

## **Gabriel Plattes, Hartlib Circle and the Interest for Husbandry in the Seventeenth Century England**

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**ABSTRACT:** This paper argues that Gabriel Plattes, a less known member of the Hartlib Circle, makes an interesting contribution to the project of moral reformation, developing important moral and political ideas and continuing some of the Baconian ideals (such as the importance and the moral dimension of the advancement of learning). His works are a response to the Baconian “quest for knowledge” and a continuation of the privileged time idea according to which the reform of knowledge (and the restoration) will be achieved in the near future, a providential time in history. Also, Plattes adopted the Baconian idea of instituting a new method for knowledge production, in the meantime, emphasizing the importance of the institutions involved in the reform of knowledge.

**KEY WORDS:** Cultivation of the mind, Gabriel Plattes, Hartlib Circle, husbandry, new pedagogy, scientific agriculture.

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### **Introduction**

The interest of the seventeenth century in husbandry may have had several reasons. One of these reasons is the Baconian tradition of experimentation that places at its very core the study of nature. Bacon’s writings provided useful materials and unequivocal advice for his successors on the direction of the great collaborative enterprise for the instauration of philosophy. Emphasizing the practical work and experimentation, Bacon insisted that humanity under God’s benevolent eye takes its destiny into its own hands, reconsiders the nature of that course and starts a long process that would put work in a different perspective: difficult and painful still, but carrying in itself the great promise of human advancement and peaceful prosperity (Low 1985: 142). Thus, labour and the study of nature gained a new

pioneering perspective. Significantly, agricultural labor, while often said to be a consequence of the Fall, was nonetheless represented less as a punishment than fulfilment. The improvement of the land was placed in a completely new light from a moral point of view. The word “improvement” has gained a different and ‘improved’ meaning starting with the seventeenth century. This new meaning draws together legal, religious, moral and economic implications in order to justify radical processes of change in England (McRae 1992: 35).

But the continuation of the Baconian ideas went along with the creation of a specific type of ethics, the ethics of direct participation in the transformation of the world (Matei 2011: 51–65). The key element in Bacon’s reform of knowledge is that it intends to restore the human qualities lost (or at least what was lost) as a result of the Fall (Bacon 1963–1994: IV, II § 52, 247). The human intellect has to purify itself and the process of knowledge will be able to revert a part of the qualities lost in the Fall. Bacon’s opinion was that God placed Adam in the Garden of Eden to work (to contemplate, to exercise and to experiment) (Bacon 1963–1994: III, I, 296). The focus is not only on the contemplative life but also on the active life, Bacon suggesting a way of living able to combine the contemplative and the active life (Harrison 2006: 230). Contemplation cannot do the work of knowledge production. At many times, the activity of contemplating nature takes a different course: instead of focusing upon nature, the instinctive tendency of the human mind is to rush to conclusions (Georgescu 2010: 83). The fundamental errors and the causes of these errors may be remediated by instituting a new method for knowledge production. The new method is needed to keep the mind from rushing to conclusions. Therefore, contemplation must be corroborated with a new kind of activity, which keeps the human mind steady: experimental natural philosophy. In order to restore the lost qualities, man has to reunite the two forms of life in the practice of science (the contemplative and the active life) (Harrison 2006: 230). This Baconian “quest for knowledge” entails a moral dimension: the end of knowledge is to relief the man’s estate and to restore man’s prelapsarian condition. So, even if the fallen mind wanders through errors and if “the human intellect left to its own course is not to be trusted”, knowledge must be “discharged of that venom” (Bacon 1963–994: IV, I, 17, 18, 20) and the mind must be purified.

The spirit of direct participation points out the actively aspect of the transformation process, meaning that all “industrious” men have to take part in this transformation (to the acquisition of knowledge and the restoration of the lost qualities), following a specific method or procedure. “The whole way, from the very first perception of the senses must be laid out upon a sure plan” (Bacon 1963–994: IV, I, 17, 18, 20). The most important

consequence of this kind of attitude is a spirit of direct participation in the historical moment, the attitude of responsibility for making it happen. In this context, Gabriel Plattes' works present a basis of a "methodical" and rationalized model of a "good society", developing some important religious, moral, scientific, economic and philosophical ideas, such as a religion based on rational arguments, a specific kind of ethics based on direct participation in the process of transforming the world, a system of government ruled by a representative elite, a scientific pattern inspired by the Baconian Solomon's House, and an economic system founded on agriculture and social distribution.

