 4 Gião reports provide details not relevados in other times and places of life, about your intention as a scientist. And who did not live with harmony simultaneous work in the Foundation and the University.

1959-62

(...) ”The Foundation had appointed an Advisory Council for Science, composed of five distinguished professors - Doctors Antonio Gião, Flávio de Resende, Fernando da Fonseca, Orlando Ribeiro and Carlos Alves Martins - whose different specializations covering all branches of scientific knowledge and whose learned very elucidated opinions about the best way to solve those problems.

It was understood, so that direct investigation could be dispensed with, especially

since, to study such problems, had gathered very informative data elements that will be further reference (p. 184-185).

(…)

Based on the criteria outlined above, the Advisory Council on Science suggests that begin the first steps towards the creation of the Gulbenkian Institute of Science through the following activity centers:

- Scientific Calculation Laboratory
- The Centre for Astrophysics
- The Institute of Biology
- The Institute of Earth and Man
- The Institute of Economics and Finance.

The Scientific Calculation Laboratory is the typical case of a core infrastructure. It is actually a working basis for any group of scientific research institutes and be the first to exist in Portugal for that purpose. Preliminary studies have already begun and will soon account will submit its final draft, which will be the first phase of realization in 1962 (p. 191).

(…)

The Centre for Astrophysics responds to two needs: create in Portugal research in basic science and calls at the same time, choose a field to which not only the country has exceptional natural conditions but also where you can, within a period relatively short, obtain cooperation from foreign scientists of the highest level. They start within short time preparatory studies - location, organization, prices, etc. - After which it will submit a reasoned report to the Board of Directors (p 192-193.).

(…)

How was curial, the Science Department made these documents careful review, that are refined the following conclusions:

a) The execution of the project should not cater for the complete absorption of the budget-annual Science Service, as the Foundation's interest in continuing to subsidize some of the existing research institutes, desig-alia the university;
b) First consideration should be the establishment of the proposed Centre for Scientific Cal-century since, as the Advisory Council, is the typical case of a core infrastructure, since it is a working basis for any group of scientific research institutes;
c) It is not appropriate to part of the project on the Astrophysics;
d) The cores designed to form the Biological Research Centre are susceptí-ble immediate structuring;
e) The project on the Statute of the Earth and Man, is not recommended so far as it proposes the creation of a museum, but at that refers prin-ly to that institute, is to consider the absorption by the Gulbenkian Institute of Science, the Centre for Geographical Studies, created by the IAC and largely subsidized by the Foundation;
f) The creation of an Institute of Economics and Finance can be seen from the Foundation, as indeed is provided, enter the current Center for Economic Statistical Studies, created by IAC and funded by the Blow-tion;
g) To be accepted in principle the proposal of organizing a Gülben-kian Institute of Science, which will also create a technical staff preparation center and help to study an internal reform of the Foundation's services to include in the science tasks that today find themselves in charge of or-ters services (p. 192-193).

(…)

Scientific Data Centre

It was the first center of the Gulbenkian Institute of Science that the Board of Directors decided to create, what good is meant by it is a scientific research in general infrastructure cell. Its main objectives are (1) :

- Carry out scientific research in pure and applied mathematics, with the support of electronic calculation;

- Support the external scientific research, provided that it is disinterested, that is not profitable;

- To support educational institutions.

For purposes of own research, the Centre has a group of researchers specializing in various sectors - mathematics, physics, and operational research - engaged exclusively scientific research; this group is the Research Section.

Regardless of this, the Centre also conducts research in the field of mathematical programming, for which there is a group of experts forming the Section Programming.

The resulting works of this activity - own research - are published in exclusive editions of the Center or"the Gulbenkian Institute of Science Archive"

For support to external scientific research, there are two in the center mechanical calculation rooms that any researcher, since engaged in the disinterested research, can use for free.

(.....)

9. The Centre already has an electronic computer IBM 1620, a reading unit and drill type 1622 cards and a unit of memories 40 000 type 1623 positions.

The auxiliary equipment is composed of a perforating the interpreting 026-21 type, a type checker 056-1, 082-1 of a separator type, a type interleaver 077-1 and a tabulator type 444-A04.

Other material will be acquired when circumstances require for good efficiency of the work (p. 200-203). (.....)

To complete the referred to Scientific Data Centre, we can only say something about your business until December 31, 1962.

Approved its creation in principle at the meeting of the Board of Directors July 19, 1961 and definitely at the meeting on January 8, 1962, it is obvious that during this

last year was little more than possible to acquire and install their equipment and begin the training of personnel assigned to study the various theoretical problems, make your programming or promote the operation of the machines.

(. …….)

Table of Scientific Data Centre:

Director - Prof. Dr. Carlos Alves Martins

Research Director - Prof. António Gião

Director of Administrative Services - Dr. João Marujo Lopes

Director of Programming Services - Dr. António Cadete

Head of Operation - Dra Maria de Lourdes Vian

Head of Documentation - Dra Maria da Graça Lopo

Head of Department - Maria de La Salette-Nabais"

Interrupted, to this point, the President's Report. Prof. Alves Martins will be carried forward to the Economy Center, assuming Gião Directorate, been assisted by Egidio Boyfriend, acting as Deputy Director. (* 11).

Antonio Cadet has full autonomy in its sector.

Grace Lopo also mathematics, would have the responsibility of diffusion (especially international) publications.

Were to join the scientific team Gião a designer, two meteorologists - José Barbeito and George White, and three mathematicians - Amilcar Gonçalves, Renato Pereira Coelho and José Simões Pereira.

Comment on"1961 Work Programme" (# 47) and"Research Projects in Progress" 1962 (# 48).

In 1961 Gião is extraordinarily cautious.

The items 1) and 2) refer to devoted part of his work.

Point 3) will come to be associated with the controversy discussed in Chapter 8.

In point 4) , under the overly technical language of differential operators, aims to revive the particle physics, abandoned in 1951, and arises cosmology as a new field

of interest, a more eclectic way in their text by listing the various models.

The ultimate pages 265-6, are practical and administrative content. Not found in other well diversified prose Gião.

[Occurs in this step, the only quote that makes Eddington, an author who, in his masterpiece”Fundamental Theory", argues with the number of independent variables, for the constant value of fine structure. An equally reasoned argument is crucial in Gião to the dimensionality of the universe and unity of Emna.

A lack of relationship that makes you think.

- Eddington's argument was discussed, because misunderstood.

- Another British author - Dirac - made a cosmology based on assumptions”numerological" discussed because understood;

- The values that Eddington tried to justify -1/136 1/137 and then there have been be approximations, and the theory was abandoned;

- The Gião of argument is easier than the previous ones, as it focuses on the dimension necessarily be 4 for non-arbitrariness are over;

- Yet the Emna in general and this argument Gião were ignored].

In 1961 appeared another project, # 91, the Observatory that Azeredo Perdigão alludes. Do not come to fruition. But the P352 was written that was unanimous on the Advisory Board that one of the first”cell" would create such Observatory. P. 354, ocorem conditions for the study of location - based on climatological data; again, by ambition desmesurada- develop radio astronomy, and two of the themes in working - Formation of galaxies, solar physics. And describes the types of appropriate instruments, and the strategy of acquisition. The excesses of # 89 persists 22 years later.

The 1962 language (# 48) is looser. The Centre is diversified projects. Comes the new item - N Bodies - that will lead to two works of celestial mechanics.

The order of 3) and 4) is reversed, gaining Operators primacy to cosmological research, and continuing Proglond a rear to whose pursuit will come to be associated with the work of Simões Pereira.

1963-65

(...) ”When the Advisory Council on Science takes the initiative to recommend to the Board the creation, according to the method in question, an institute for research in the field of biology is not to improvise, not to innovate, or to propose an abstract experience. On the contrary, the modern scientific world knows other examples that seem legitimate claim - in the United States or Russia, but that it retains the classic German scientific organization known under the name of Max Planck Institutes, formerly Kaiser Wilhelm, who for decades has played a role in the scientific life of higher relief by the simple principle of creating research laboratories around researchers and not pre-established programs.

The history of these institutions also shows that the collaboration between its scientists in public programs is a fruit that is produced naturally and freely provided that care which severely the quality of joining these work commitments: they come, actually, people with an almost unlimited freedom in the tasks they are to devote themselves; but know, at the same time that the measure of freedom corresponds equally severe risk.”

(…)

"Thus, until December 31, 1962, end of the period to which this report concerns, as were the Gulbenkian Institute of Science four research centers - one of Agricultural Economics, another for Scientific Calculation, another of Biology and other Research pedagogical, the first two in full operation and the last two in the organization (p. 197-198).”

(…)

Scientific Data Centre

1. It can be said that the Scientific Calculation Centre, opened in November 7, 1962, it was revealed by intense activity in the three year period 1963-1965, a

valuable working tool at the service of the Portuguese science and corresponded largely to triple purpose that presided over its creation: conducting scientific research in the field of pure and applied mathematics, support for external scientific research, provided that disinterested, that is, non-profit, and support for educational institutions.

Parallel to these activities has provided the Centre for assistance, not only to the other centers of the Gulbenkian Institute of Science, but also the various services of the Foundation, including the projects and Works, Financial Investments and Central Accounting.

2. The most accurate measure of its Labor can be calculated from the set of publications que in three years, Were the first three volumes of Section A - Mathematical and Physical-Mathematical Studies of the Gulbenkian Institute of Science Archive.

In These volumes Were included the important studies that go are Mentioned:

- Vol. I *(*1963) *–"Sur la loi de distribution de Maxwell-Boltzmnn»,"On the relation between the total pressure variation and the field of temperature»* e *«On the theory of the cosmological models with reference to a generalized steady-state model»,* by Prof. *A* Gião, *e"Application de l'équation de la diffusion* à *la détermination des circulations zonales»,* by*A.* Gião, J. Roulleauand R. Pereira Coelho.

- Vol. II (1964) –"A *new form of the sea level tendency equation",* de A. Gião e J. M. Barbeito, *«On the weighted advection»,* by A. Gião, and"*Influence des Sources thermiques sur la circulation zonale", byA.* Gião and R. Pereira Coelho.

- Vol. III (1965) – «*The heat equation on closed surfaces»,* by J. *M.* S. Pereira, *«Fourier transforms and the continuation of functions» e «Lecomportement des fonctions d'onde sur les lignes d'univers des particulesélémentaires»,* by*A.* Gião.

In the series*Cursos e Seminários*, the Centerpublished"*Propriétés locales et globales de l'opérateur laplacien",* by Prof. *A.* Gião,"*System 2 FORTRAN programming and its use with the electronic computer installed on the Calculation Center Scientific"* work done by the Section Center Programming, and*"CosmologicaI Models"*, the international seminar minutes held in 1963 under the auspices of the Scientific Committee NATO, in which are included the given lessons on the subject, teachers A. Gião, P. Jordan, H. Bondi, Y. Thiry and GC McVittie.

3. In addition to the seminar is mentioned, the Center conducted in collaboration with the Scientific Committee of NATO in 1963, an *Operational Research Course*, in 1964, a *Theory Course Seminar of distributions* and, in 1965, a *seminar on the recent developments in the theory of queues and their applications*, the latter also in collaboration with the Centre de Recherche interarmées Operationelle, Paris.

(……)

6. With scholarships paid by the Foundation matured in the center, during the three year period 1963-1965, seven fellows in work specialization in Physics, Mathematics, Numerical Analysis and Programming Systems.

7. Electronic equipment The calculation - an IBM 1620 computer - was extensively used during the three year period, treatment and support of all the activities undertaken."

 # 49

The Research Program Gulbenkian Center (1963)

The priority is now given to operators who continue to integrate cosmology.

Said - pp. 270-1 - the study of"inertia for free particles in the mechanics of Dirac", and the negative energy states.

[Note the imbrincação speech in the above quotes - noun to noun adjectivado in name of noun -. A 'tower' of successive references, characteristic stylistic ement in writing Scientist]

Mention the work of two employees, the mathematician Renato Pereira Coelho and physicist José Barbeito. The subprojects are called acronyms. A p. 273 refers to the graphical representations and progress towards a new way of contested equation trends, Lewis Fry Richardson.

The last page refers to approach the University of Coimbra, in the fields of pure and applied theoretical physics. - Perhaps thinking of Ribeiro Gomes Pereira Simões Pereira and Rabbit]

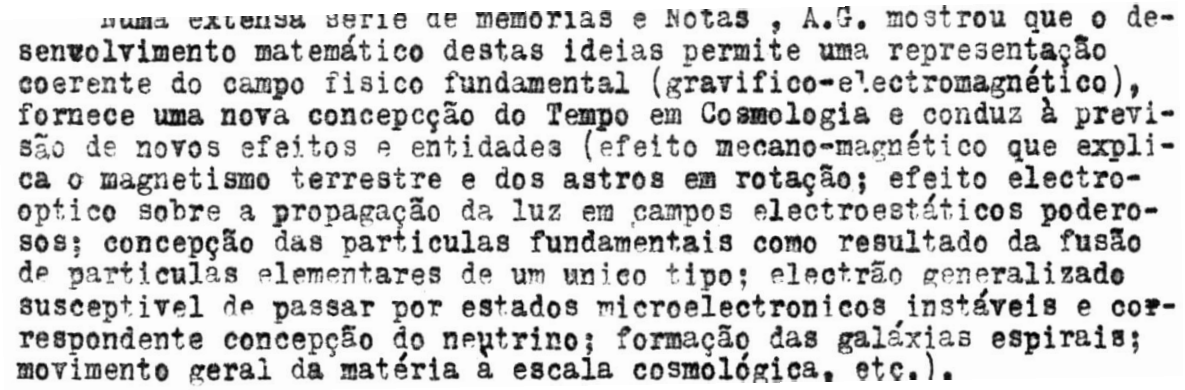
#50

Notes on the scientific work of Antonio Gião.

