

G. SETTELE AND THE FINAL ANNULMENT OF THE DECREE
OF 1616 AGAINST COPERNICANISM

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Introduction.

This paper is intended as be a comment on a recent book published by prof. Paolo Maffei^[1]. In it we find the private diary written by Giuseppe Settele, in which he recorded all the difficulties he went through in obtaining the imprimatur for his textbook on astronomy.

Giuseppe Settele was a priest who in 1812 was forced to take the loyalty oath to the French government so he could be appointed professor of applied mathematics at the Università Imperiale in Rome, called before La Sapienza. After Napoleon's defeat and the return of the Pope Pius VII to Rome in 1814, Settele had to retract it. Despite his past conduct, he was allowed to keep his position at La Sapienza. He was asked in 1819 to teach optics and astronomy. One may ask if Settele was an astronomer. The right answer is that he was an archaeologist. Already before he wrote his Elementi di Ottica e di Astronomia he had written some papers on ancient astronomical instruments, and after 1823 he dedicated himself to being archaeologist, as one can see from the bibliography given in Maffei's book.

Settele wrote a diary covering the period from June 1810 until 1838 with some interruptions, which help us to know Roman

society after the French occupation. Maffei publishes only the part which refers to the question of the imprimatur, but includes an index of the contents of the rest of the diary. The diary had remained unpublished, and Favaro, the editor of the Edizione Nazionale of Galileo's complete works, was not allowed to see it, because the owners of the manuscript thought that it needed some editing. As a matter of fact, since Settele was writing for himself, he gave vent to his feelings against high personalities, expressed some personal problems not intended for the public and even sometimes used words unworthy of his position. Maffei opted not to edit it letting the reader judge for himself.

This paper will deal not so much with the story of the events surrounding Settele's efforts to obtain the imprimatur for his textbook and the interesting anecdotes found in his diary. Rather it is intended to be a commentary on the ideas and attitudes of the personages involved. Maffei includes the facsimile of a collection of documents printed by Fr. Maurizio B. Olivieri, commissary of the Holy Office, intended for internal use. We find there Settele's petition and the note he was asked to add to the text of his book, the writings of the Master of the Sacred Palace in which he motivates his decision to revoke the imprimatur and the reply of the Commissary of the Holy Office. We must thank Prof. Maffei for making these important documents, which deserve better attention, available.

The refusal of the imprimatur for Settele's book.

The first volume, which collected Settele's lectures on Optics was published in 1819. But in January of 1820 the printer notified Settele that the Master of the Holy Palace had revoked the imprimatur because it contained the statement: "since the Earth moves around the sun..." This came as a surprise, the more so because since 1758, when Pope Benedict XIV had removed the old decree of 1616 from the Index of Forbidden Books, Catholic scientists practically had forgotten that old question. The original decree, after prohibiting further editions of Copernicus's book and others by name, included the following statement: aliosque omnes libros pariter idem docentes prohibendos etc. That this had been omitted intentionally could be proved by referring to a document kept in the Holy Office. The problem was, that, although the decree was expressly omitted, thus opening the way for the free publication of books dealing of Copernicanism, Copernicus's De Revolutionibus and Galileo's Dialogo still remained in the new Index of 1758. It was particularly confusing the fact that one could still see there the text of the motivation which induced the Holy Office at the time to proceed in the sentencing of those two authors. One may ask why it was not totally settled in 1758. The reason for this could probably be that it required further consideration, since it was a sentence of the Holy Office and that required more time^[2]. The significance of the publication of the Index of 1758 was forgotten by the Master of the Sacred Palace but it can be

appreciated studying the behavior of scientists, right here in Rome, like the great Boscovich. It is evident that Catholic authors considered the matter settled.

Not so for the Master of the Sacred Palace, the Dominican Fr. Filippo Anfossi. One of his duties was to examine new books to be printed before granting the imprimatur. His forerunner in the same office was Fr. Riccardi, also a Dominican, who once had naively approved Galileo's Dialogo and run into problems with Pope Urban VIII. Fr. Anfossi repeatedly denied the imprimatur even after the Holy Office entreated him to grant it. He published his reasons to ease his conscience. He did so again even in 1822, long after the whole question was settled.