### Samuel Hartlib's Circle and Gabriel Plattes

Hartlib's Circle was a complex network of intellectuals, sending letters and developing laborious projects of intellectual, religious, political and economic reformation. It was also the place of origin for a number of interesting and novel ideas. In fact, Hartlib's general claim seems to have been that the only reason of our misfortunes is the lack of knowledge and the "narrowness of men's spirit" (Hartlib 1651a: Epistle to the reader). Hartlib and his circle inherited some important ideas from Bacon and they re-wrote them using the millenarist language of the moment. The perfectibility of human nature, the privileged time, the active role of knowledge in the new millennium and the importance of coordinating efforts in order to make both religious and intellectual reformations succeed, are only some of these ideas. As Puritanism gained power, Hartlib and the members of his circle became more and more convinced that their projects were possible and would be put into practice (Trevor Roper 1984).

Hartlib's Circle was not a society *per se*, but an international brotherhood that involved members from all over Europe. Its aim was mainly devoted to two major projects: ecclesiastical peace and the advancement of learning (Dickson 1998: 149). The ecclesiastical peace was an ideal regarding the reconciliation of the Protestant churches, especially the Lutheran and the Calvinist. The Baconian "advancement of learning" was mainly read and interpreted as having to do with organizing, administering and transmitting knowledge. Members of the circle understood it as strongly connected with a program of moral and social reform (emphasising the utilitarian function of the advancement of learning), and with a program of communicating knowledge, finding mechanisms of intellectual, social, religious and political *collaboration* (Matei 2010: 159).

Members of the group were supposed to gather materials and to compile catalogues, exchange data and results and put together topical databases as general sources (and resources) of information on all possible

subjects. The ‘advancement of learning’ would have been also helpful in the process of understanding the differences that separated the various confessions. This society was open to men and women of all classes across the Protestant world. Members of the Hartlib Circle saw themselves as agents of an ideal polity. In the context of millenarian expectations, the intellectuals of the Hartlib Circle became the voices of ‘subjective idealism’ (Appelbaum 2002: 105). They had to design and shape the foundations of the new world. By gathering materials, they tried to find practical solutions to the problems facing the English society of the time, problems regarding divine and human knowledge. They were the people who directly participated in the transformation of the world and their words had the power of influencing changes to come. Gabriel Plattes was one of them.

Very little is known about Gabriel Plattes; he was probably born at the beginning of the century (Webster 1979: 15). There is little evidence regarding Plattes’ career in the period preceding his association with Hartlib Circle. It seems to have been William Engelbert’s assistant,<sup>1</sup> to whom he dedicated his first two books *A Discovery of Subterranean Treasure, viz., of all manner of mines and minerals ... and also the art of melting, refining, and assaying of them* and *A Discovery of Infinite Treasure, hidden since the World’s Beginning. Whereunto all men, of what degree soever, are friendly invited to be sharers with the Discoverer*, both of them published in 1639. These two books were designed to be complementary. *A Discovery of the Infinite Treasure* was very popular, frequently read and quoted. Apart from presenting intensive schemes of husbandry, the book also deals with alchemical experiments, transmutation experiments and new inventions, which should help the economic advancement of the country. The scientific and technological sections were interspersed with remarks about ethical and economic issues, pointing to a religious obligation which Plattes believed that people like him had to have it and to disseminate it to the widest public in order to contribute to the improvement of the condition of the nation.

Plattes realized that agriculture along with mining and metallurgy (in just one word ‘husbandry’) can provide information relevant as remedies for poverty and other social problems. Because he was aiming to address his words to a wide audience, his works were simple and direct and the language he used was brief and axiomatic. Also, Webster considers that Plattes’ systematic and intelligible approach was dictated by a general ethical standpoint which placed considerable emphasis on the efficient dissemination of information to the widest public, while the attitude of the

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<sup>1</sup> See also S. Hartlib, *Ephemerides*, 1639, part 3, HP 30/4/21A; 30/4/25A.

monopolists of knowledge was strongly criticized (Webster 1975: 474; Greengrass, Leslie, Raylor 1994: 10–11).<sup>2</sup>

The first two books published by Plattes (*A Discovery of Infinite Treasure* and *A Discovery of Subterraneall Treasure*) were trying to construct solidarity as both the instrument and the goal of a program of amelioration (Appelbaum 2002: 117). In *A Discovery of the Infinite Treasure* Plattes claims in the Epistle Dedicatory to prescribe approved medicine” of ‘new inventions’ which should help to make ‘this Country the Paradice of the World’, while in fact the book offers few concrete proposals.