The structure of this document seems to be composite.

The 1st page lists the three areas of Gião election. In short, the fundamental physics, phenomenological physics, meteorology.

And develops the first of those topics, in their relation to differential geometry, listing:


numa extensa serie de memorias e Notas , A.G. mostrou que o desenvolvimento matemático destas ideias permite uma representação coerente do campo fisico fundamental (gravifico-electromagnético), fornece uma nova concepcção do Tempo em Cosmologia e conduz à previsão de novos efeitos e entidades (efeito mecano-magnético que explica o magnetismo terrestre e dos astros em rotação; efeito electro-optico sobre a propagação da luz em campos electroestáticos poderosos; concepção das particulas fundamentais como resultado da fusão de particulas elementares de um unico tipo; electrão generalizado susceptivel de passar por estados microelectronicos instáveis e correspondente concepção do neutrino; formação das galáxias espirais; movimento geral da matéria a escala cosmológica, etc.).

That is, a summary of their works adapted to the language of the 60s.

The following pages 276-280, written with another type of machine, are arranged by acronyms project, a new appearing around the Fourier transform. There certainly been distributed to members of the Advisory Council for Science, I find no

explanation for hetrogeneidade structure, or to the apparent incompleteness of the document in which the 1st page could enter.

Not access the reports from the sequent years.

Synthesizing these developments:

- The resume, noted above, and themes seemingly forgotten as the phenomenological physics, and as controversial as the microelectrão and the equation of trends;

- Gradual increase in priority - hierarchy in the ordering of themes - the mathematical physics, without at any time if they stop the various weather fronts study;

- As significant as the presences, absences:

- Cosmology, dissolved in mathematical physics,

- Piccardi of tests which may Gião felt as a reserved area absent of projects in the Gulbenkian as teaching at the Faculty and the publication in Portugal.

Another aspect in the history of CCC was its relations with teachers of the Faculty of Sciences:

The documents show then analyze the difficulty Gião had to reconcile his work in computer center - who ran - with Par status that was his at the Faculty.

The first is prior to the incidents referred to in Chap. 6, the second later.

The document # 51, 1965, is the Agreed transcript of a meeting previously doomed to failure (J. Tiago de Oliveira File)

Respigo some relevant lines:

"I had it strange to have the first conversation with Prof. Alves Martins and not to him, Director of Research"

(....)

Prof. Region asked if he was sure to have fellows, it declared that supposed this were to happen. At this time, Prof. Region stated that in no way wanted some of my employees were to join the CCC and would like me to provide it to your list. I said

then do not need to give you such a list of employees who, at most, you might be interested if they wished to join the CCC.

(...)

Prof. John declared that he knew very well my line of research in pure mathematics but he would if I wanted to go there that change [ilegíve] pointed to the interest of Statistical Mechanics. Stated that he knew the interest of Statistical Mechanics, which was out of the current management and international order that I followed.

(...)

I have highlighted the fact that the existence of a statistical consultant podedria have the effect of a new toy, for real interest or failure in disguise employees of various institutes.

The relevadas phrases represent a total disagreement between the teacher he taught Numerical Analysis and the one who ran the computer center.

Here is a collaborative effort between the two institutions that Gião integrates, and is to fail. However, simultaneously with the disagreements around the Gião the Faculty of Sciences, which treated in the previous chapter, the Gulbenkian Foundation was to diversify its support in math matters - supporting a draft Tiago de Oliveira Almeida and Costa, which takes place that Faculty.

Here is a collaborative effort between the two institutions that Gião integrates, and is to fail. However, simultaneously with the disagreements around the Gião the Faculty of Sciences, which treated in the previous chapter, the Gulbenkian Foundation was to diversify its support in math matters - supporting a draft Tiago de Oliveira Almeida and Costa, which takes place that Faculty. Following the renewal of the application to support this project, you can read in the document # 59, one Minutes of the Advisory Council of Science (of Professor Orlando Ribeiro Legacy).

Reading this letter, written with the diplomacy of an oriental root Foundation, calls for the following comments on the lines:

The Gião report could have been negative (which is suggested by the containment

of language) , with, and, if so, was defeated by the favorable assessment of Alves Martins and other advisers.

The differential treatment proposed to Professor Almeida Costa expresses knowledge by the Foundation of what was the split, the consummate subsequently, between then Pure Mathematics and Applied.

Unlike recorded in the Minutes, the computer center was not to include a section of Statistics and Operations Research.

The following paragraph is de Azeredo Perdigão.

1966-1969

(…) *Scientific Data Centre*

Despite the serious illness that reached its illustrious Director, Prof. António Gião, who died on March 5, 1969, the three year period from 1966 to 1968 accounted for the Scientific Calculation Centre, a period of intense work, during which they pursued studies already coming from previous years and started new methods rooting of scientific activity in the field of applied mathematics. Proved to be an encouraging fertility those conducted with search character and interdisciplinary collaboration, especially in the aspect of problem solving with immediate practical interest. Thus it was possible to successfully tasks that otherwise and without the human and material resources of the Center, not even would have been addressed.

(….)

Fulfilling its mission as infrastructure unit, intensified collaboration with other Foundation Centres and Services"(p. 195-198).

The Scientific Data Centre has not recovered from the death of Gião.

Possibly because the extremely human personality Egidio Boyfriend, amounting to Director, would not be a chief; also because the scientific sector focus unipessoalmente in interessesna person Gião.

Only the sector coordinated by Antonio Cadet maintained activity.

But times were different - the liberalized regime and, according to Jorge Calado

(2006) the Foundation opted increasingly to decentralize its investment in Science.

Cadet:

-with Marcello Caetano and Veiga Simão, has produced a White Paper elencando all researchers from the Gulbenkian, which would for the State supervision. This point will have been part of the agenda of the Council of Ministers scheduled for April 25, 1974....

The end of the Scientific Data Centre was only a matter of time. Became politicized and therefore very tumultuous.

To this end there was place for memory loss - of 20,000 books declared the President of the reports, the donation made to the Superior Technical Institute is reflected in a 5700 catalog only...

[Occurs here again the opportunity for a critical review.

What Jorge Calado (2006) classified as a political"hybrid" part by Science Foundation found itself illustrated in the Advisory Council Minutes - supporting research activity in Statistics outside the Institute, concomitant with will come to develop a section on the same scientific area within the computer center at the time not yet it perceives as the scientific activity of this center lies in one man, Gião...

Contextualize. It will be recalled that it was written in the proposal of the Astrophysical Observatory, the Advisory Council concurred unanimously until the reality principle - the finiteness of human and material resources - off given by the President. Recall again the excesses checked in Gião projects, both the Centre as the excesses of the 30s perhaps initially supported by the Advisory Council, whose members met at the Foundation incomparably better placed than the University.

We found a pattern, which could perhaps be supported by a systematic study of the deliberations of that Council - Teachers who integrate are no longer in the most active generation; the prestige of the Foundation is played increasingly, especially externally, either in supporting grantees abroad, whether the projects in national universities - in the background, the gradual increased investment in the public

tender, than in research Intramuros. At a time when the scientific calculation means the Higher Technical Institute, animated by Gouvêa Portela and students of Cybernetics Studies Center - Luís Moniz Pereira, Helder Coelho; and the National Laboratory of Civil Engineering, with Gustavo de Castro, exceeded the Foundation, the work of the team led by Gião was no longer cutting edge. And not again be.]

12. DRAMATIS PERSONAE

Not being known some of the dates, are part of the names by reference to order in Thesis. We emphasize the great inequality in the biographical treatment, usually consequent to the scarcity of information accessed.

António Carvalho Brandão (1878-1937)

In http: //www. hidrografico. pt/antonio-carvalho-brandao-1878-1937. php.Captain of the frigate. In 1904 he was appointed member of the Board of the Navy War. In 1912 prepared a dictionary of terms of Navy, with translation in French and English, covering board technology. Worked hard for the installation of a weather station in the Azores. He represented Portugal in many international congresses of the specialty. Dedicated to the Society of Meteorology and Geophysics an enormous activity. Among other works, he published a memoir on"Modern Weather methods", presented to the Congress of Coimbra, 1925. In 1926 he was appointed member of the International Meteorological Committee.

Georges Rempp. (1882-1937).

Specialist in neurology during the German and French periods of the Institute of Strasbourg, which entered service in 1906. Before the war perfected sounding balloons, and accompanied the expedition to Spitzbergen Wegener, in 1911-12.

Albert Defant

Assistant in Vienna: 1907-1918.

Professor in Innsbruck: 1919-1926.

Proessor. Berlin: 1926-1945.

Professor in Innsbruck: 1945-1955.

Author of:

“Wetter und Wettervorhersage”; Konzept des”turbulenten” Großaustausches; Lehrbuch”Physikalische Dynamik der Atmosphäre”;”Begründer der physikalischen Ozeanographie”.

Philippe Wehrlé(1890-1956)

Their titles until 1938 listed at # 20.

Vice-President of the World Meteorological Organization immediately before the war.

Taken in Grasse after the war, is devoted entirely to research.

Founder, with Dedebant, Shuffle Mechanics

Author of”*L'Univers Aléatoire*" (Griffon, Neuchatel, 1956) , prefaced by Ferdinand Gonseth. By the end of his life believed and argued that all of physics would be rewritten under the Chance. His work in meteorology and rotation of the stars remain valid; Moyal, Palestinian disciple, was the only one to extend this perspective to Quantum Mechanics.

Georges Dedebant

Co-author of”météorologie Manual of Pilote" with L. Viaut, co-founder, with Wehrlé, Shuffle Mechanics.

Meteorology Director in French Morocco, would teach in military schools. Vice-President of the Office National météorologique during the term of Wehrlé. After teaching in Lisbon (1947) , would go into exile in Argentina, Deparatamento Aeronática of the Polytechnic Institute of Mar del Plata.

Proposes an extension of Random Mechanics to Relativity and the super-luminal speeds, which deserve the Wehrlé of disagreement (1956).

Paul Braffort

Mathematics education, born in 1923, student of Gaston Bachelard and friend Boris Vian, Francis Blanche et Raymond Queneau. Member of Oulipo desde1961 (il le 28 avril will be réélu, cette fois-ci comme membre hollandais). Created the Laboratoire de Calcul Analogique Commissariat à l'Énergie au Atomique, came to tranalhar in Euratom, at ESTEC (European Space Technology Centre) , and would be”visiting scholar" at the University of Chicago after teaching at the Collège International de Philosophie. Jacques Roubaud founded with the ALAMO (Atelier de Littérature Assistée par la Mathématique et les Ordinateurs). Musician, he composed songs for Raymond Queneau et Barbara, in 1958,”La Joconde" La chanteuse minui disk.

Sang in cabarets, as in Olympia.

René Cordebas

Engineer from the Ecole Supérieure des Mines de Paris.

Author of:

“L’énergie dans la civilisation moderne” (1965)

“ Les Lois de l’esprit: Ou la Science des principes” (1946)

“Diaclases et failles” (1929)

“Un nouveau mode de couplage radioélectrique. Le couplage par diffusion” (1933)

“La Conductibilité électrique des différentes variétés de carbone” (1932)

“Contribution expérimentale à la théorie des piles Lecianché, par René Cordebas” (1934)

“Radiotéléphonie automatique: Moteurs électriques à commutation différée, procédés René Cordebas” (1947).

“Résumé de quelques recherches relatives au mécanisme moléculaire de production d’énergie dans la pile électrique” (1937).

Zareh Nubar

Grandson of Minister of Egypt First, Nubar Pasha.

Son of Boghos Nubar, founder of the Armenian General Benevolent Union, which runs between 1906 and 1928.

After Calouste Gulbenkian's mandate (1930-32) , Zareh Nubar takes his direction until 1943.

Writes:

– *Le Premier Principe, rien n'est arbitraire* (1930).

– *Essai d'une explication méacanique de la gravitation aboutissant à une formule rendant compte de l'avance des périhélies* (1930).

– *Sur une organistion scientifique des états* (1953).

John Lighton Synge (1897 -1995)

Worked in classical and relativistic mechanics, geometrical optics and mechanics, dynamics of gases and liquids, elasticity, electrical networks, differential geometry.

Renovated in 1972 the Dublin Institute for Advanced Studies, was written that 12% of those who worked on relativity studied with him. Herman Bondi, said the first JL Synge Public Lecture in 1992:

Every one of the other 88*% has been deeply influenced by his geometric vision and the clarity of his expression.*

About him, said P.S. Florides: *Every single book and every single paper is a remarkable work of art.*

Author of 11 books and 200 titles.

Clifford Ambrose Truesdell III, (1919-2000)

Mathematician, natural philosopher, historian of mathematics, polemizador. From 1961 until retirement in 1989 he was Professor of Mechanical ratconal at Johns Hopkins University, Baltimore. Advisor deWalter Noll. Truesdell was founder and editor of so many magazines such as *Archive for Rational Mechanics and Analysis* e*Archive for the History of Exact Sciences*, magazine that accepted texts in English, French, German, or Latin.

F. H. Raymond

Author of:

Raymond, F. H. 1952.”Calcul analogique (príncipes et contribution à une théorie générale).” Paris, extraído de La Ricerca Scientífica, publicado na *Revue d'optique*.

Raymond, F. H. 12-17 April 1954”Les machines électroniques pour le calcul analogique”Rapport de la IV ème section (Servomécanismes et calculatrices electronique) Milano, *Congrés d'électronique et télévision*.

Raymond, F. H. 1955”Structure générale d'une calculatrice numérique universelle.” *Bulletin de la Société Française des Electriciens* 50, p. 692.

