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# Maria Thun

## An appreciation

### 24.4.1922 – 8.2.2012

*By Bernard Jarman*

Mention biodynamic gardening to a random group of people and the likelihood is either a blank stare or a comment such as “ah, sowing with the moon” and maybe even with a background chuckle about sowing seeds by moonlight! For many people, at least in the English speaking world, biodynamics has become almost synonymous with Maria Thun’s *Sowing and Planting Calendar*. Although some feel its dominance detracts from the core message of biodynamic agriculture, it has nonetheless played and will no doubt continue to play a vital role in its further development. The success of the calendar is due partly to a popular longing to feel once again connected to the stars as well as to the tireless efforts of its author. Throughout her life she never rested in her quest to understand the influences that stars, moon and planets can have on the growth of plants.

#### **EARLY INSPIRATION**

Maria Thun was born on a small farm in the village of Grossfelden near Marburg in Hessen (mid-Germany). As a child she was fully engaged in the life of the farm and learnt to work hard from an early age. Her family was devoutly protestant. Those early formative years gave her not only strong agricultural roots, it also gave her a deep affinity to nature. In spite of or perhaps because of her protestant upbringing she continually challenged and questioned what she saw around her. This questioning became second nature to her and helped hone her exact observational ability – a skill which prepared her well for life as a scientist.

She described how her father had a very important role in their village community. In those days it was still the case that all the village farmers worked together and shared out tasks between them. Her father was the one responsible for sowing the grain and choosing the most favourable day to do so. She watched him and observed closely how he would carefully look at weather conditions around sunrise and sunset, meditate upon them and then choose the best ▶

available day for sowing the community's grain. He was always right and this impressed her so much that when she later came to investigate the movements of moon and planets she was determined to discover whether similar results could be achieved through a conscious understanding of their movements.

She spent the war years working as a nurse. During this time she got to know her future husband Walther. He taught art in the Waldorf school and loved Goethe. He was also an artist in his own right and had a great passion for creating murals. He painted many smaller pictures too some of which have been reproduced in the calendar. Today his works hang at the farm in Dexbach in a space specially converted to house them in his memory (he died some 25 years ago). It was through Walther that Maria learnt of anthroposophy and found out about biodynamic farming. He told her of some biodynamic farms in Thuringen which they then visited together. She was so impressed by what she saw that she immediately knew; biodynamic agriculture was to be her life's vocation.

### RESEARCH MUST RELATE TO FARMING PRACTICE

Soon after this she met Franz Rulni, one of the few people still alive at the time who were present during the Koberwitz course in 1924. He had worked intensively with Steiner's agricultural impulse and had over the years developed a planting calendar. This calendar was based primarily on the moon's phases, the rhythm of apogee and perigee and on the nodal cycle. He gave recommendations for plants and especially for livestock. Maria Thun was very impressed by this and resolved to find out how compatible this new agricultural method and the Rulni calendar would be with the farming experience of her youth. This was a signal question of her life. Whatever research she undertook and however far it might take her, she was determined to ensure that it always had a practical farming relevance and could link on with experiences she made on her own farm.

When the war ended Maria and Walther got married and started a family. They immediately looked for a small piece of land on which Maria could grow vegetables for themselves and their two young children, Christina and Matthias. It was also to be the place where she would test out the Rulni calendar and begin some garden scale trials. In 1952 she started the first of her radish trials. She chose a four week period in spring that Rulni's calendar had indicated was good for growing the crop. She decided to sow radishes every day during that time and found as she expected that all the plants grew well. When she observed them more closely however she noticed some distinct differences between them. The differences were particularly apparent in their top growth. She also discovered that changes occurred approximately every three days.

She pondered the cause of these differences and consulted the astronomical ephemeris. Looking through the data she realised that these changes occurred as the moon passed from one zodiac constellation into another. During the course of the next nine years she repeated the experiment with different crops. She noticed that some crops (like radishes) did particularly well when sown with the moon in front of the constellations Taurus, Virgo and Capricorn.

Beans on the other hand thrived when sown with the moon in front of Aries, Leo and Sagittarius. Through her study of traditional astrology she knew that to each of the constellations was allocated one of the four elements (fire, earth, air, water) and that each element is connected to three of the twelve constellations. Looking at her research results she then realised that the best radish crop grew when the seeds had been sown with the moon in 'earth' constellations (Taurus, Virgo, Capricorn). This led her to the hypothesis that the four parts of the plant (root, leaf, flower, fruit/seed) bear the quality of the four elements (earth, water, air, fire/warmth). With this picture she was then able postulate that sowing with the moon in 'earth' constellations would benefit crops grown for their roots. Further sowing trials confirmed this for her and in 1962 she produced her first calendar.