... there is no approved medicine but this, in an over-peopled Commonwealth to wit, good improvements of the earth; which may be effected by the new inventions contained in this Booke: and there is nothing wanting but willing mindes to make this Country the Paradice of the World. (*A Discovery of the Infinite Treasure*, A3)

These two books were very popular, frequently read and quoted, even if they say little which can be considered a revolution in husbandry. What is important is the fact that these two books contain elements developed by Plattes in later works such as the importance of husbandry based on innovation and intensive schemes of agriculture for the enrichment of the nation, the inutility of war, the metaphor of the hive used to describe the growth of the population seen not as a liability but as a driving force of agricultural innovation, and the idea of erecting a College where this new science could be thought, ‘The College for Inventions in Husbandrie’. *A Discovery of Subterraneall Treasure* deals more with transmutation, conducting experimental studies in refining metals but its importance relies on the fact that it assumes scientific foundations and directions according to a social ethic derived from religious premises. This book worked to establish an ethic of organized and scientific labor and settled the ground for the ideas elaborated in the *Infinite Treasure*. In fact, Plattes announced the *Infinite Treasure* in the pages of the *Subterraneall Treasure*. The treasure that Plattes speaks about in his second book, *Infinite Treasure*, is the treasure of husbandry:

<sup>2</sup> For Plattes’ attitude toward the common use of knowledge see *A Discovery of Subterraneall Treasure*, The Epistle Dedicatory, B2: “And to Divulge my knowledge, and experience in these affaires for the common profit”; *The Profitable Intelligencer*, HP, PAM 17, sig. A1–v: “...for knowledge that concerneth the public good, ought not to be concealed in the brests of a few”; “all which reserved Knowledge in particular Brests is against the Wealth of the Publik, and therefore ought to be made common to all or else this Designe cannot prosper, nor the Kingdom flourish according to my desire”; *A Caveat for Alchymists*, HP, PAM 54, 52: “is a fundamental point in my Religion to do good to all men, as well enemies as friends”.

This treasure consisteth of improvements in Husbandry, whereof the least is inestimable and infinite, for that thereby so many lives present and future are maintained. (*A Discovery of the Infinite Treasure*, C2)

God hath given understanding to man to improve the earth in such a wonderful manner. (*A Discovery of the Infinite Treasure*, C3)

He believed that the poor would be assisted more by productive labor than by charity. If his methods were adopted, the poor people would be able to improve their estate, everything being connected to the wealth of the nation. When he talked about regular planting and better manure provisions, he planned to solve economic and social problems. So, his first task was to convince his audience to become aware of the importance of this goal, to become actively involved in the social distribution plan and to put his recommendations into practice.

And if men should spend their spare time in planting, grafting, and improving their land, which now they lose; judging it as good to play, as to work for another, it would make an excellent mutation in Husbandry in an age or two, and very profitable for the general good of the posterity. (*A Discovery of Infinite Treasure*, 28)

In *Macaria*, his proposals for economic planning and development placed at the very core of reformation the assumption that public good follows directly from private profit. People may best help their country by helping themselves. He insisted that landowners may hold their land only so long as they observe certain social and moral obligations that are fulfilled not by seeing to the direct welfare of their own farmers, but rather by the maximization of production and profit, which will contribute, indirectly but still, to the common welfare. A system of progressive taxation is advocated for those who failed in improving their lands.

*Traveller*. Also they have established a law, that if any man holdeth more land than he is able to improve to the utmost, he shall be admonished, first, of the great hinderance which it doth to the Common-wealth. Secondly, of the prejudice to himselfe; and if hee doe not amend his Husbandry within a yeares space, there is a penalty set upon him, which is yeerely doubled, till his lands be forfeited, and he banished out of the Kingdome, as an enemy to the common-wealth. (*Macaria*, HP, PAM 07, 4)

In describing the way a good society should work, Platts used the metaphor of the hive. The image of industrious bees working together, an image also used by Bacon in the *Advancement of Learning*, is descriptive of people working together for the public good. People should not work only for the sake of their private interests, but they should work, like the bees, for the community's sake, for the public good.