Raymond, F. H. 1958.”Evolution du concept de structure d'une calculatrice numérique universelle. Palerme, XLVI réunion de la Societa Italiana per il Progresso delle Scienze, 17 September 1956. Publicado depois em*Automatisme,* 3, p. 56.

Raymond, F. H. 1960ª.”Quelques remarques sur les systèmes de traitement d'informations avec bandes magnétiques.” Paris, *Chiffres* 3.

Raymond, F. H. 1960b.”Présentation de deux calculatrices SEA.”, *L'Onde Electrique* 405, p. 920.

Raymond F. H. 1957 & 1982, L'Automatique des Informations Paris, Masson.

Raymond, F. H. 1966,”L'évolution générale dês strutures de calculatrices à prefixes et à piles.”*Chiffres* 9 p. 235.

Raymond, F. H. 1967.”L'évolution générale des strutures de calculatrices à prefixes et à piles' *Revue d'Informatique et de Recherche Opérationnelle* p. 5.

Raymond, F. H. 1969. Les principes des ordinateurs, Paris, P. U. F.

Raymons, F. H. 1970ª. Brevetabilité du software.”*Revue d'Informatique et de Recherche Opérationnelle* p. 59.

Raymond, F. H. 1970b”Informatique et Automatique.”*Automatisme*, p. 369.

André Danjon

Director of the Strasbourg Observatory in 1930.

Director of the Paris Observatory in 1945

Introduces the prisms bi-refractile and applies them in photometry as the positioning of the double stars.

Wrote*Lunettes et Télescopes* (with A. Couderc) and*Astronomie Générale*.

After a stroke in 1963 that lets partially paralyzed, relearns talking and reading, writing the history of the Observatoire de Haute-Provence, founded in 1936.

Jean Roulleau

Directed the Institut National de Météorologie.

Author:

Roulleau, Jean,”Les Dernieres Experiences de Pluie Artificielle"Meteorologie nationale – 1948.

Roulleau (J.) , Trochon (R.) ,”Meteorologie Generale T. 1", Gauthier Villars – 1952.

Roulleau (J.) , Trochon (R.) ,”Meteorologie Generale Tome 1 Structure Vericale de l’Atmosphere – l’Atmosphere et les Phenomenes de Rayonnement", Gauthier Villars – 1952.

Pascual Jordan (1902-1980)

The only one of the founders of quantum mechanics that did not receive the Nobel Prize. Member of the National Socialist Party since the seizure of power by Hitler. Later deputy in the Bundestag by the Christian Democratic Party.

Author of a Kaluza-Klein cosmology type, which included the continuous creation of matter.

Creator of non-associative algebras Jordan.

Creator, simultaneously with Fermi and Dirac, the statistics of fermions in a manuscript that is unprecedented.

Assistant Richard Courant, contributed to the writing of”Methods of Mathematical Physics" of Courant and Hilbert.

Known for its uncontrollable stammer.

Hermann Bondi (1979-2005)

Encouraged by Eddington, came to devote himself to cosmology.

Exiled from Austria, lived 15 months in refugee camps in Mane Island in Canada, where he met Thomas Gold, also Austrian. Both were to work on military projects of the English Admiralty, under the direction of Fred Hoyle. Do they work together after the war, would leave the Cosmological Principle and consequetemente Theory of Continuous Creation of Matter. He also worked in recreational mathematics, theory of gravitational waves, and rotation of the Earth. Contributed to the scientific dissemination and had humanitarian activities.

Horace Babcock (1912-2003)

Astronomer, son of Harold D. Babcock, who published work together.

Inventor of astronomical instrumentation.

Expert in spectroscopy and magnetic field of stars. Author of the theory of magnetism of sunspots.

Recipient of several medals.

The name of the two - Father and Son - is associated with an asteroid, unlike the lunar crater that has only the name of the Father.

Mario Bossolasco

Director of Mogadishu Observatory before Mussolini, would excel in Italy to receive the Palazzo Award of the Academy Bobcats in 1937 and founded in 1939 the journal"*Geophysical Pure and Applicata*", while driving the Royal Institute of meteorology and Geophysics in Messina, annual international conferences promoter.

Studied issues such as coastal erosion, global variations of the magnetic field, the monsoons of Somalia, the currents of the Strait of Messina, geoelectric methods for oil detection and volcanoes.

After the war he settled in Genoa, continuing to drive the magazine and the

Institute.

Manuel Augusto Zaluar Nunes (1907-1967).

Teaches at the Faculty of Science, University of Lisbon, Institute of Ciên-ences Economic and Financial, School of Agriculture, and the University of Recife.

Officer: Portuguese Mathematical Society. Lecturer of: Mechanical and As-tronomia, Analysis and Geometry.

Away in 1947, would continue to teach in Paris.

Flávio Ferreira Pinto Resende (1907-1967)

He started his scientific career at the Botanical Institute of the University of Coimbra.

In 1933 obtained a scholarship from a German institution.

In January 1938 he returned to the country, staying here to work in the National Agricultural Station, as received a scholarship. In this capacity he returned to Hamburg in August 1938 in order to complete work begun in existing material in the Botanical Garden of the city. Here was maintained throughout the academic year 1938-39. In the academic years 1939-40 and 1940-41, obtained a place of work in the"Kaiser Wilhelm - Institut fur Biologie" in Berlin.

His main interest was the plant cytogenetics.

Problems whose resolution will have contributed:

a) structure of chromosomes in somatic mitosis and meiosis;

b) nuclear condensation;

c) actions of X-ray and low and high temperatures in the chromosomes;

Came also to tackle problems of morphology, physiology and systematic of plant genera that it has used as the subject for his studies of cytology and genetics.

Expelled from the University in 1947, would reinstate it, a fundamental role in fostering young researchers. Mentor José Pinto Lopes., Carlos Neves Tavares, Fernando Catarino and Antonio Lima de Faria.

Direct the Biology Centre of the Gulbenkian Institute of Science, as well as the

Laboratory, Museum and Botanical Garden.

Aurélio Marques da Silva (1905-1965).

Teaches at the Faculty of Science, University of Lisbon. Teacher at: Physics (UC) Solid and Fluid,

Professor of Electric Chair

Expelled in 1947.

Doctor from the University of Paris.

Investigator Physics Laboratory FCUL.

Founder of *Portugaliae Physica*. His career is parallel, in many instances, to Manuel Valadares.

Glaphyra Vieira

Collaborator Manuel Valadares.

Author of:

Francisco Mendes, Marieta da Silveira & Glaphyra Vieira

"Passages instrument" Askania”AP 70 - Instrument Study in the Centre";

Glaphyra Vieira and Lidia Willow. Compt. Rend. 234, 1765-7 (1952)

"A statistical study of 150,000 to tracks in nuclear emulsion exposed"

Just as the text included in # 25.

With the departure of Valadares, leaves the research and will integrate with relief, the Portuguese Association Women for Peace (chairs the Audit Committee in 1947 and the General Assembly in 1951).

Giorgio Piccardi (Florença, 1895-1972)

Experimentalist who to the concept of activated water.

Non reproducibility treated some experience that advocated as a novel paradigm to replace to the extent of the closed system for a laboratory open system sensitive to

(some of) the ambient conditions.

It is sometimes considered a precursor of Prigogine. His works are cited by Feyerabend.

Your fundamental book is"The Chemical Basics of Medical Climatology", Springfield, 1982.

Carmen Capel-Boute:

Born in Buenos Aires in 1912, engineer.

Professor at the Free University of Brussels.

Researcher in electrochemistry and metallurgy.

Founder of the International Center for Environmental Factors (CEAFIS) , which keeps the timeliness of Piccardi ideas.

Vitor Hugo Duarte de Lemos (1894-1959).

Professor of the Military School, Institute of Agronomy, Faculty of Science, University of Lisbon.

Professor of Mechanical and Astronomy.

Student of Army School, Faculty of Science, University of Lisbon, Instituto Superior Técnico.

Courses: Artillery Course walk, Engineer Course Manufacturing, Mathematics (PE).

He was Minister of Public Instruction.

José Francisco Ramos e Costa (1893-?)

Studies in:

Faculty of Science, University of Lisbon, Instituto Superior Técnico, Lisbon Normal School.

Full Professor at the Faculty of Sciences of Lisbon, where he teaches:

Analysis and Geometry, Geometry Superior, Strict Design, Calculation of Probability, Algebra Accessories and Analytic Geometry, Projective Geometry, Trigonometry Spherical, infinitesimal calculus.

Have would be distinguished as creator of differential geometry of complex projective (PhD Thesis).

Herculano Amorim Ferreira (1895-1974)

Studies at the School of War, Military School, Faculty of Sciences of Lisbon.

Education State Secretary in the New State.

Founder of the National Weather Service (1946).

Professor at the Military School in the Faculty of Sciences - Meteorology, Physics, Thermal Machines.

PhD: The birrefrangência circular quartz and the theory of Fresnel

Worked with José Pinto Peixoto.

Fernando Vasco Alves da Veiga de Oliveira (1909-1977)

He studied at the Faculties of Sciences of Porto and Lisbon (where amounts to Professor) and the Naval Academy, where he also taught.

Commander of the Navy.

Brother Ethnographer Ernesto Veiga de Oliveira.

Taught Rational Mechanics, Celestial Mechanics and Infinitesimal Analysis.

Author:

OLIVEIRA, F. Veiga (1952) - characteristic exponents: application stability / Fernando Vasco Alves da Veiga de Oliveira in: Journal of the Faculty of Science, 2nd series: A - Mathematical Sciences, v. 2 fasc. 2 (1952) p. 201-288. - Doctoral Thesis in Mathematical Sciences, University of Lisbon, 1953.

OLIVEIRA, F. Veiga (1955) - On the representation of rotations through arrays / by Fernando Vasco Alves da Veiga de Oliveira - Lisbon: Institute of High Culture, 1955 - (18) p.; - (Memories and Mathematics Center for Studies Applied to Nuclear

Energy Study) - Reprint of the”Journal of the Faculty of Sciences of Lisbon", Lisbon, 2nd Series-A, paragraph 1, v. 5, p. 119-134.

OLIVEIRA, F. Veiga (1955) - Sur la limit notion en topologie / Fernando Vasco Alves da Veiga de Oliveira Lisbon: Institute of High Culture, 1955 - (1) 9p.; - (Studies and Notes of the Seminar of Mathematics, Faculty of Sciences of Lisbon; 17)

OLIVEIRA, F. Veiga (1956) - homographic solutions in the widespread problem of n bodies / by Fernando Vasco Alves da Veiga de Oliveira Lisbon: Institute of High Culture, 1956 - 82p.; - Thesis submitted to the competition for post of Extraordinary Professor of the Faculty of Sciences of Lisbon.

OLIVEIRA, F. Veiga (1959) - Note on the solution of certain systems of equations to partial derivatives / by Fernando Vasco Alves da Veiga de Oliveira Lisbon: Institute of High Culture, 1959 - (22) pp.; - (Studies and Notes of the Seminar of Mathematics, Faculty of Sciences of Lisbon; 46) - Reprint of the”Journal of the Faculty of Sciences of Lisbon", Lisbon, 2nd Series-A, 7 (1) , p. 159-178.

OLIVEIRA, F. Veiga (1960) - Astronomy in the maritime discoveries of the Portuguese / Fernando Vasco Alves da Veiga de Oliveira in: Archives of the University of Lisbon - Lisbon: Lisbon University, vol. 19, (I New Series) , 1960, p. 11-43.

OLIVEIRA, F. Veiga (1965-1966) - Sur une erreur dans la commise déduction d'une formule de résolution de l'equation of Fourier / Fernando Vasco Alves da Veiga de Oliveira in: Journal of the Faculty of Science, 2nd series: A - Mathematical Sciences - Lisbon v. 11 - fasc. 2 (1965 to 1966) , p. 223-246.

David Lopes Gagean (1916-1994)

Degree in Mathematics from the Faculty of Sciences of Lisbon in 1939, and in Electrical Engineering from Technical University in 1940. In the Faculty teach Rational Mechanics, Celestial Mechanics, Astronomy, Geography and Mathematics Mathematical Physics, either as Assistant Professor Veiga de Oliveira, either as

Regent.

At the Army School, teach design; the upper Technical Institute, Atomic Physics. Stops teaching activity between 1942 and 1943 as fellow of the Institute of High Culture, and between 1952 and 1956 as a home business manager.

Doctoral the presents that date, with the theme”The differential geometry in order the unitary field theories”, defending the dissertation in 1959.

Near the most conservative circles of the New State, will come to teach in the Technical School of PIDE, to direct the Research Office of the Portuguese Legion, and the magazines”Red Hand" (counterinsurgency) and”Groove" (ideological organ of the National Union).

Founder in 1963 of General Studies University of Angola, will make the competition for Extraordinary Professor in Porto, with the thesis”The Projective Differential Geometry in Macro and Microphysics". Continues in Angola, founding and directing the Electronic Information Processing Laboratory in 1971, and teaching almost all the disciplines of Mathematics at the poles of Luanda, Sá da Bandeira and Nova Lisboa, that University.

Arrested in 1975, would be tried and acquitted in the Military Court of Lisbon.

In later years a member of the Philosophy of Knowledge Office and write important works on the history of ideas in physics in Portugal.

Always considered their youth work as a continuation of the work of Mira Fernandes, who never met.

Raimundo Oliveira Vicente (1924-…)

Degree in Mathematics and Geophysical Sciences, Faculty of Sciences of Lisbon, which will come to teach from 1947, Rational Mechanics, Astronomy, Mathematics Geography and Topography. Matures in 1950 in Greenwich Observatory, to work at the University of Cambridge with Sir Harold Jeffreys first fellow of the British Council, after the Institute of High Culture. Then concludes his Ph. D. in 1955 for a doctorate at the Faculty of Science in 1957 with 18 points. Is notable since in the

study of the Earth's nutation.