It does not seem that this was the result out of over-scrupulosity. Anfossi had made himself known through different publications against Gallicanism and Jansenism. Besides during the Popes's forced exile in Paris, he stood firm against the pressure exerted on the priests by the French occupation authorities to take the oath of loyalty. Therefore he was a good choice for the position when Pius VII finally reentered Rome.

As we can see from the writings he published in order to "discharge his conscience" he tended to interpret any past decree in the most strict sense. He was probably suspicious of the many novelties introduced into Italy by the French revolutionary armies and was fully intent upon the restoration of the "pure doctrine". For Anfossi it didn't matter that the 1758 edition of the Index didn't include the decree of 1616. The substance of

what had been put there once remained always valid^[3]. Anfossi insisted that the Copernican system had been definitum, damnatum and declared formaliter haereticum, thus pretending that all decrees issued by the Holy Office had the same significance as if the Pope himself had spoken ex cathedra. In this he was helped by the statement we see in the sentence against Galileo: cum nullo modo probabilis esse possit opinio, quae iam declarata, ac definita fuerit contraria Scripturae Divinae^[4]. Of course this was a sentence of that particular Office. As such it had to be obeyed. At the same time there was a tradition that the events of 1616 and 1632 did not constitute a formal condemnation of Copernicanism. This can be shown with statements from Grassi, Riccioli and Tiraboschi, all Jesuits, who expressed in print their convictions that it was not a true and formal condemnation of the Copernican system as heretical^[5]. Not too many years later the first Vatican Council cleared up the question and narrowed the sense of the Pope's formal declarations.

Anfossi showed his lack of appreciation of the issue, when he considered that the world system proposed by Settele in 1820, following his contemporaries, was the same which had been once condemned^[6]. He couldn't see the enormous changes since then introduced by Newton and Laplace and observational astronomy. Not only there was an answer to the many philosophical objections along with new evidence like the aberration of the light and the figure of the earth etc., but also, what it was more important, there was a radically cosmological system.

Anfossi always showed to be intransigent. He collected the quotations of St. Thomas Aquinas which favored him but ignored those contrary against his position^[7]. Anfossi shares with many scholastics a mistrust of modern science. He claimed that science is full of errors and changes too often, and therefore that the Church cannot base his decisions on what Copernicus, Kepler, Newton etc. have to say, but only on the Holy Scriptures and the Holy Fathers^[8]. Anfossi was correct there but his mistrust as regards to modern science didn't let him appreciate the its great achievements. At the same time he indulged in quoting old authorities like Tycho Brahe in his support^[9].

That has been a general attitude of philosophers towards science. In order to judge this point one has to understand that science, let us say at the renaissance, was not the same as it is today. Astronomical computing was considered a very low occupation indeed, only useful for astrologers. The real discussion on cosmology was done by philosophers of nature, not by geometers.

This brings us to a old question in the relationship between philosophy and astronomy: the question of hypotheses. It derives already from Ptolemy's Almagest who gives dual geometrical theories for the Sun and other planets. For St. Thomas Aquinas it could not be excluded other possible geometrical models able to explain the same phaenomena^[10]. We can recall Osiander's preface to Copernicus's book and the controversy between T. Brahe and Ursus and the Apologia written by Kepler on that occasion. Bellarmine makes use of this in 1616 suggesting that Galileo

should restrict himself to hypotheses and abstain from further annoying all the scholastic philosophers and theologians compelling them to accept what was not yet fully proven^[11]. The same appears in the decree of 1620 which gives the points of Copernicus's De Revolutionibus where the statements should not be absolute but hypothetic. Others even went further in saying that the goal of astronomers was to give a numerical account of celestial motions but to abstain from further research into the causes. But we may think that in Anfossi's mind there was not so much a theoretical question about science as a false sense of duty to defend the integrity of the Holy See and his offices.

Anfossi had failed to realize that modern science had already undergone a profound change begun in Galileo's time, in which great use is made of mathematics. Already Clavius, and in this he was copying Ptolemy, had warned the philosophers, that in matters of cosmology a mathematical proof had more strength and persuasive power than philosophical argument. It was unfortunate that little heed was paid to Clavius's warnings^[12]. As a matter of fact, if all this was true in Galileo's time, it was more so in 1820, when so much proof and theory were available. The whole thing originated from lack of comprehension and from ignorance of the real issues.