Even as we see in a Bee-hive, though every Bee bring but a drop of honey at a time, yet it maketh up a weightie masse and many of these masses put together, do make uo the greate masse, which I have seen at Sturbridge Fayre, which is able to amaze a man, that beholdeth it. (*The Profitable Intelligencer*, HP, PAM 17, sig. A1–v)

This is the “infinite treasure” discovered by Plattes, humanity itself, which is able to work and live happily together, enriching itself through good measures of husbandry able to regulate rationalized cooperative behavior (Appelbaum 2002: 119). Beekeeping was an important part of ‘spiritual husbandry’ and did not only offer a solution in economy, but also promised to yield ethical and political benefits by promoting the godly discipline traditionally associated with bees (Leslie, Raylor 1992: 9). In general terms, bees were regarded as having impeccable ethical character, being clean, and industrious. The social structure of the hive was seen as a model of rational organization and discipline, being a commonwealth in which there was a strict division of labor and property. Hartlib and the members of his Circle saw in the pious industry and good husbandry of the bees a natural analogue for their own public-spirited endeavors and in the discipline and full employment of the hive an image of the godly commonwealth they were trying to establish. Samuel Hartlib published in 1655 *The Reformed Common-Wealth of Bees*, Timothy Raylor arguing that the beekeeping scheme represents a clear line of continuity between the Hartlib Circle and the Royal Society, adding further weight to the claims made by Turnbull and Webster for the influence of Hartlibian ideals, methods and personnel on the new institution (Raylor 1992: 116; Turnbull 1953: 101–30; Webster 1975: 88–99).

But people should be taught how to improve their lands. Plattes suggested that this educational function could be solved by erecting a college dedicated to the study of the new husbandry, like the College of Inventions in Husbandry.

... these things being duely observed, will produce more generall benefit, then many greater studies; and seeing that Husbandry did not onely build, but also maintaine all Schooles [...] we will erect a College for Inventions in Husbandry, in retribution of their former supplies to Learning. (*A Discovery of Infinite Treasure*, 72)

Propositions for ‘husbandry learning’ were also made in *Macaria*, Plattes talking about a Councell of Husbandry, able to enforce laws regarding both agriculture, administration of the land and the relations of landlords and tenants, and in *The Profitable Intelligencer*, where he talked about a Council of Husbandry composed of experienced practitioners. This idea was taken up by Hartlib (The Office of Address), Boyle (The Invisible College), and Cressey Dymock (the College or Society of Good Husbandry).

### **The New Husbandry and the Scientific Agriculture**

The former agricultural writings were criticized by Blith and Austen because they failed to provide a 'rational' and 'experimental' basis for their practice (Plattes 1644: sig. A2r; Austen 1658). The new writers on agriculture aimed at expressing their advice on the first-hand experience of current practice. They have found inspiration for such an approach in Bacon's experimental philosophy, and they consciously attempted to frame their agricultural writings in Baconian terms (Webster 1975: 470–1). Austen even composed a brief tract based on Bacon's aphorisms about husbandry (Austen 1658). But, while Baconian science became an integral part of plans for economic and social development, the followers of Bacon aimed at becoming 'servants' or 'ministers' of nature. The experimental philosopher was confident that his dedication to social service, open communication of useful knowledge and adoption of rigorous empirical procedures, were consistent with his Christian moral code.

Puritans discovered in Bacon's natural philosophy a coherent system consistent with the ethics of direct participation in the transformation of the world (Matei 2011: 51–65). It was also framed with reference to the millennial expectation of man's dominion over nature. Hence it is not surprising that Bacon's experimental philosophy, Puritan ethics, and millennial expectations were assimilated into the general rhetoric widespread among members of Hartlib Circle and influenced the new approach on husbandry. By tilling the soil, by taming the wild, by making the sterile fertile, members of the Hartlib Circle were sure that they could have been able to provide the pattern for salvation (Di Palma 2004: 176–7).

The advancement of learning and the dominion of man over nature were important elements in the eschatological scheme. Millenarianism influenced puritan attitudes toward the natural world; it induced an increased confidence in the capacities of the human intellect to control nature using an active and exploratory approach. In the Garden of Eden, Adam had dominion of all creatures; this position could be restored but only on condition that he displayed an active scientific curiosity about his environment (Milton 1667: IV 436–9). Puritan ethics of direct participation appeared to mark the time appointed for the restitution of man's dominion over nature.