Assistant 1 in 1958, teaches Astronomy, Geodesy, Celestial Mechanics, Mathematics Físca (being Gião Wizard these 2 subjects) and topography.

Assistant Professor in 1965, is as Professor to be transferred from the Department of Mathematics for Physics at the time of transition from Degree in Surveying Engineering.

Holder Pémio"Charles Lagrange" the Royal Academy of Ciêcias of Belgium, referring to the four-1964-68.

Remains scientifically active, having integrated an application to the Foundation for Science and Technology in 2007.

Renato Pereira Coelho

Born in 1921. Licensed by Coimbra Mathematical Science, Surveying Engineering, has the Pedagogical Course of the School of Arts and attended Romance Philology, that only the completion of the final examination failed to finish. Fellow in Manchester and Rome. Your PhD in 1968, Pure Mathematics versa"The axiomatic convexity" and deserved 19 points. In 1970 and in 1972 is Aggregate Professor at the University of Coimbra.

Will come to teach in other countries; Corresponding member of the Academy of Sciences since 1983.

In addition to the topology and Complex Analysis, was the promoter of Mathematical Logic at the University of Coimbra.

José Joaquim Dionísio (1924-?)

Teaching Pure Mathematics, General Mathematics, Higher Geometry, Graph Theory and History of Mathematical Thinking.

Starts career at the University of Coimbra, a doctoral student in Algebra.

Professor at the Faculty of Sciences of Lisbon.

Member of the Academy of Sciences of Lisbon.

João Cosme dos Santos Guerreiro (1923- 1987)

Professor at the Faculty of Science, University of Lisbon and the School of Agriculture.

Teaching of: General Mathematics, Mathematical Analysis, Higher Analysis, Infinitesimal Analysis, Higher Geometry, Differential Geometry.

Thesis and Sebastian Silva:”direct Theory of distributions on a variety."

José Barbeito

Natural Wood, studied Geophysics, been Vice-Chairman of the FCUL Student Association and also the Inter-Associations Meeting. After the death of Gião, leave the Gulbenkian to teach Computer Science and Numerical Analysis in private universities.

Jorge Branco (1930-)

Enters the Faculty of Sciences of Lisbon in 1939, graduating in Geophysics.

Part of the National Weather Service in 1956, and part to Angola with the task of installing a seismographic station, during the International Geophysical Year.

Back in Lisbon, remains in the Geophysical Institute of the Science Faculty until 1965. Year it becomes Gião assistant Scientific Data Centre.

Permece this Center as a programmer, working in Operations Research and supporting Prof. Lindley Cintra in the draft Basic English.

Extinct CCC in 1986, reform up and goes to Estremoz, where he teaches in EPRAL and comes to chair the Municipal Assembly.

Contributor of”World Life." Translator of scientific works to the Editor”Gradiva".

Suzanne Daveau (1925-.)

Orlando Ribeiro's wife and, like him, a pioneer figure of Geography in Portugal.

Full Professor of the Faculty of Arts. Specialist in Physical Geography.

Author of over 240 publications.

His life and work are the subject of the special issue of the Journal Finisterra, vol XXXII, No. 63, Lisbon 1997.

13. CONCLUSIONS

The research leading to PhD dissertation present proposed to formulate, at least in outline, the scientific personality Antonio Gião. First we had a problem: find, identify and inventory the basic material, the primary sources of information. After the collection and processing of huge data and tangles, enrolled in a tangled life, biographical and cientíifica, we make a brief identification in exploratory conclusion of Gião personality markers. Personality traits that are generally assignable to Places, to their path of life, according to seven key points telegraph, which will join nine other"free thinking"; and finally a conclusion-balance sheet on the posterity of Gião and a Conclusion-reflection on methodological and epistemological constraints.

13. 1. MARCADORES, TRAÇOS GERAIS

Brief identification in exploratory conclusion of Gião personality markers. Personality traits that are generally assignable to Places, to their path of life, according to seven key points telegraph

01. Travel and Multiple Returns.A scientific life marked by many turns and returns to the origins. The Gião through much of the twentieth-century physics - weather, particles, cosmology, some mathematics - to the subjects they taught, and two ages Computer - Analog - # 44 - and digital - the Scientific Data Centre.

02. Coimbra, a Disconnected Beginning Academically.The career starts still in Coimbra, with the empowerment of a young man who writes letters (# 85) and go to Congress (which is Carvalho Brandão) , without wondering support from their"Lentes".

03. Strasbourg and Bergen, an Early Maturity.Strasbourg (# 55) and Bergen (12) represent an early maturity, associated, in the Alsatian city, the publication of texts in French (3-11) and, later, German (19, 24, 26, 28) , with relief for event news (2, 11) ; in Norwegian, participation in the discovery of methods that cause the three books (13, 14, 17) of Paris. Where there will be the first major conflict (# 16, # 18) ,

which isolates (# 19, # 88).

04. Paris, inconsistency, Projectswithout Response.Fruits of this isolation, rather consequent path for Physics Phenomenology (# 59) , and numerous projects unanswered (# 86, # 87, # 89).

05. Reguengos, Sudden and Blazing Change.The war and the”exile" in Reguengos take you to a brilliant change (titles 38-44) for Fundamental Physics, essentially lived in Paris (CRAS) , with expression also in Portuguese journals (the Portugaliae 2). Itinerary abruptly stopped in 1951.

06. Another Return and Failure; Piccardi and Italy,nonetheless.The 1952 marks the return from the Meteorological an invention (# 44, # 45) whose failure (# 46) diluted in wide piece around said science (texts 84-93). Their strongest relationships are now in Italy (Genoa and Florence) , and access to the theme of Piccardi (# 29).

07. Return to Portugal, the Eclecticism.The return to Portugal in 1960 is marked by a more eclectic intervention:

- Teaches two courses in the Faculty of Science, and on both public (greasy courses, and research, eg # 75 and # 81, and papers..) ;

- However, this institution accumulate disputes with students (# 93, # 94, # 96) and colleagues (# 37 to # 43) ;

- Directs from 1963 the Scientific Data Centre (# 47) , so both - the Centre and the Director - Pioneers of Computing in Portugal;

- Its scientific profile is now the journal”Archives", the Gulbenkian Institute of Science, where it will publish almost exclusively. The areas of meteorology and mathematical physics, come join Climatology Dynamic (with public recognition, # 80) Cosmology (with patent internationalization at the meeting in 1963) and new elementary particles, where his models are abandoned the 40;

- In 1967 pronounced the conference # 6, which may have been his”swan song" since 1968 and are 69 years of residual publication by serious illness.

13. 2 NINE ISSUES - FREE REFLECTIONS

The rigor in the grounds of paragraphs that chose not index will not always equal to the rest of the thesis. I must, however, include them, because without these feelings that I belong forward, this work would not have been structured.

a)

To what extent the status and the work of Gião are odd?

Comparisons with other scientific destinations of last century were suggested by Vincent Bontems (personal communication) - with Jacques Noetzlin (nuclear geology) , their economic independence landowner as a condition of intellectual autonomy; Fritz Zwicky with (supernovae, neutron stars, black energy) , the dispersion of unconnected areas of thought in re physica. However, any of these was advanced in relation to his time - while Gião is just off the *main trend*.

a.1) I would like to find resemblance to contemporary theorists who were targeted by David Aubin Doctoral Theses (op cit, the genesis of theories of chaos and disasters) and Vincent Bontems (which includes the relativity of scale) , which studies focus on contexts institutional marked respectively by patronage - the Institut des Hautes Etudes Scientifiques, or the”incommensurability" inherent insular nature marked by bibliometrics, as is reiterated in Gingras, Bontems (2007) - the magazine”Chaos, Solitons and Fractals". But until that point the possible similarity is superficial, since the presence of Gião in Scientific Data Centre and its publications was a defensive detachment - and that the two institutions it would not survive. Another difference is more relevant:Authors treated by David Aubin and Vincent Bontems (René Thom, David Ruelle, Laurent Nottale) know what they are involved in a scientific revolution; while the Gião 60s is by nature a conservative; and leaves the only installment of”extraordinary science" that is dedicated - the themes of Piccardi (# 29) - out of their courses (# 75, # 81, # 92) and reports (# 47 to # 50, and also # 91) José Henrique de Azeredo Perdigão, President of the Calouste Gulbenkian

Foundation.

a.2) It was found in the twentieth century Portuguese another story of life and comparable work.

The basic movement of this century was the expulsion of 33 scientists from 40 generation, for political reasons; now the exiles of Gião did not have that date or that component.

It should contextualize. At the time Gião studies in Coimbra, are not the names of teachers or relevant in Physics or Mathematics. The proof is his autobiographical manuscript # 1, as detailed in Strasbourg, so scarce in Coimbra.

A Gião of time Assistant, Vicente Gonçalves, and contemporary studies, Ruy Luís Gomes, will come to be distinguished, the first to migrate to Lisbon, where cultivate the classical analysis and will approach the intuitionism; the second, losing the contest in Coimbra for Manuel dos Reis and migrate to Porto, scholar of Relativity, introducer of measure theory. Ruy Luís Gomes integrated the University of Porto, will fa it the institution with greater investigative component, which was marked by the figure of Francisco Gomes Teixeira, author of no less than two hundred scientific papers. The action of Ruy Luis Gomes is part of the"Math Movement" which had as organs, among others, the (now again) prestigious Portuguese Mathematical Society, and related publications - Mathematical Gazette, with great impact among students, Portugaliae Mathematica, then strongly internationalized. The prospect of Ruy Luis Gomes is highly political - will compete for election to the presidency and will be expelled from the University.

In short - universities where, for 20 years, rarely investigates.

The Gião times are others. There is no trace that has crossed constructively with Ruy Luís Gomes, despite the common interests; will become co-Vicente Goncalves in Lisbon, subscribing that the appointment of Order (# 74) Gião.

The action of Ruy Luis Gomes is part of the"Math Movement" which had as organs, among others, the (now again) prestigious Portuguese Mathematical Society, and related publications - Mathematical Gazette, with great impact among students,

Portugaliae Mathematica, then strongly internationalized. The prospect of Ruy Luis Gomes is highly political - will compete for election to the presidency and will be expelled from the University.

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The Gião times are others. There is no trace that has crossed constructively with Ruy Luís Gomes, despite the common interests; will become co-Vicente Goncalves in Lisbon, subscribing that the appointment of Order (# 74) Gião.

Gradually, opportunities arise in Lisbon for political opponents - a young student of Ruy Luís Gomes, whose proposal for hiring the School of Port of Sciences is refused twice for political reasons, comes in Lisbon - is José Tiago de Oliveira. There is also a reflux, the Faculty of Science for civil society; an assistant who returns from Italy (where part in 1942) , is a PhD in Science (1949) to accept the invitation to the Chair in the School of Agriculture (1960) and stop to reshape the teaching of mathematics in high schools - is Joseph Sebastian and Silva.

However come the two calls (# 14, # 74) to Gião.

Later - with Veiga Simão as Minister of Education - other exiled for political reasons accept integrate Lisbon - Andrade e Silva Pereira Gomes.

Integrate both these movements whose intersection is not empty - over 30 years calling opponents of the regime and also estrangeirados - as one of the factors that made in the year of death of Gião, the Faculty of Science, University of Lisbon in the institution clearly leading teaching and research both in mathematics and in physics.

I do not include in this brief analysis the Technical University or the School of Economics, for in both the mathematical glow will have lasted only the teaching of a teacher - respectively, Aureliano Mira Fernandes and Bento de Jesus Caraga.

A country that did not allow the emergence of schools in science has become, in that science, a country where history is made heroes.

Region suffered, in the negative, this double absence: after Strasbourg and Bergen, had no school; not graduated school; and was in more than one sense, an anti-hero.

But what could then be the status of the anti-hero, in science, in Portugal?

a.3) occurred to be compared with Father Manuel Gomes Himalaya (Jacinto Rodrigues, 2010) , also inventor (to meteorology - as Jean Roulleau, he became interested in artificial rain - and solar energy) and precursor of thought ecological. An additional similarity could be said - the institutional framework”wrong" in both Himalaya to the Academy of Sciences of Portugal (institution, before dissolving, rivaled Lisbon Academy of Sciences) where loomed Tomás Cabreira and positivism precursors; in Gião, in the 40s, the Geographical Society, also inconsequential to the progress of the exact sciences. It is however recognized that Gião had more opportunities than Himalaya and therefore better recognition in European cultural sectors, varying in time.

The counterfactual temptation not necessarily fit into a Thesis in History and Philosophy of Science. But it's place in the spirit of those who write, the time you finish. The co-presence of Gião and Guido Beck - a first-author in particle physics - in Portugal could be afforded a meeting; however Beck's departure to Argentina in 1943 preceding 3 years Gião input in this area of knowledge, under the aegis of some amateurism. It is a curiosity that I should not leave forgotten:

- Manuel Valadares, a friend of both states, as can be read in tapes, Vine (2004) , p. 216, in a letter to Beck on 12.31.1945, the Glaphyra Vieira experiences that corroborate the theory microelectrão by Gião - an alternative version of radioactivity Beta where Beck worked there had been, to which De Broglie will become sensitive.

The same counterfactual case, it seems inexplicable that the co-presence of Ruy Luís Gomes and Gião as students in Coimbra, and speakers in Madrid, was not Proximity condition, especially when would deprive simultaneously with Valadares (1904-1982) , Marques da Silva (1905-1965) , Manuel ZALUAR (1907-1967).

Again, relief a special status and, therefore, difficult to understand and frame.

b)

Why the historical oblivion of Gião?