In defence of Settele's petition

When Anfossi refused to grant the imprimatur Settele went directly to Fr.Olivieri, a commissioner of the Holy Office, who

as we shall see was the right man at the right place. Settele and Olivieri discussed the question together, and it was agreed to refer the issue directly to the Pope. After two petitions, the express wish of Settele to send the case to the Holy Office, and continual refusals, Anfossi was overridden and the imprimatur was signed by a substitute.

Settele was invited to write a note to be printed in his book giving a short account of the Copernican question and the reasons why today it was a different world system and why one was free to assume in an absolute sense the motion of the earth. This note is printed in the fifth chapter. It is reproduced in the collection of documents for the internal use of the Holy Office and can be found in Maffei's book. It takes almost two pages. It is hard to know what is due to Settele and what is due to Olivieri, since both discussed the affair together and had planned the mode of action.

Settele could present an impressive list of proofs in favor of the earth's motion, as was well known since the end of the XVIII century, e.g. that the sun is no longer at the center of the world, that the orbits are elliptic and mutually connected and dependent, Kepler's laws, Newtonian universal gravitation, the aberration of light, nutation, the annual parallax of the fixed stars, and the eastbound drift of falling bodies. Settele could present two other proofs not known to Boscovich fifty years earlier like the motion of translation of the sun, or more

precisely of the solar system as a whole. He presents also a presumed confirmation of annual parallax.

It is interesting that Settele adds another proof authentically Italian. Torricelli had proved the weightiness of the atmospheric air in 1645, and thus that it was held down by gravity, therefore disposing of the old problem of the presumed effects of the earth's rotation. This will be fundamental in Settele's and Olivieri's argumentation, as we will see.

As regards to the annual parallax, Settele quotes a paper of the Roman astronomer G. Calandrelli of 1806^[13], who claimed to have detected the annual parallax of α -Lyrae to be 4.4 seconds of arc. There were warnings of competent astronomers that those parallax measurements were contaminated by observational errors. However Settele uncritically accepted and used Calandrelli's results to his advantage. He was fortunate that Anfossi was not in a position to contradict him in this, since he was not an astronomer and unable to check the results himself.

In all this controversy we see many references to Boscovich. It was Anfossi who first used Boscovich's early statements against the validity of Copernicus's system. It seems that Settele was ignorant of Boscovich's work and publications. He was also rather superficial in reading Calandrelli's paper on the parallax, since half of the paper is about Boscovich's famous experiment of the water-filled telescope, in which the earth's motion was essential. Olivieri had to ask a friend to look for Anfossi's references to Boscovich. He claimed to have read

Boscovich's five volumes and failed to see the long note to the dissertation de Cometis^[14] in which he explained his attitude towards the problem, how it was settled and why he was free to talk about it after 1758!

Settele, and much more Olivieri, had to deal with the history of Copernicus's and Galileo's condemnations and had to try to show that things had changed so much that the old decrees didn't apply any longer. We will not comment on the long discussions on the interpretation of the Holy Scriptures. It is of little interest to us today. Settele is the first to point out the thesis of conditional condemnation. To this he quotes the Jesuit Fr. Fabri^[15] who had once wrote nihil obstat, quin loca illa in sensu naturali Ecclesia intelligat, et intelligenda esse declaret, quandiu nulla demonstratione contrarium evincitur... which reminds us of the position stated by Card. Bellarmine in the before mentioned letter to Castelli.

Olivieri goes further to analyses the decree of 1616 against Copernicus. He insists on the fact that the theologians had first seen Copernicus's theories as absurd and false in their underlying philosophy and later and consequently as against the Holy Scripture. Olivieri reasons that if those presumed philosophical absurdities are no longer valid, then also the theological censure should be dropped. He asks himself what was the philosophical absurdity and falsity detected by the theologians in 1616. The documents concerning the decree against Copernicus and Galileo's trial were no longer in Rome, since Napoleon had