Hartlib believed that new truth must be extracted from the Bible. The truths of Scripture were to be extracted by experimental science to the prophetic books of the Bible. So, the Baconian science was adequated to the expectation of the Millennium (Trevor Roper 1984: 253). In the Millennium man would be restored in his original perfection and enjoy once again the paradise estate that Adam had forfeited. The knowledge of



gardening becomes a very important piece of knowledge in the millennial context because gardening and husbandry were the major prelapsarian occupations (Parry 1992: 137–8). Another source of inspiration was Virgil's *Georgics* (Law 1985). The advices on practical husbandry contained in the Virgil's *Georgics* were read with great seriousness, and the poet was regarded as a key figure in the exploration and investigation of the natural world. The variety of topics discussed in the *Georgics* also inspired a broad approach to natural philosophy and authorized philosophical elite to devote itself to the study of nature and experimental philosophy (Leslie 1992: 168). But the concern with redeeming the time and the fascination with paradise gardens, along with the spiritual fulfillment that might be gained in them, suggests that georgic husbandry was authorized to some degree by the millenarianism that persisted throughout the decades of the mid-seventeenth century.

The pansophic plans promoted by members of Hartlib Circle can be considered another source of inspiration providing some of the necessary elements for the development of husbandry. Pansophia provided a unifying principle for the diverse ideas regarding the advancement of knowledge and piety, counteracting the secular tendencies of Baconianism and furnished a basis for practical proposals (Webster 1970: 24). Through education the Kingdom of God came within the reach of each generation. The new pedagogy sought to 'cultivate' the children's minds in the same way as one will 'cultivate' the trees and the plants. In order to restore the qualities lost in the Fall, education should enhance the study of nature as the main way in which one can understand and glorify God. Efficient education for all sections of the community was a necessary condition for achieving mastery over nature and subsequent social amelioration (Webster 1975: 103).

Millenarianism also provided an incentive for social welfare proposals. Implementation of the new schemes of husbandry was expected to initiate social gradual improvements which would lead ultimately to a replication of the conditions of life associated with the Garden of Eden. Thus the attitudes towards science were framed with reference to their general economic and social programs. Although husbandry, scientific agriculture and more general economic policies were increasingly framed with reference to a collection of data and thus the new science, they never undermined the intentions of economic and social amelioration. The schemes regarding the better cultivation of fruits trees or bee keeping were clearly issued from the spirit of ameliorating the society and they were designed to enrich the nation (Dickson 1998: 145).

In this context, there is no surprise that one of the central methods by which the members of the Hartlib Circle sought to study God in nature

was the practice of husbandry. Husbandry seemed to be the activity that was as close as possible to the activity of Adam in the Garden of Eden. Hartlib wrote that husbandry was “the most profitable Industry unto Humane Society; wherein the providence, the Power, the Wisdom and the Goodness of God, appears unto man more eminently then in any other way of Industry” (Hartlib 1651b: sig. A2v). The first writer embracing the expression of this new tradition of agricultural writings was considered to be Gabriel Plattes (Webster 1975: 471).

Plattes considered that the Kingdom of God on earth required equal attention to spiritual and bodily needs. Bringing the paradise on earth was considered to be the result of everything appertaining to the control of the natural world. Plattes was confident that England was rich in mineral resources but exploitation and exploration have been neglected, owing to the inadequacies of the practitioners and the failure to take advantage of technological improvements. Also, he was confident that a better administration (in the sense of good methods of husbandry of the land such as exploration, exploitation, improvement of the land) could solve the problem and bring prosperity for the whole nation (Plattes 1639a: The Epistle Dedicatory, A3). Good inventions and good measures of husbandry of the land based on a keen observation of the nature could help to enrich the country. Plattes claimed to have been since childhood ‘a strict observer of the great losse that came to this Country, partly through ignorance, and partly through negligence, in rayfing that benefit out of the superficial, the subterraneall Treasures of the Earth’ (Plattes 1639b: The Epistle Dedicatory, B.1). It seemed he was in the perfect condition to approach such a task and to elaborate intensive schemes of husbandry in order to bring the Kingdom of God on earth. Plattes, like an experimental philosopher, was confident that his dedication to social service, open communication of useful knowledge and adoption of rigorous empirical procedures were consistent with his Christian moral code. Good measures of husbandry of the land were in the same time good measures of husbandry of the soul and strict application of these measures would have been able to bring economic welfare and religious salvation. Plattes adopted an empiricist approach to knowledge and his experience in mining and agriculture was similar, both calling out for rationalization and innovation. All his work was elaborated under the strict conviction that if his advices were to be followed, England would reach salvation both from an economic and religious point of view. Recognition of the economic and religious implications of experimental science was apparent in Plattes’ first publications (1639) and again in *Macaria* (1641). If in his first two books (*A Discovery of Infinite Treasure* and *A Discovery of Subterraneall Treasure*) his interest was focused more on mining, metallurgy and intensive schemes of