The historical oblivion Gião forty-two years exactly after his death is explicable in the light of several factors:

- The conflicting past events in the years taught at the University of Lisbon;

- To their integration into any school of thought in the latter part of life;

- The fact that there is no established school; despite numerous co-authorship (usually with senior scientists (# 10 works, 22, 83, 85) , with only young people in the years of the Scientific Data Centre of the Gulbenkian Foundation) , the failed attempt (# 33, # 34, # 40) guidance of a PhD (José Simões Pereira) and work with a Wizard (Raimundo de Oliveira Vicente) whose educational profile, geophysical engineer, expert in the rotation of stars, coincided on time (# 98) with the Gihon;

- The inconsistency of the work of Mathematical Physics, rarely mentioned, one of which is not even summarizing target, and Cosmology - his magnum opus 1963 will only deserved an answer in MNRAS (# 78).

c)

Why, in particular, the years of Forgetfulness episode 30? Detachment?

[The history of oblivion conflictual episode (# 16, # 38) of the 30 in Lisbon Meteorological Congress is only partially explained by the fact that this not have been published until two years later, with Gião already disengaged (# 19) of Norwegian and French meteorological communities following the serious conflict with Dedebant and Wehrlé; one detachment that is expressed in the certificate (# 95) of marriage as”unemployed".]

Already in two moments of institutional placement - in the years 1947 to 1951 in Paris, where Louis de Broglie presents its communications at the Academy, and 60 in Lisbon, where is the holder of two prestigious positions emerge again”patterns of oblivion”they do, I think, that this thesis the first to remember. Consider this:

- In the 40s, the concepts of Being Mathematical Not Random, (the Emna cited in correspondence (from # 61, curiously only foreground authors as in # 11, Einstein) , the first physics courses Mathematics # 92, in medal # 9 Sophie) , internal and external metrics, are not subject of discussion, the correspondence does not show that the interlocutors if there are motivated by these topics so dear to Gião, only microelectrão come to deserve the interest of some - with relief for Schrödinger (# 65, # 68) , Benham (# 27) , and the school Ehrenhaft (implicit in # 28). but the only job where referred to”hyperemnon" is not even target recension!

- In the '60s, his cosmological model only gets the sympathy of Pascual Jordan (reflected in discussions and published a praise relieved in Minutes School Board) and the Klotz response. Helge Kragh will be the one to get analyze it in context.

Your curious particle model with two point charges (mass and electricity) , which appears in 1946 (38) , is published in international forum, nor the subject of recension.

But survives some reference to their cosmology in the texts around the Piccardi.

Usually away from the community of the exact sciences.

d)

Autonomy, Fortuna Personal and Institutional Environment Conflictual**.**

The work region is marked by an autonomy that came from the personal fortune, which allowed him to collaborate freely with the Francophone scientific communities (Wehrlé, De Broglie, Raymond, Roulleau) , Italian (Piccardi, Bossolasco) , perhaps Portuguese (Flávio Resende friendship and Almeida Costa, co-authored with Renato Pereira Coelho) for most of his life.

His career is marked by two conflicts, I treated the paragraph dedicated to meteorology and”An error Gião" being the more severe the '30s, which hardly left traces (the investigation produced no reports or coeval memories) ; are documents of an unusual aggressiveness between the scientist and the senior figures of

Meteorology. Will have lost then seven years of a predictable career, and this was certainly one of the factors that conditioned his move to other physical angles.

In the 60s, the environment of the two institutions that have been unevenly starred conflictual. Releve is in this regard that the collaboration between the two was, in those moments, source of disputes:

- Is the Calouste Gulbenkian Foundation which funds and publishes international congress of two specialty Sciences College of Teachers that this will be the object - Gião and Sebastião e Silva;

- Is a fellow (Simões Pereira) the Gulbenkian Institute of Science who sees his proposal Thesis criticized in the pages of the Faculty of Science Magazine;

- Is Gião that assumes the burden of these criticisms, moving away from that magazine and transferring all of their publications to an organ of the Institute;

- The Foundation is renewing support for Baggins, who will come to a doctorate in the following year, another area of mathematics, without guidance, the University of Coimbra;

- Is reflected in documents # 51 and # 52 plausibly, the contradiction between regarded Gião and two other teachers of the same Faculty, which is to have the immediate consequence of the division support provided by the Foundation in mathematics among the projects, never convergent, Faculty (with greater international impact) and the Scientific Data Centre;

- Remember that this is one of the contexts that immediately precedes the controversy division between Pure Mathematics and Applied Mathematics that mark since 1971 the architectural Faculty of Science, University of Lisbon. The institutional history of this break is complex, marked by successive ruptures and name changes of departments and courses, having come to be three departments arising from a common matrix, by successive empowerment areas of Statistics and Informatics. Part of this history that the Faculty of Science has not written and that most relates to Gião is the fact that he had not had scientific posterity, and because the doctors formed by Veiga de Oliveira (David Gagean and José Taborda) have

party to teach in Angola and Mozambique, the former 3 rd Chair (Phoronomia) be deprived, and its vacancies filled by teachers from other areas of applied mathematics;

- With the 4 th chair (Astronomy) will come out also mathematics, institutionally, with the change of Professor Raimundo Vicente (# 98) , and the degree in Surveying Engineering, the Department of Physics;

- It should be recognized that, after these divisions, the area once Mechanics and Mathematical Physics disappears, integrating now in groups of Physics chairs, sometimes Analysis; unlike its maintenance in departmental headquarters of Mathematics at the University of Coimbra;

- But this would be the subject of another work, less centered monographic before an institutional history.

e)

Three structural papers?

Lay is a risk. Jugo however identify three works that allow to structure large inflections at the thought of Gião. The first of his texts that desire is single out (12) , it will give rise to all his work in meteorology, which will culminate in the phenomenological physics: the long description of his visit to Bergen. Coincidentally this narrative is continuing the exact point where the autobiographical notes are stopped. On this visit to Bergen, as well as a methodology that Gião looking unsuccessfully implement their projects in 1937 (# 87 and # 86 above) and 1939 (# 89) , is also designed the sequence of mathematical models that will integrate into its Gião memories (13, 14, 17) to the Meteorological Institute in Paris, a differential model, an integrated model, a model for partial derivatives.

The starting point is the theory of Norwegian Futurology (12, 13) Gião will later criticize (27). Do not even guess this text the culmination of their meteorological work in the field of dynamic weather (relevados eloquently at # 80).

The second text I want to single out is (38) , published in 1946 in Portugaliae Physica. Note the coincidence of the date on which the Portuguese weather service is established (by Amorim Ferreira) and one in which Gião ceases to engage in meteorology.

This text is the first of Fundamental Physics, is this text lie the ideas of a single cosmological principle explaining the universe at various scales. The idea of container and continent as two independent parts of the universe. The basic idea of micro particles that when cosmic contraction would have fused the heavier particles. These ideas are developed to 1950 in another Portugaliae (46, 57) as well as the CRAS.

In 1963, Gião presents a more complex model. In the texts that will come in the Gulbenkian editing on non particle physics already appears the concept of micro-particle. However the project continues to be made in 1964 by Gião in its report # 50, as Director.

A third text (77) propyne be critical, but is a recension, unlike all other is shown in 1955 as a fundamental physics literature work. This is the criticism of the book Beauregard Costa on relativity.

Gião recognizes the quality of this work but can not fail to expose their bottom disagreement, to the extent that their thinking is that of a general relativity without relativity, which exposes with rare mastery in (99).

In this article are laying the foundations to support the belief expressed on several occasions, in the”small wind of ether", which allows the description of a motion in absolute space and corroboration to Piccardi theses.

f)

The tower and the breastplate: IsGião’sWriting Style difficult to read?

The scientific writing style in Gião is difficult to read.

The content - the necessary definitions and assumptions require previous

knowledge of his texts, and bibliographies - in meteorology as particles and relativity - an enumeration of their titles (the tower) without tree structure to other authors. I pointed out in rare cases in which text has not. And even when I note, with one exception (the work around the Louis de Broglie) the largest share in the references is the text of itself.

The result is the mathematical density of the first page (the harness) , which removes a reader that there is not accompanied by the following publications.

See moreover the symbolic density of the documents presented as sources:

- At # 26 to p. 45, the last in which the formulas are numbered, we have 77 mathematical expressions, equations systems some of them:

- At # 44, p. 254, on the front page of a patent memory, 6 formulas and 11 notational conventions;– em #45, documento de teor idêntico, o mesmo número de fórmulas e mais 1 convenção;

- Finally, in the unlikely text # 72, introduces notations before the 1st formula and then the last, not before giving news of the invention in an international mathematical congress...

Fenando Gil (1989) , after comparing (p. 185)

"Impersonal smoothness and reduced to a minimum of expressive David Gagean, the current simplicity of Sebastiao e Silva - a speech in the first person and qualifier but without ornamentation - and the tortured and emphatic expression, writing drama Mira Fernandes," referring respectively the”definition",”Convention" and”circumstances" of the times reported to each of those authors, reports

"Cases of bad style - uncomfortable notion of limit -. Yet able to express ideas rightly" (p.186)

Meeting, in the above examples, style cases less good, and also the discomfort to circumscribe this gap...

Stylistic aspects denoting solitude - have not been reviewed by others before going to the rotary.

The purpose of Principia Mathematica, was written that would have just been read

in its entirety by 3 beings, Whitehead, Russell and the printer; the purpose of Wolfram and Chaitin came the opinion that parts of his books to be written by computadoes, would be only readable by entities of the same category. Occurs think Gião would have been the only possible reader of those jobs that just mentioning other his own - and perhaps also, tragically, the only player of his autobiographical manuscript.

Reading Granger (1968) and Mancosu (2009) incite find other aspects of style this author - the Gião touch.

We identified the recurrence of a dual kind of thinking.

Occurs in youth work as # 86 (P341) which differ in the different missions of a Bureau to create the differential forecast (A) integration by forecast (B) , the latter subdivididada in (I) applications to spontaneous disturbances, and (II) to the field theory.

The concept of EMNA, the duality between physical existence and mathematics, this time identified.

Instead, the geometrization of the field, the internal metric applied to distinct gravitation external, electromagnetism field.

In cosmology, before 1963, the interaction between U3, the elliptical metric universe that crosses U4, hyperbolic metric; solidarity 1st, 2nd causal in interaction”transfiguring".

In the work (121) both a cyclic universe and a characteristic of the steady state, the continuous creation of matter (supplemented by symmetry, for their destruction).

The particles, the ephemeral distinction between simple (emnons) and composite (hyperemnons) in (57). And the subdivision of the first electron and microelectrões.

Not integrate the dual Louis de Broglie solution, perhaps by dislike the probabilistic interpretation of the wave solution; but not so quantifiva repeats the possibility of”cells" mass and charge constituting the particles occupy different positions.

These dualities in original points are not mentioned in the texts â around Gião.

g)

The Relevance of Library and Archive for the Formulation of Some Answers.

Another development that it is necessary in the inventory of the library and the House Anthony Gião file.

The most appropriate framework should be that of a Thesis in Library.

Still on Gião, are for lighting the following:

- Previous institutional links to 1960;
- The detail of the removal of Louis de Broglie;
- The day-to-day at the Gulbenkian Institute of Science (having been possible to access a part thanks to the estate of another member of the Board)

Study someone else, of course, these points.

The surrounding the Gião remains incomplete if not clarified:

- The intellectual environment in Reguengos de Monsaraz in the 60s (still possible to work) ;
- The personality of Sophie Spira Gião (impossible today to reconstruct, in part because there was no descendants or living side, partly because it does not remain on documents in the House Gião.

h)

The Inventions and Discoveries of Gião.

At this point it is necessary to distinguish between discoveries and inventions. (I am not speaking here of patented inventions). But involved in this distinction is the nature of the errors, some theorists, and poor integration into other community that Gião repeatedly committed.

Gião invented the EMNA, the micro electron, also called emnon, and the hyperemnon.

Have the status of personal fantasies. Also have the status of episodes to reveal the history of particle physics, to the fact that they have earned the active interest of De Broglie that gave him a place in his Seminar - Thibaud - the precursor did not like to share data - Valadares - whose assistant Glaphyra Vieira performed and published the relevant experience, with the laboratory celebrated the consecration in CRAS; and the close correlation Majorana, Schrödinger, Benham; as well as empathy with figures perhaps they too fanciful, as Nubar and Cordebas.

Gião conceived models in meteorology, patents in the monographs of the Office and in Italian magazines. More mathematical than physical at this point, was inserted in the wake of Lewis Fry Richardson; its recognition earned him an MIT invitation in 1931, before his star decline by conflict with one that would become the Director of the Office and the President of the World Meteorological Organization.

It was the Gião mathematician who opposes physical Wehrlé. A herald of deterministic modeling of an atmosphere with spontaneous disturbances that could not find understanding with the creator of random mechanics. And also the one who would be a friend of the expelled Teachers in 1947 that it disagreed with the meteorologist that agreeing on with Vichy.

And the young man who rebelled against senior - its output Coimbra was the Oedipal revolt against the Father; the Bergen who had welcomed as a son (12) oppose to the vehemently in (27). And is the co-author of the most cited article (22) that ignores such collaboration, in (36) as in # 86.

(67) It is your single text in mathematics matter, where the error was repeatedly rediscovered (# 69, # 37, # 38, # 39, # 42 plausibly) and yet it is one whose development will propose to a young (# 33, # 34). The error here is mitigated, as the testimony of authors as enshrined as Ames and Corduneanu (# 35, # 36). But they were wrong.

The cosmological model 1963 has the dignity that has been recognized by Helge Kragh him, another significant step in the theories of continuous creation. Where

relevaram authors such as Dirac, Jordan, Hoyle, Bondi. A theory that it was not rational leave at the time of Gião. (Lepeltier, 2010)

The writings where he meets most successful dating from 1932 (22, Sol rotation designed with Wehrlé) , partly because of the co-authorship; 08.09.1947 and in texts such as the CRAS (44, 49, 51, 52, 56, 61) , which gave theoretical findings support the observational Babcock and a Nobel Blackett around the magnetism of the rotating masses.