taken them to Paris^[16]. Mostly were subsequently lost. Therefore Olivieri has to make a guess^[17]. First of all, not in the way Copernicus gives a good account of the phaenomena, since the decree of 1620 allowed him to use it as a hypothesis. One of the absurdities Olivieri can think of is the effect of the earth's rotation on the earth's atmosphere, an old argument already given by Ptolemy. Olivieri says that Copernicus couldn't answer this problem adequately and that Galileo was rather ambiguous, trying to explain the steadiness of some winds as an effect of the earth's rotation. However, I think that here Olivieri, and in part Settele, was again not competent in the history of astronomy. There was another absurdity in Copernicus's system, the question of the centrum mundi which is connected with the ancient and particularly Aristotelian ideas of space and the notion of movement. Heavy bodies tended naturally to fall into the center of the world, which coincided with the center of the earth because this had already fallen into it. The earth was there per accidens and hence it was not the cause of gravity. If the earth moved then it could leave the center behind and the bodies would not fall to the center, which was absurd and against experience. This fundamental point was just forgotten by Settele and Olivieri. Instead, as we just mentioned, they insist more on the effect of the centrifugal force due to the earth's rotation which should expel away the atmosphere and anything not solidly bound to the earth's surface. That preference in part is justified by the respect for the national contribution of

Torricelli who determined that the air is also heavy and therefore subject to gravity, and not tending to fly away.

Conclusion

The whole Copernican question ended definitively with the new edition of the Index in 1835 under the Pope Gregory XIV in which there is no mention of Copernicus and Galileo. The affair of Settele with Anfossi helped to achieve this. But that affair was above all a personal crusade of an overzealous man. It degenerated into a question of competence. The Holy Office had to produce documents to prove that the Master of the Sacred Palace had been entrusted with the job of giving the imprimatur to books printed in Rome by that Office and therefore could not proceed independently from it. The stubborn Anfossi was still showing his opposition two years later, forcing the Holy Office to issue a decree forbidding any future Master of the Sacred Palace to refuse the printing of books which defended the motion of the earth. We think that this decree of 1823 is a personal one against Anfossi and should not be taken as the final date of the Copernican issue.

In Olivieri's commentaries there are many interesting topics which must be left to other discussion, in particular the relationship between scholastic philosophy and the emergent science after the 17th century. Olivieri deserves greater

attention since he was a commissioner of the Holy Office and had inside knowledge of the particular terminology and procedures used there. His thoughts were published later on in a book in which he develops his analysis of Galileo's trial¹⁸].

It is a merit of Settele that he insisted on obtaining the imprimatur. If he had just rewritten his textbook to say: supposing or in the case the earth moves around the sun... there would have been no difficulty. However he insisted and his insistence earned freedom for all subsequent writers of astronomy. Settele didn't give in to the requests of the Pope's palace "maggiordomo":

"I confess that I do not have patience. Putting aside the point of disagreement, it seems to me very impertinent to find such resistance in a priest, that forces one of the highest magistrates of the Pope and the Congregation of the Holy Office to run into collision, when with the simple word hypothesis everything would be settled" [19]

Scientific theories are not always definitive and are subject to improvement when not to revision, but hardly anyone could believe that this applied to Newton's fundamental mechanics in the early 19th century. Nevertheless philosophers and theologians should have kept pace with contemporary scientific developments and settled old theological questions like that with the literal

sense of the Holy Scriptures in order to avoid in time any conflict with science.

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3. Maffei, P.: Opus cit., pag. 455.
4. Maffei, P.: Opus cit., pag. 461, 529 and 548.
5. Grassi, O.: Terrae... quies inter Fidei nostrae capita expressa non habentur. In Op. Galil. vol. VI, p. 487.
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6. Maffei, P.: Opus cit., pag. 460.
7. Maffei, P.: Opus cit., pag. 485.
8. Maffei, P.: Opus cit., pag. 458.
9. Maffei, P.: Opus cit., pag. 551.
10. Thomas Aquinas: Summa Theol. I, q. 32, a.1 ad 3.
"In astrologia ponitur ratio excentricorum et epicyclorum ex hoc, quod hac positione facta, possunt salvari apparentia sensibilia circa motus coelestes, non tamen ratio haec est sufficienter probans, quia etiam forte alia positione facta salvari possunt."
11. In Bellarmine's letter to Fr. Castelli. In Op. Galil. vol. XII, pp. 171-2.

- 12.Clavius,C: in all the editions of his Commentarium in Ioannem a Sacro Bosco, preface.
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