husbandry. Starting with *Macaria*, he became interested in other industries such as the application of chemistry to such diverse operations as the preparation of medicines (Plattes 1641). The College of Experience, an institution reminding of the Baconian Solomon's House, both in its functions as an institution of the state and in its particular scope of experimental investigation, was consistent with Hartlib's Offices of Address (The Office for Accommodations and The Office for Communications) and with Boyle's Invisible College. Another tract on husbandry was issued by Plattes in 1644, *The Profitable Intelligencer*.<sup>3</sup> This tract was intended to be an advertisement for a wider work entitled *The Treasure House of Nature Unlocked*. Unfortunately, this book has never been published. In another short essay, called *A Caveat for Alchemist* (1655), Plattes argued that alchemical transmutation was possible in principle but he stressed the importance of first hand knowledge in mineralogy, chemistry and natural history.<sup>4</sup> Plattes' methodological principles were expressed in accordance with Bacon's experimental philosophy, conducting experimental studies in refining metals and proposing theories to explain geological phenomena (Debus 1961: 162–5). In fact, transmutation, mining, metallurgy, and chemistry were regarded as subsidiary long term objectives while the most important objective was to elaborate proper methods of husbandry able to improve the land and the soul.

### Medicine and the heal of diseases

The Baconian tradition of experimental science is advocated also by Plattes when he talks about medicine. The College of Experience imagined in *Macaria*, a research institution, reminiscent of Solomon's House in *New Atlantis* and the experimental laboratories in Andreae's *Christianopolis*, have as major tasks to gather materials for the advancement of knowledge and to adopt practical solutions. Members of the College of Experience, being doctors and diviners as well, are in care of the body and soul and their activities are dedicated mainly to providing medicines which can heal the body and soul. "The Colledge" also supervises the training of parsons (medical doctors, too), looking after the sanity of both body and spirit, *cura animarum et cura corporum*. This is a very original interpretation of the Baconian project of Solomon's House. The main function of Solomon's House is to relate the natural and the divine knowledge, and this

<sup>3</sup> Later included as *Mercurius Laetificans* in *Samuel Hartlib, His Legacy* (London, 1655).

<sup>4</sup> G. Plattes, *A Caveat for Alchymists* (1643) included in S. Hartlib's *Chymical, Medicinal and Chyrurgical addresses* (London, 1655), HP, PAM 54, 52.

function is rediscovered inside the “College of Experience.” Plattes translated the general medical aspects of Solomon’s House into more practical terms. The members of the “College of Experience” make experiments with new medicines and new treatments and apply them to the inhabitants of Macaria, but also cure their souls. Plattes has drawn upon more than one tradition here. There are some elements (such as the study of mining and metallurgy) which can be related to the Paracelsian tradition of “the cure of body and soul” (Debus 1965). The ideal person both being a physician and a diviner must know in detail the patient’s disposition of body and soul in order to select a proper cure.

*Schollar.* But you spoke of health, how can that be procured by a better way than wee have here in England?

*Traveller.* Yes very easily; for they have an house, or College of experience, where they deliver out yeerly such medicines as they find out by experience; and all such as shall be able to demonstrate any experiment for the health or wealth of men, are honourably rewarded at the publike charge, by which their skill in Husbandry, Physick, and Surgerie, is most excellent.

*Sch.* But this is against Physicians.