Another bibliometric point of success is in theory around the trial of Piccardi - A relationship model identical to that previously focused.

But what is at stake here is the absolute space, and most of the quotes do not occur in journals with *referee* - is an area of interest rarely described as scientific.

i)

Assumed positions and functions, which Relevance?

It was not conclusive this study on the links made out of Portugal.

In this country, the first being in 1944, deputy secretary of the Weather class at the Geographical Society, next to Manuel Ferreira, function that is renewed in 1846.

Then, from 1960, the Faculty of Sciences, the Gulbenkian Institute of Science, is as a member of the Advisory Council (proposing projects # 91 and # 47, approved this) is, in the context of this project the management functions exercised in the Science Data Centre, described in the above transcripts, de Azeredo Perdigão. As part of the Foundation would still run a journal, which is extinguished shortly after his passing.

In the Faculty, as Professor governs over 2 years Celestial Mechanics (chair whose property was never his - was Sebastian and Silva (see Minutes) but would Veiga de Oliveira who would return to govern, and mathematical physics, which governs a year interruption until the end of his career and life.

Such changes were marked by institutional conflicts with the first students (# 93, #

94, # 96) with later Teachers (# 38 to # 43).

Be it would, in 1 case, removed the discipline of celestial mechanics; in the second, would opt Gião for interrupting, creating the opportunity for a then still not designated sabbaticals that should have been research abroad but that was mainly disease.

The Minutes of the School Board and # 97 show not too outstanding features - Secretary of the Council, Co-editor of the Journal, Director of the Centre.

The Positions held and functions seem to show, once again, their wandering and often their support in ambiences of institutional conflicts or disruptions.

13. 3.THE POSTERITY OF GIÃO

The posterity of Gião begins by sitting in your memory. On what pillars?

Your meméria, *vox populi* in the Reguengos de Monsaraz, in terms similar to those Bensaude-Vincent knew how to find for most named authors.

In the House, the charge of the Portuguese Society of Authors, perhaps to be treated documentary.

Mostly, without continuity wire, in institutions.

Well liked in Reguengos, in that passed through, with whom he deprived the Gulbenkian.

Criticized or silenced and omitted (the censurância) of contemporary and with few exceptions, students of Sciences.

Region did not leave students: his only student PhD engaging in the discrete mathematics, his Assistant for the theory of the Earth's nutation.

Your co-authors had an antagonistic career as Wehrlé, divergent in philosophical foundation points, as Raymond and Roulleau, who maintained their original posts in this weather, in computing that; scientific career Manuel Ferreira dropped by a subset of the Gihon; Barbeito exercised teaching, Jorge White would programmer.

Renato Pereira Coelho reach the Chair, cultivating another branch of knowledge,

logic.

13. 4. CONCLUSÕES METODOLÓGICAS E EPISTEMOLÓGICAS

1) The bases that make believe, fitting to the theme the methodology of this thesis were:

I – the highest intelligibility level of social interactions and communication processes than the scientific field;

II – the existence of some memories still vivid, contemporaries who could be interviewed;

III – extremely valuable exhibits in unpublished, the Gião House;

IV – some marginalization of thought and attitude, even as he held institutional positions.

The characteristic I is common to authors whose writing is cryptic, as in Gião, and also those whose word or action becomes more relevant to the investigation.

In these, for that very reason, the memories are accessible, whether personal when they live, or the next when they lived until the end of the twentieth century or thereafter.

There are women and men of science in which the author editing outweighs globalized references - and not always wrong. Suffer from the IV characteristic and often the III

Then cast names that satisfy some of these characteristics:

David Lopes Gagean - I II III IV

João Cosme dos Santos Guerreiro - I II

João Varela (João Vário neurophysiologist and Cape Verdean poet) - I II III IV

Carlos Manuel Chagas Henriques de Jesus (biologist and architect) - I II III IV

José Luís Simões da Fonseca (psychiatrist, cybernetics pioneer) - I II III

2) The original intention of the work was not monographic and methodological.

And I was so taken to set up an *ad hoc* methodology, which appointed as a pragmatic scientific discourse.

During the long years of solitude investigator, the study focused on it, and the method suited to the subject of study.

But the 60 mark the immersion Gião in 2 institutions. And here the postulated methodology exceeds the first purpose.

In the final chapters, I am led to conclude have made an approach to scientists speech pragmatic institutional context; treated of a pragmatics of academic discourse? I think so I did.

3) The semantics / syntax / pragmatics distinction behind this thesis was treated by Brian Rotman (1993) , in isomorphism with Platonism ontologies / formality / intuitionism, what I like to describe as a semiotics of mathematical creation. The text falls within the distinction between persona, subject and agent. I believe in my work have been close to the study of the latter author. Ume epistemological reflection that I will be grateful to come to try, since it seems to converge with that of the present pages.

4) The difference between the study Gião today, set in my work, and its plausibly extended gap, is the existence of a rich and preserved estate.

The mechanisms of memory (cf Bensaude-Vincent) , institutional history, said it behind, and censurância (cf. Miranda de Bragança) to conjure in the destruction of wise and Gião.

His scientific work was innovative in the 30s; tried to be in the 40s in fundamental physics, and failed; in meteorology did normal science, and to return to fundamental physics, in the 60s, his work was conservative because they do not update in mathematics matter, as evidenced by the fact that not even refer to the theory of groups, or the attack on the acceptability of theThesis from João Cosme Santos Guerreiro…

His work is now obsolete.

I guess the only rediscover the (tens of?) Lost pages of # 1, where that prometaico author who contemplates and includes the glorious future of science at # 5, and get to see the Shadow in # 6, presumably coeval text of the written his Faust; when, say, to turn back at # 1, sick, alquebrada of calligraphy, is this reunion with the manuscript that more and better study should be invested.

For the personality Gião contains more mysteries that its vast scientific work.

14. LIST OF DOCUMENTARY SOURCES

These documents are published in"The Scientific Personality of Antonio Gião - Documentary Sources"

Manuscripts

#1 Gião, António. [s. d.]. Notes Autobiographiques Destinées à Eclaircirles Raisons de mon Échec.
Source: Archives Home Antonio Gião.

#4 Gião, António. [19 45?] Causalité et Déterminisme.
Source: Archives Home Antonio Gião.

#23 Manuel Valadares handwritten note documenting the interest in micro-electron . Source: Archives Home Antonio Gião.

#69 Handwritten record of the review of Synge. Archives Home Antonio Gião

#77 Bibliography Continued (93 A) [1965?]

Letters

#11 Correspondence between António Gião and Albert Einstein (1946).
Source: Hebrew University of Jerusalem

#12 Correspondence between António Marques da Silva and Gião (1949).
Home of António Gião.

#14 Correspondence between António Gião Teachers and the Faculty of Science (1949).Home of António Gião.

#14A Correspondence between António Gião and Manuel Ferreira (1959).
Home of Antonio Gião.

#15 2 letters of Ph. Wehrléto António Gião (1926).Home of Antonio Gião.

#19 Letter from Antonio Gião (02 Sep. 1936) , [in response to the refusal by the Bureau de l'Association of météorologie de l'Union et géodésique

géophysique Internationale, in a communication to the said Association Congress in Edinburgh]. Home of António Gião

#21 Correspondence between António Gião and Nature magazine, (1 e 29 May 1947).Home of António Gião.

#24 Letter from Glaphyra Vieirato António Gião (26 May 1948) [Manuscript, incomplete]. Source: Romão, S. et al. (1996)

#27 Letter of Loyal Banham to António Gião (05 Mar. 1948) [reference to micro electron]. Home of António Gião

#28 Letter from P. Weinzierl to António Gião (08 Oct. 1951).Home of António Gião.

#40 Letter requesting withdrawal of PhD evidence of José Simões Pereira (1965). File J. Tiago de Oliveira .

#41 Letter to Prof. António Gião Dr. G.F. Sacarrão (23 Jun. 1966) [resignation of the office of the Journal of the Faculty of Science, University of Lisbon]. File J. Tiago de Oliveira.

#42 Letters of L. Schwartz, J. Lions, Fa and Sebastian Silva (03-10 Mar. 1967). File J. Tiago de Oliveira .

#46 Projet de lettre de Monsieur Gião à Monsieur Raymond. [s. d.] Home of António Gião

#61 Letter of [Q?] Majorana (27-02-1946).Home of António Gião

#65 Letter from António Gião to Schrödinger (08 Dec. 1947).Home of António Gião

#66 Letter from René Cordebasto António Gião (21 Jan. 1948). Home of António Gião

#67 Letter from Zareh Nubarto António Gião (13 Mar. 1948).Home of António Gião

#68 Letter from António Gião to Erwin Schrödinger (21 Feb. 1948) Home of António Gião

#83ª Letter to Sophie Gião (31 Oct. 1969) [revealing the mother's drama

Antonio Gião, hitherto unknown, Sophie Gião unsuccessfully tried in the early widowhood, find]. Home of António Gião.

#85 Letter from Antonio Gião (1925) [the date student of the Faculty of Sciences of Coimbra]. Home of Antonio Gião.

#88 Response letter to the community (12 Jun. 1937) [against the failure of the project referred to in doc. # 86]. Home of António Gião

#90 Letter from António Gião (27 Dec. 1946) [on magazine design Grounds Physica] Home of António Gião

#93 Letter from the students in Mathematical Physics chairs and Celestial Mechanics, Faculty of Science, University of Lisbon, to António Gião, with copy of letter sent to the President of the Council of Ministers [July / Agosto1961] [Conflict with students]. Home of António Gião.

#94 Letter from António Gião the School Board of the Faculty of Science, University of Lisbon (09 Aug 1961) [reaction to the letter of the students - doc. # 93] Archive House António Gião.

#96 Letter from António Gião the Director of the Faculty of Science, University of Lisbon (. 09 Aug 1961) [reaction to the letter of the students - doc. # 93]. (Transcript) Home of António Gião

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#18 Gião, António. (1936). Sur une response a ma critique d'une nouvellethéorie de la circulation generale de l'atmosphère. [polémica com Dedebant e Wehrlé]. Casa António Gião.

#22 On the properties of microelectrons (1947) [facsimile do texto original, recusado pela revista Nature]. Casa António Gião.

#26 Gião, António. [s. d.]. Les microélectrons. [facsimile do original] Home of António Gião

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Piccardi]. Home of António Gião.

#31 Gião, António. [s. d.]. About the problem of the rotation of space. (front page) Home of António Gião.

#38 SILVA, J. Sebastião [1965?]. A propos d'un article publié dans lefascicule précédent de cette revue.[facsimile of the original text to be published in the Journal of the Faculty of Science, University of Lisbon]. Archive J. Tiago de Oliveira .

#39 SILVA, J. Sebastião [1966?]. About diffusion equation - II. [facsimile of the original text - second two texts published by J. Sebastian and Silva in controversy with Gião].

#43 Interview with Professor José Joaquim Dionísio: 'Scientific Review on the work of Prof.. António Gião », In Gaspar, I. (1998)

#47 Work Programme [from C. C.C.] (1961). Legacy from Prof. Orlando Ribeiro.

#48 Ongoing research projects [from C. C. C.] (1962).
Home of António Gião

#49 Research Program from Centro Gulbenkian **(**1963).
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#50 Notes on the scientific work of Antonio Gião (1964). Legacy from Prof. Orlando Ribeiro.

#51 Summary of J. Tiago de Oliveira interview with Prof. António Gião and Dr. Marujo Lopes in the Science Data Centre, Inst. Gulbenkian de Ciência (03 Mar. 1965).
[Document Transcript File from the Archive of J. Tiago de Oliveira]

#52 Minutes of the Advisory Council for Science (28 Feb. 1967).Legacy from Prof. Orlando Ribeiro.

#64 Biographic note from André Verdet

#75 Mathematical Physics Course program. (1960/61)
Home of António Gião

#77 Continuation of the Bibliography (93 A) [1965?] Home of António Gião

#81 Casa António Gião

#84 List of unpublished texts of Gião [manuscript, Sophie Gião calligraphy]. Casa António Gião

#86 Gião, António. (1937). Organisation d'un bureau de recherchesscientifiques sur la prévision du temps.[Projecto]. Home of António Gião.

#87 GIÃO, António. (1937) Proposition pour la diffusion de messagessynoptiques par telephonie sans fils. [Proposta]. Home of António Gião.

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#91 Gião, António. (1961).Prior Memorandum on the importance of creating the Astrophysical Observatory in the future Gulbenkian Institute for Scientific Research. [Project Astronomical Observatory].Legacy from Prof. Orlando Ribeiro.

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#98 Gião, António. (1962).About Raimundo de Oliveira Vicente. Home of António Gião.

Conferences

#5 Gião, António. (1959).Science, Philosophy, Religion. - Conference in Monsaraz. Home ofAntónio Gião.

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#3 B&w photos of youg António Gião. Home of António Gião

#9 Medal engraving offered to his wife, Sophie Spira, and supporting text of the offer [s. d.] Home of António Gião

#17 Group photo (1936) [Participants in the Second Conference on Atmospheric Ozone]. Identification G. Dedebant and Ph. Wehrlé.