*Trav.* In Macaria the Parson of every Parish is a good Physician, and doth execute both functions, to wit, *cura animarum*, & *cura corporum*; and they think it as absurd for a Divine to be without the skill of Physick, as it is to put new wine into old bottles; and the Physicians being true Naturalists, may as well become good Divines, as the Divines doe become good Physicians. (*Macaria*, HP, PAM 07, 5–6)

Plattes’ view upon medicine stressed not only the aspect of treating several diseases of the body but also includes the aspect of treating the soul as well. He mixed several influences (the Baconian tradition of experimental science, the Comenian idea of a pansophic system of learning, Andreae’s perspective upon the purposes and use of laboratory, the Paracelsian tradition of curing the body and soul) but added some personal contributions such as the perspective on medicine seen as a “husbandry” of the body and of the soul, and his determination to make the state responsible for the health and the wealth of the nation. Husbandry of the land, the study of the properties of metals, minerals and vegetables, collects not only elements which can contribute to the advancement of learning in the field of agriculture but also elements which can treat several diseases and cure the body and soul of the fallen human being. Abilities in treating plants are the same abilities needed to heal the body and soul; good measures of husbandry of the land are also capable to provide rules and principles for the husbandry of the soul.

### The New Pedagogy

Inspired from the Puritan and millennial rhetoric, the view on education placed at its very core the desire to restore the condition held by man prior to Fall, regarding the new pedagogy as a method of cultivating the mind. This drew familiar comparison between the process of education and the cultivation of plants, a theme influenced by both the terminology and metaphors of Bacon and Comenius. The dominant features of the new education are practical divinity and the empirical sciences, the guides to moral behavior and material well-being. Reforms of educational practice and the accompanying new pedagogy were closely related to arguments about how to restore Adamic knowledge (Harrison 2007: 149). Through education the Kingdome of God came within the reach of each generation, but failure to exploit its potentialities had perpetuated man's ruinous condition (Webster 1975: 101). Education was both seen as a possibility of salvation and as a source of perpetual reminder of human failure. Comenius in *Didactica magna* (Comenius 1916) spoke about the cultivation of "those plants of Paradise, Christian children" constantly overcome by thorns and brambles, highlighting the idea of cultivating (husbanding) the human mind. John Dury also emphasized the idea that education was performed under God's grace, considering the teacher involved in a divine rather than secular mission (Dury 1628: HP I 27). Schoolmasters were as necessary as ministers in guiding society towards New Jerusalem. God has sown the seeds of virtue. It is our responsibility to plant and cultivate. Teachers, physicians of the mind ('medicos animarum'), having apprehended the nature of virtue, have in it their power to see the origins of all vices and replace them by virtue. By 'celestial agriculture' the new pedagogy allows the teacher to harvest the fruits of knowledge and lay the foundation of the 'celestial state'. Efficient education for all sections of the community was a necessary condition for achieving mastery over nature and subsequent social amelioration. According to the new pedagogy, teachers have the power to provide a remedy for the diseases of the church and state, playing thus a crucial role in the reformation of the church and the state (Webster 1970: 11).

For schooles the beste my thoughts can yet suggest is the hauinge in auery parishe of the Kingdome a man that in the churche showlde reade the Scriptures, & in the woorke dayes showlde teache the youthe eury one accordinge to their Capacities & be answerable (to ouerseers) for thiere education of this his little cure, as the pastor id for those which are growen vp, (Letter Sir Cheney Culpeper to Hartlib, 28 January 1645, HP 13/69A)

The aim of education is to produce 'good commonwealth men', replacing the aim of scholastic learning by ideals of public service. The degree of 'usefulness' or 'practical' application is the new criterion for judging the

value of knowledge. Pansophia, eagerly embraced by members of Hartlib Circle, provided a unifying principle for diverse ideas of the advancement of knowledge and piety, contributing to the aim of education seen as a way of restoring the condition and the knowledge that human beings possessed prior to Fall.

Plattes' view on education was inspired from this tradition. Being constant to the criterion of 'usefulness', he values most the practical application of education, designing the new pedagogy in accordance with the principles of husbandry.