#44 Patent titles of calculus device designed by Gião and Raymond. Home of Antonio Gião

#58 Portrait of Gião (Paris, 3/3/1934)

#83 Group photo with Sophie (black, 2nd right figure)

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#70 Congrés International de Philosophie des Sciences, 17-22 Oct. 1949, Paris [programa] Home of António Gião

#95 Marriage Certificate of António Gião and Sophie Spira (13 Dez. 1939)

#97 Antonio Gião's form at the Rectory of the University of Lisbon. [opened

in 1960, closed in 1969]

15. NOTES

(*1) Sónia Romão, Maria João Antas, Sandra Pereira;"*António Gião, Life and Work"*; University of Évora, Department of Matemathics, 1996. b) Ilídio Gaspar, Carla Calado, Helena Barbosa; António Gião, Universidade de Évora, Department of Matemathics, 1998.

(*2) António Gião;"*Bibliographie Scientifique. Première Partie";* 1955 (ed. author).

(*3) J. Ramos e Costa, J. Vicente Gonçalves, A. Almeida Costa; in Boletim Trimestral from University of Lisbon, pp. 66-67, 1960. Transcription in: Ordinance of 27 February. Government Daily, April 27, 1996, Series II, n. º 99, pp. 2702-2705.

(*4) Having contacted Wolf Beigebosch when, in preparing a biography of Pascual Jordan, corresponded with Professor Franco de Oliveira, I was told that it was unaware any reference to this Gião, in addition to meeting the 1963 Congress.

(*5) –Serendipity

Concept arising from 3 princes of Serendip (Ceylon) , characters of"1001 Nights" (or"1000 Nights 1 Night" in translation Mardrus) ever made decisions, systematically playing the luck their destinations.

In epistemology, means the irruption of the unexpected in the occurrence of scientific discovery.

Note that a concept not dissimilar, the synchronicity, developed by authors such as Jung, Pauli, Koestler, Lauro de Lima, has not been used in the same contexts that serendipity.

(*6) – I assume that the autobiography of Benoît Mandelbrot, announced for September 2011, will give a completely new light to several branches of science that, without it, would not have existed

(* 7) - Zareh Nubar

Given the friendly contact between the Armenian and Gião political, it seemed likely that its relationship with the Foundation could have been preceded by any mention by name of Nubar Portuguese scientist to Calouste Gulbenkian.

Asked to find this possible cross correlation was negative the kind Prof. response

John Caraça, I quote:

“Find only two references to Zareh Nubar in matching CSG:

1- Letter from 1920 for CSG in which mentions that Tapakyan would enjoy being introduced to CSG;
2- 1931 letter to Kevork Essayan on a tone that sent him.

CSG is President of AGBU between 1930-32. I can not find any references to Antonio Gião in CSG files.

In the processes of AGBU appears documentation signed by Zareh Nubar (his inaugural speech as president of the institution in 1933, for ex.) , But I do not think there is much beyond the documentation for bene-cence and operation the AGBU.”

(*8) - Some of the handwritten records contain the words”Gestapo Service of Portugaliae Mathematica", which does not express too much sympathy for any such institutions.

Although written by Gião for recreation, these references are tacky, when the leaders of the magazine were António Monteiro, Hugo Ribeiro, Paulo Silva, ZALUAR Nunes and Ruy Luís Gomes...

(*9) - Gratitude to Filipe Delfim Santos for the information.

(*10) - The best discussion around the concept of founding aporias emcontra in the Cerisy Seminar in honor of René Thom, (Jean Petitot (ed.) , 1988).

(*11) A dramatic episode not clarified. Egidio Boyfriend (See Fitas*et al* (2008) is a physicist who met the hostility of the Salazar regime. As a philosopher, apply dialectical materialism to science and criticizes the neo-positivism. Its relations with Gião are cordial, and close proximity to the Centre's researchers. Does not therefore appear to be due to institutional reasons the attempt by him efectu-ada in the Centre's facilities. Continue to work with Gião and come to direct the Centre after

the passing of that.

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(Compiledby C. Fiolhais e J. C. Tiago de Oliveira, 2008-09-16) – revised in 2008-09-20; was followed the chronology proposed by the Joanina Library; the number below a few titles is the referenced quotes).

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Vieira, G. (1948). Spectres de raies positives e negatives du Ra (D+M+F) , CRAS, pp. 226-227.

16. 4. ONLINE REFERENCES

Reported by calling order in the text; index to the book reviews in aludas Chronology.

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The Marine Biological Laboratory Woods Hole Oceanographic Institution Library in: https: //darchive. mblwhoilibrary. org/handle/1912/1054

The Smithsonian Astrophysical Observatory (SAO) /NASA Astrophysics Data System in:
http: //articles. adsabs. harvard. edu/cgi-bin/nph-iarticle_query?bibcode=1936ZA..12.233E&db_key=AST&page_ind=0&data_type=GIF&type=SCREEN_VIEW&classic=YES
European Mathematical Society, FIZ Karlsruhe & Springer- Verlag Berlin-Heidelberg. Zentralblatt MATH 1868 -2007 JFM 59. 1600. 02. (23)

European Mathematical Society, FIZ Karlsruhe & Springer- Verlag Berlin-Heidelberg. Zentralblatt MATH 1868 -2007 JFM 59. 1599. 07. (25)

European Mathematical Society, FIZ Karlsruhe & Springer- Verlag Berlin-Heidelberg. Zentralblatt MATH 1868 -2007 JFM 59. 1600. 01. (13)

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European Mathematical Society, FIZ Karlsruhe & Springer- Verlag Berlin-Heidelberg. Zentralblatt MATH 1868 -2007 JFM 62. 1600. 02. (29)

European Mathematical Society, FIZ Karlsruhe & Springer- Verlag Berlin-Heidelberg. Zentralblatt MATH 1868 -2007 JFM 64. 0884. 02. (30)

Science et Littérature in:
http: //www. paulbraffort. net/science_et_lit/science_et_lit. html

European Mathematical Society, FIZ Karlsruhe & Springer- Verlag Berlin-Heidelberg. Zentralblatt MATH 1868 -2007 JFM 65. 1455. 03. (31)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0025374 (9, 634e) 76. 1X. (35)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0025376 (9, 634e) 76. 1X. (36)
American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0017198 (8, 121e) 81. 0X. (38)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0020502 (8, 555c) 81. 0X. (39)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0020503 (8, 555c) 81. 0X. (40)

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American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0021749 (9, 107g) 83. 0X. (44)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0024865 (9, 558m) 81. 0X. (46)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0025377 (9, 634h) 76. 1X. (47)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0026968 (10, 228h) 81. 0X. (48)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0023206 (9, 320e) 81. 0X. (49)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0026969 (10, 228i) 81. 0X. (51)
American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0029318 (10, 581b) 83. 0X. (60)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0033725 (11, 481h) 76. 1X. (62)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0031846 (11, 217d) 83. 0X. (63)

American Physical Society in:
http: //prola. aps. org/abstract/PR/v76/i6/p764_1(63)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0034130 (11, 547e) 83. 0X. (64)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0030099 (10, 712g) 36. 0X. (67)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0036100 (12, 58b) 76. 1X. (70)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0040144 (12, 650a) 76. 1X. (75)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0044946 (13, 501e) 83. 0X. (78)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0041022 (12, 783a) 81. 0X. (80)
American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0041023 (12, 783b) 81. 0X. (81)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0051162 (14, 436e) 81. 0X. (83)

Springer Link – Journal Article in:
http: //www. springerlink. com/content/t137t5ul5r1180g5/

http://articles.adsabs.harvard.edu/cgi-bin/nph-iarticle_query?db_key=AST&bibcode=1953C%26T.69.219M&letter=.&classic=YES&defaultprint=YES&whole_paper=YES&page=219&epage=219&send=Send+PDF&filetype=.pdf

Springer Link – Journal Article in:
http: //www. springerlink. com/content/t137t5ul5r1180g5/

Springer Link – Journal Article in:

http: //www. springerlink. com/content/t137t5ul5r1180g5/

Springer Link – Journal Article in:
http: //www. springerlink. com/content/t137t5ul5r1180g5/

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http: //www. springerlink. com/content/t137t5ul5r1180g5/

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Springer Link – Journal Article in:
http: //www. springerlink. com/content/t137t5ul5r1180g5/

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0103757 (21#2521) 83. 00. (101)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0144780 (26#2321) 86. 99. (111)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0140359 (25#3781) 83. 50. (114)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0147287 (26#4804) 85. 99. (115)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0160601 (28#3812) 82. 62. (118)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0157766 (28#997) 85. 35.

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http: //www. springerlink. com/content/t137t5ul5r1180g5/

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0182439 (31#6662) 85. 99. (121)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0170024 (30#265) 31. 30. (122)
American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0180364 (31#4599) 86. 34. (123)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0174838 (30#5030) 35. 06 (35. 79). (124)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0209690 (35#587) 35. 62. (J. Simões Pereira Tese)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0196293 (33#4485) 35. 78. (J. Simões Pereira, The heat equation of closed surfaces)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web, 341-437, pp. 84. (página incuindo as recesões a textos de Sebastião e Silva, Veiga de Oliveira e Gião, inclusa em anexo)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web.

MR0232109 (38#435) 35. 79. (129)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0204984 (34 #4819) 42. 25. (133)

American Mathematical Society. MathSciNet. Mathematical Reviews on the Web. MR0228845 (37 #4424) 35. 76. (137)

http: //eost. u-strasbg. fr/historique_1. php (sobre a Universidade de Estrasburgo)
http: //66. 102. 9. 104/search?q=cache: JbF210ci8r8J: www. atm. ox. ac. uk/user/barnett/
http: //www. atm. ox. ac. uk/user/barnett/ozoneconference/index. html (fotos de Dedebant e Wehrlé)
http: //www. rse. org. uk/fellowship/obits/obits_alpha/strachan_charles. pdf (Charles Strachan, recensor de texos de Gião)

16. 5 CRITICAL ANALYSIS OF SOURCES HIGHLIGHTS

You can appreciate the importance of each constituent sources.

What emerged at work in the following order:

I - Documentary Sources

II - much of the General Bibliography

III - Primary Sources, ie Gião texts

IV - Book reviews

V - the Secondary Sources

However, it becomes more feasible methodological study the importance for another sequence: III-IV-V-II-I

a) What are the important texts of Gião?

I gave a first response on the findings, singling 3 texts.

I'll go deeper now. For the purpose I'll use (93A) , fundamental reference of all

the work.

In the category Physics Phenomenology, a title dominates, the 3 volumes (31) , are from 1938, and its 228 pages. I hold no more than 4 readers-Braffort, book reviewers Zaycoff and HCT, and the enthusiastic Cordebas, who read it 7 times. I can not find value in this work or in such phenomenology, which would lead to only 2 more titles in Portuguese magazines, expiring after 4 years.

b) In Meteorology, the palm goes to (12) , and to describe the method of investigating in Bergen. Projects # 86 and # 89, what have institutional practice, are consequences of that work inflects the life of Gião.

Books (13) , (14) and (17) the Office National de l'Memorial météorologique simultaneously mark the mathematical maturity and, at last, the split with the community.

(27) marks the ambition of theory that is not crowned with success; hence its scientific continuity in # 86 and # 89.

(84) (85) e (86) marked by the scientific reality ancillary to the use of a digital computer. But this failure.

Also fail the sequence of texts (67) - (70) , the error they contain.

It is time to speak of a review, the most important of all, the Synge in which the results of (67) are refuted.

Finally, in relation to the documents # 47 to # 50, the edited texts in the Archives mark mainly as a continuation of those in Geophysics Pure and Applicata magazine, Gião claims the pioneering Dynamic Climatology. Other scientists compete for recognition of this primacy, which Gião seems unaware.

c) In fundamental physics, the main text should be considered (121) , owing to its position in the history of cosmological models.

The theme of Emna - as well as derivatives and emnon hyperemnon - not interested no other author, unlike the microelectrão.

The intellectual boldness to try to make a completely new physics, the texts (38) , (46) and (57) should be relevados, and studied.

Because they were in line with the coeval studies Blackett and Babcock, (49) , (51) , (52) , (53) , (56) , (61) must be distinguished.

For his philosophical component, pointed ago (77) - dissent with Costa de Beauregard. Should also be noted (73) and (74).

Pela síntese que representa ao abandonar a física fundamental em 1951, o trabalho (83).

E os vários textos sobre o teste de Piccardi, terão que ser lembrados pelo. impacto havido em meios *New Age*.