... these things being duely observed, will produce more generall benefit, then many greater studies; and seeing that Husbandry did not onely build, but also maintaine all Schooles, I could wish that it was better fortified, being the very foundation of a prosperous Common-wealth, and if every one would equalize my benevolence, who have reaped double benefit out of the Schooles: we will erect a College for Inventions in Husbandrie, in retribution of their former supplies to Learning. (*A Discovery of Infinite Treasure*, 72)

New methods of pedagogy could bring salvation in a religious manner. In *Macaria*, the parsons – medical doctors too, are real physicians of the mind curing the vicious body and soul from tares and replace them with virtues. Webster (1972: 46) claims that Plattes haven't made any reference to educational reform in *Macaria* but I would suggest that we can credit Plattes for introducing some educational reformation elements. The pedagogical aspect of knowledge in *Macaria* involves a new type of learning and a new type of science which can connect natural philosophy and divine revelation. The idea of parsons-medical doctors contains in itself the idea of educational reform. Their main function is to cure the body and soul using a special pedagogy based on medical and philosophical remedies. The parsons should administer medicine in the course of pastoral duties, curing them of vices, planting virtues and teaching (using a new pedagogy based on the principles of good husbandry) how to cultivate them. I would say that in *Macaria*, Plattes went beyond his predecessors claiming that state institutions should be actively involved in this mission, being credited to play a crucial role in the reformation of the individual, the church and the state. *Macaria* was addressed to the 'High an Honourable Court of Parliament', aiming to bring attention to reform projects regarding politics, religion, economic development, and education, projects developed within the Hartlib Circle by people like John Amos Comenius, John Dury and the inventor Gabriel Plattes. In *The Profitable Intelligencer*, he proposed a Council of Husbandry composed of experienced practitioners, while in *A Caveat for Alchymists* he manifested his intention to speak in the front of Parliament about his propositions of establishing a Laboratory where to test his new inventions and methods.

But now I have been a Petitioner to the High and Honourable Court of Parliament, that I may demonstrate my ability, to do the Common-wealth of England service, which service consisteth in three things principally, to wit, to shew how the husbandry of this Land may be so improved, that it may maintain double the number of people which now it doth, and in much more plenty: also to shew how the Art of Physick may be improved: and lastly, to shew the Art of the transmutation of Metalls, if I may have a Laboratory, like to that in the City of Venice, where they are sure of secrecy, by reason that no man is suffered to enter in, unless he can be contented to remain there, being surely provided for, till he be brought forth to go to the Church to be buried. (*A Caveat for Alchymists*, HP, PAM 54, 87–8)

Plattes announced that he had petitioned the Parliament by proposing reforms regarding husbandry, medicine and education, as well and based on his former ideas presented in *A Discovery of Infinite Treasure* and *Macaria*, we can credit him to depict a kind of Laboratory with a view toward the advancement of education, inspired from Andreae's laboratories. In fact, it seems that there is no record of Plattes' having in fact petitioned the Parliament, Hartlib telling later to Winthrop that Plattes never made any demonstration in front of the Parliament of the possibility of the Lapis.<sup>5</sup>

Even if Plattes did not succeed in his attempts to address the Parliament, for sure he had a great deal of influence upon his contemporaries. Hartlib's Office of Address of Accommodations and the Office of Communications have drawn upon more ideas, some of them formulated by Plattes. While the Office of Accommodations served less educational purposes, the Office of Communication formed the basis of the state patronage of learning, an idea former expressed by Plattes. Shortly after Plattes' death, Robert Boyle's Invisible College (1646) also proposed a project for the advancement of learning, focusing its work on chemical laboratories.

### Conclusions

In this paper I have tried to connect the Baconian legacy of advancing knowledge and the works belonging to one of the Samuel Hartlib Circle, members, Gabriel Plattes. I have shown the way in which Hartlib used the Baconian theme of "the advancement of learning" as a device to promote collaboration inside his circle. The essay has traced an undulating line that begins with Bacon's natural philosophy and experimental tradition, next turns to Puritan ethics of direct participation in the transformation of the world, then tracks millennial and pansophical influences, integrates all

<sup>5</sup> Copy letter in scribal Hand?, Hartlib to John Winthrop the Younger, 16 March 1660, HP 7/7/2B.

of these in the atmosphere of the Hartlib Circle, and finally argues that Gabriel Plattes made a significant contribution to the development of the seventeenth century new husbandry. Proper methods of husbandry were considered able not just to ‘heal’ the land but also the fallen human being. Measures of husbandry were supposed to contribute to agricultural innovation and general economic reform, restore the plenty of Eden and bring undreamed of prosperity. Experimental medicine would solve the problem of diseases, curing the vices of the fallen human being, while the new pedagogy would plant and cultivate the virtues.<sup>6</sup>

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