Fosse pela co-autoria de Wehrlé ou pelo que traz de novo, o trabalho (22) tem uma importância única em termos de repercussão.

d) Taking the Synge, the book reviews are not important. Be it to the yes quotes (rare) and reading notes (rare and deep).

e) Book reviews: as a rule, the author of a negative first recension not around to comment Gião. On the other hand, the format of book reviews decreases over time, and larger and lighter than the Zentralblatt, reviews of the median, of the small Abstracts. Developments that may arise from the nature of the journal or as I prefer to interpret because of decreasing the intelligibility of the texts in time. The controversial (67) is the target of harsh criticism of Synge, but Simões Pereira upon it works receive testimonials - # 33 and # 34 Long and positive - which I interpret as a sign of greater intelligibility of his prose. The work of Geophysics Pure and Applicata are never appreciated, unaware why. Neither the most recent texts in the Archives. More than by what they say, the book reviews are significant for what they omit - the importance is not given to Emna and derived words, the pass over the creation of matter term, the fact of not being discussed”oneness" particle and anti-particle. Excessive caution from multiple reviewers?

f) Reading Notes: I emphasize 5 totally different cases, Thesis Murdoch at MIT in 1943, mainly based on Gião results in 1930; the breaker # 16, which discusses, in structure and in detail, the book (17) , and one of the critics was the preface

enthusiast (12) and co-authored (22) ; Article # 78 in the MRAS Klotz, trying to improve the cosmological model (121) ; the debate with Veiga and Sebastian, evident in the recension # 37 and continued for analytical readings as # 39 and # 40; and assessing patent in text # 80 of a Geography teacher. In short, alternating 3 consensus times with 2 very serious conflict.

g) Secondary sources: the most striking were, again, the work of students who paved the way, despite some errors that, with them, I learned to avoid. And the other really relevant sources were found at the Museum of Science and Dean of the University of Lisbon. Some sync had to be, because the time of rewriting coincideu to find the School Board Minutes books - the most nuclear source - as well as the Terms of Physics Books Mathematics and Celestial Mechanics, the presence of leaves, the Registry of the Match; almost simultaneously, the Centennial allowed access to records and the institutional memories of some science teachers, who, with some Curricula led to draw less known personalities participating in the history of Gião.Other relevant sources have been the work of Leonardo et al, where he writes of the history of Portuguese Meteorology that Gião not lived. On the contrary, totally irrelevant the coeval works Brandão de Carvalho and Costa Lobo, especially the latter for its worldly vanity - was no reason to ignore Gião his contemporaries then. Several times mentioned the Order of appointment and the terms repeated in Costa Almeida (1971) ; is now possible to criticize definitively what these texts was written in the light of the minutes transcribed, 1959, where the School Board based its decision to hire Gião the conditions required for it; and bibliographic extract of book reviews that immediately follows and with which I conclude the thesis. For consideration of the text (22) on the rotation of the Sun was relevant reading the cited Astronomy jobs.

h) The cast here made the ranks Gião works differently than did the conclusions as to their findings. The findings of a scientist are important to interpret the world. But his work, including those containing mistakes and errors that not contain

matter to interpret the Man.

i) General Bibliography: The presentation PhD Examination requires the candidate the reasons for each of its assertions. Such reasoning should focus on facts and reason. But the text of an author on scientific, falls, for your understanding, an analysis of the motivations of this author. I did so often. Assumed, in doing so, the route of a stylistic for a pragmatic scientific discourse. Behold, now that these lines writes intends to return this same methodology for the work that is the end of the work and the person of Gião. And, in doing so, it must be introspective and sincere.

1. j) Relevant readings for planning work:
2. - Were essentially Jacinto Rodrigues (2000) and Gilles-Gaston Granger (1968) ; the first, because Gião and Hymalaia suffer from some marginality and wandering, which forced, as in another study, invent part of the methodology used;
3. The second because from the beginning that the fundamental problem to overcome was the little intelligibility of writing Gião. In addition to proximity - the nature of discipleship, regarded at different times, with both authors.

   Other relevant readings were Aubin (1998) and Bontems, Gingras (2005). Were important to the contrary. These are stories of contemporary scientific revolutions, they met some success. 2 times in the 30 and 40, Gião have thought removar altogether some branches of science, but proved to be essentially wrong.

   No campo da biografia científica, privilegiei o modelo de Jacinto Rodrigues (2000) e a autobiografia de Paul Lévy (1970).

   An inspection of the recent international literature on the scientific biographies led to the study of Shortland (1996) , ISIS (2006) and Söderqvist (2007). Led him to take my job as a scientific biography of mauvaise herbe type as Duffing appointed, strongly based on an autobiographical fragment - primary suspect Selya seconds.

Associate these negative qualities of an unwanted biography indifference or animosity towards the realization of this thesis shocked on the part of scientists, half a century ago, were part of the classes from which emanated the complaint Gião before Oliveira Salazar... the fact that, being sociologically significant must be committed to writing.

But, I repeat, these retained readings that my work is above all biographical.

Maybe so, maybe also because she is writing a biography of Pedro Nunes, as atypical as the Gião, was the contribution of Henry Leitão (2011) found that the motto for organizing the topics that tried to integrate the Thesis -the points of view of Hankins, Söderqvist, Bensaude-Vincent.

A very important book, perhaps the most important and structuring cited in the thesis, Helge Kragh is (1997) , which gives Gião and congesso Cosmological Models a place in the history of ideas. Paper historical and social background, in several areas, had Ferry III (1961) , Lowes (2010) and Hortsmeyer (2005) ; each of these allowed me to write a paragraph on matters in which I do not have training.

k) Documentary sources are the strong point of my work. The house António Gião is a treasure for the epistemologist. I was taken to select a coherent set of documents. Cassifiquei them with the help of Dr. Paulo Gonçalves, Information Officer of the Faculty of Sciences of Lisbon, starting from the proximal (the rarest) to the distal. Was not simple. For example, because fragmentei Appointment of Order, this will last official documents to the public. In each category, highlight those marked.

l) Manuscripts: # 1, the document should not have been stopped. Almost unreadable, it was necessary to multiply it by 3 - its syncopated transliteration and translation of simplificção this. They are the core document of the Thesis. And # 77 is the ultimate evidence of how Gião via structured their work, after (93).

m) Letters: the importance of cards # 11 Einstein seems to me modest, except that

of being the only accessed dossier is complete; and the terconseguido network with other like # 68 to Schrödinger where Gião reveals want to continue where relativity over.

n) Correspondence with Portuguese, # 12, # 14 and # 14, shows essenciamente difficulties of socialization. More importantly the letter # 24 Glaphyra Vieira, incident in scientific matters. All letters cited here are the 40.

o) Letters of appreciation for the work of Gião, more technical #27and #28, generalist #66and #67.

p) Letters hurt by the rejection, a convention (#19) , or in magazines (#21) , always in half Anglo-Saxon.

q) Letters from critics: #42 e, implicitly, #40.

r) Draft letter for an invention that failed: #46.

s) Conflict with Students: #93, #94, #96.

t) The simple typology of marked cards demonstrates various stages of a man who failed, accordingly the title #1.

u) Unpublished: can be fighting # 18, be part of an almost revolutionary science as # 29; traverse the microelectão as # 22 and # 26; be educational as # 75, # 77 and # 92; frustrados- projects are # 86, # 87, # 89, # 91, or sufficiently achieved - all # 47 to # 50; and, unusually, a sympathetic look - # 98. Do not attach the same importance to other unpublished.

v) Conferences: unusually optimistic, even after the quarrel at the University. As a matter of personal taste, I prefer reading # 5.

x) Publications: # 8 is again a personal taste of testimony, and includes rare romanticism act, the medal # 9.

y) I defend the great importance for the interpretation of personality, life and work of Gihon, and scientific networks in which he was immersed or break of 3 large clusters of texts:

z) # 16 and # 20, the profile of him that after the support Gião fought. Were extremely arduous search for documents.

aa) #25, the institutional expression in Paris in the days when received the support of De Broglie .

ab) #33to #37, credible evidence that supported the results of Gião and Simões Pereira, later critical target.

ac) Still retain the enthusiastic reading note Suzanne Daveau in 1967- # 80; Glow present in so many patents (# 45, # 44) ; contrasting with the coldness (self?) of biographical # 60, a document somewhat misleading way by privileging im course of Physical Sciences that nothing corroborates, to listing jobs that were not written, by failing to identify spatial and temporal references, but having uniqueness (perhaps shared with # 4) to witness the change of interest at the end of the war.

ad) Register the eyewitness testimony of a strong contact in the art world (# 63) , the only one I could show. Missing references to the body that invented, works of art that has collected, the designed by Sophie.

ae) Anyway # 71, the time in memory that the inventor returns to Meteorology and back to Italy.

af) Images: # 3 and # 58 are sad faces, childhood and unemployment; the mysterious figures of two meteorologists (# 17) and Sophie (# 83)

ag) Official documents shown to be important for the thesis, to corroborate dating, or other context. Was excluded from the Nominating Order this category, to appear advantageous to divide it into 3 parts.

16. 6 DETAILED LIST OF RECENSIONS ONLINE

In the journals cited by the Nominating Order.

This list demonstrates the inaccuracy in that Order.

MR0228845 (**37 #4424)** Gião, António. On the wave continuation of functions. *Arquivo Inst. Gulbenkian Ci. A Estud. Mat. Fís. -Mat.* **5** 1967 79–117. (Reviewer: G. Doetsch) , 35. 76

MR0204984 (**34 #4819)** Gião, António. On the Fourier continuation of functions: Theoretical complements and examples. *Arquivo Inst. Gulbenkian Ci. A Estud. Mat. Fís.-Mat.* **4** 1966 101–131. (Reviewer: G. Doetsch) , 42. 25

MR0232109 (**38 #435)** Gião, António. Sur la déduction des équations intégrales de l'équation de Fourier par le tenseur d'Oseen. (French) *Univ. Lisboa Revista Fac. Ci. A (2)* **11** 1965/1966, 295–297 (1965/66). (Reviewer: W. F. Ames) , 35. 79

MR0190626 (**32 #8038)** Gião, António. Fourier transforms aond the continuation of functions. *Arquivo Inst. Gulbenkian Ci. A Estud. Mat. Fís. -Mat.* **3** 1965 71–149. (Reviewer: G. Doetsch) , 42. 25.

MR0180364 (**31 #4599)** Gião, António; BarbeitoA new form of the sea level tendency equation. *Arquivo Inst. Gulbenkian Ci. A Estud. Mat. Fís. -Mat.* **2** 1964 3–44. (Reviewer: W. L. Gates) , 86. 34

MR0174838 (**30 #5030)** Gião, AntónioOn the weighted advection. *Arquivo Inst. Gulbenkian Ci. A Estud. Mat. Fś. -Mat.* **2** 1964 49–82. (Reviewer: W. F. Ames) , 35. 06 (35. 79)

MR0170024 (**30 #265)** Gião, AntónioPropriétés locales et globales de l'opérateur laplacien. (French) *Instituto Gulbenkian de Ciência Centro de Cálculo Científico, Lisbon* 1964 viii+95 pp. (Reviewer: W. F. Ames) , 31. 30

MR0182439 (**31 #6662)** Gião, AntónioOn the theory of the cosmological models with special reference to a generalized steady-state model. *Arquivo Inst. Gulbenkian Ci. A Estud. Mat. Fís. -Mat.* **1** 1963 135–230. (Reviewer: Y. Kozai) , 85. 99

MR0160601 (**28 #3812)** Gião, AntónioSur la loi de distribution de Maxwell-Boltzmann. (French) *Arquivo Inst. Gulbenkian Ci. Sec. A Estud. Mat. Fís. -Mat.* **1** 1963 1–30. (Reviewer: J. Naze) , 82. 62

MR0157766 (**28 #997)** Gião, António; Roulleau; CoelhoApplication de l'équation de la diffusion à la détermination des circulations zonales. (French) *Arquivo Inst. Gulbenkian Ci. Sec. A Estud. Mat. Fś. -Mat.* **1** 1963 101–130. (Reviewer: W. F. Ames) , 85. 35

MR0147287 (**26 #4804)** Gião, AntónioSur l'équation relativiste de l'énergie et l'hypothèse solaire de Piccardi. (French) *Atti Accad. Naz. Lincei Rend. Cl. Sci. Fis. Mat. Nat. (8)* **32** 1962 181–184. (Reviewer: W. Rindler) , 85. 99

MR0140359 (**25 #3781)** Gião, AntónioCinématique et dynamique de l'espace en rotation. (French) *Portugal. Math.* **20** 1961 153–193. (Reviewer: Y. Kozai) , 83. 50

MR0144780 (**26 #2321)** Gião, AntónioThermodynamic expressins of fluid motion and their applications. *Univ. Lisboa Revista Fac. Ci. A (2)* **8** 1960 73–114. (Reviewer: G. MacDonald) , 86. 99

MR0103757 (**21 #2521)** Gião, AntónioField equations of any differentiable variety. *Portugal. Math.* **17** 1958 63–83. (Reviewer: A. J. Coleman) , 83. 00

MR0051162 (**14, 436e)** Gião, António.Quelques problèmes de physique théorique. (French) *Gaz. Mat., Lisboa***12 (**1951). no. 50, 57–67. (Reviewer: C. Kikuchi) , 81. 0X

MR0041023 (**12, 783b)** Gião, António.Équations du champ, équations du mouvement et fonctions d'onde. II. (French) *J. Phys. Radium (8)* **12, (**1951). 99–106. (Reviewer: A. J. Coleman) , 81. 0X

MR0041022 (**12, 783a)** Gião, António.Équations du champ, équations du mouvement et fonctions d'onde. I. (French) *J. Phys. Radium (8)* **12, (**1951). 31–40. (Reviewer: A. J. Coleman) , 81. 0X

MR0040144 (**12, 650a)** Gião, AntónioAnalysis of the pressure variations at sealevel. *Geofis. Pura Appl.* **16, (**1950). no. 3-4, 20 pp. (Reviewer: M. Kiveliovitch) , 76. 1X

MR0037096 (**12, 211g)** Gião, António.Sur le mouvement général de la matière à échelle cosmologique. (French) *C. R. Acad. Sci. Paris***231, (**1950). 605–606, 85. 0X

MR0036169 (**12, 68c)** Gião, António.Sur la quantification du champ métrique et les interactions particules-champs. IV. Application au spectre de l'hydrogène. (French) *C. R Acad. Sci. Paris***230, (**1950). 1838–1840, 81. 0X

MR0036168 (**12, 68b)** Gião, António.Sur la quantification du champ métrique et les interactions particules-champs. III. Systèmes de particules. (French) *C. R. Acad. Sci. Paris***230, (**1950). 1740–1742, 81. 0X

MR0036100 (**12, 58b)** Gião, António.Sur les équations intégrales de l'hydrodynamique. (French) *J. Phys. Radium (8)* **11, (**1950). 219–226. (Reviewer: C. Truesdell) , 76. 1X

MR0032518 (**11, 302l)** Gião, António.Sur la quantification du champ métrique et les interactions particules-champs. II. Application aux champs magnétique et nucléaire. (French) *C. R. Acad. Sci. Paris***230, (**1950). 434–436, 81. 0X

MR0032517 (**11, 302k)** Gião, António.Sur la quantification du champ métrique et

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