Her research trials went on continuously for nearly 50 years. Many are still waiting to be fully evaluated. There was always something new to discover, something new to explore. Once the link to moon constellations had been established further anomalies began to appear. She gradually pieced together other effects from both the moon and other planets - the moon's perigee and apogee, its nodal cycle and the positions of moon and planets in relation to one another. She found for instance that 'trines' (when sun, moon or planets are at an angle of 120° to one another) are particularly beneficial, while 'conjunctions', eclipses and 'quadratures' (90° angles) are not.

### A NEW PLANET

As the years went by Maria Thun found other less immediately obvious influences affecting the way her plants grew including whether a planet is in retrograde movement or not. She also explored the effects of the outer planets Uranus, Neptune and Pluto. Her observations became so refined that she was even able to postulate the position of an as yet undiscovered planet way beyond Pluto which she called Ringall. In her book *Work on the Land and Constellations* (now out of print) she wrote: "Ever since the mid-fifties, we have found again and again, in connection with our plant and weather observations, that definite spells of cold weather occurred whenever the moon reached a certain longitude in the zodiac. However also with quadratures and other constellations at this point there followed two or three cold days. When we examined this more closely and asked friends in other districts for their observations we were able to discover that we were not dealing with a set point in time but a situation which was gradually moving." She then goes on to suggest that these effects are being caused by a slow moving planet beyond the orbit of Pluto, a planet moreover which accords precisely with the time rhythms of the other distant planets and has a rotation round the sun of 333 years (see table). The influence she ascribes to Ringall is one of Coldness.

<b>Uranus</b> (electricity)	<b>7 x 12 years</b>	<b>84 year orbit</b>
<b>Neptune</b> (magnetism)	<b>14 x 12 years</b>	<b>168 year orbit</b>
<b>Pluto</b> (vulcanism)	<b>21 x 12 years</b>	<b>252 year orbit</b>
<b>Ringall</b> (coldness)	<b>28 x 12 years</b>	<b>333 year orbit</b>



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### SUBJECTIVE OR REAL?

Despite her convincing experimental results not everyone accepted them. When the trials were repeated by others they often failed to achieve the same results. Does this mean the results are dependent on the person carrying them out? Are they therefore simply subjective? Some voices even questioned whether it was wise for the biodynamic movement to be so closely associated with her work. On the other hand countless people across the world have confirmed her results on their farms in practice.

I first met Maria Thun at one of the biodynamic conferences at the Goetheanum. I had heard about her amazing research results and also the more negative mutterings about them. I had come across people who told me that her experiments simply could not be repeated and wanted to find out for myself. I therefore decided to attend the workshops she was giving during the conference. Her hour-long lectures were fascinating. She told less about her actual experiments but a lot about where she was coming from in her understanding. She clearly knew Rudolf Steiner's book "Occult Science" inside out. She had made it her own and was able to work with its thoughts and images so intensely that they connected in a very immediate and direct way to practical biodynamic work. For me this was a significant moment. I felt that her intimate grasp of Occult Science and the Agriculture Course together provided the context within which to understand and find affirmation in her experimental work.

On another occasion she mentioned to me that all her research trials took place within the context of the full range of biodynamic treatments, treatments that are carried out more intensively on her farm than in most places. She knew that when trials are carried out without the preparations being fully applied, the effects are far less visible. This is because the biodynamic preparations make the soil and plants more open and receptive to cosmic influences.

A few years ago I had the privilege of being able to visit Maria Thun for a few days at her home in Dexbach. There I saw firsthand one of her planting trials (probably one of the last she carried out). It was again with radishes sown each day during the course of a month. It aimed to show the differences between sowings carried out with the moon in each successive constellation and during other cosmic events such as planetary trines, conjunctions, nodes etc. I could see very visible differences between the vari-

ous plantings but most striking for me was the very poor quality of the radishes sown on the day when the moon was at its perigee. These roots were contorted, forked and worm eaten. This was for me a third confirmation regarding the validity of her work.

### BARREL PREPARATION

Her research was not limited to the exploration of cosmic rhythms. It was however always focussed on practical farming issues. One contribution in particular will I believe come to be seen as the most significant of all, perhaps even more than the planting calendar itself. It is the Barrel Preparation. The Barrel or Cow Pat Preparation was developed from earlier formulations (e.g. the birch pit preparation) created by the first biodynamic pioneers. Essentially this was a compost made from fresh cow pats gathered together, placed in a pit lined with birch wood and treated intensively with the biodynamic compost preparations. When mature it was sprinkled daily on accumulating manure piles. Maria Thun took this preparation and developed it further by adding ground egg shells and basalt meal to the mix and then moving (dynamising) it with a spade for a whole hour before putting it in a bottomless barrel half buried in garden soil, treating it with two sets of compost preparations and leaving it to mature.

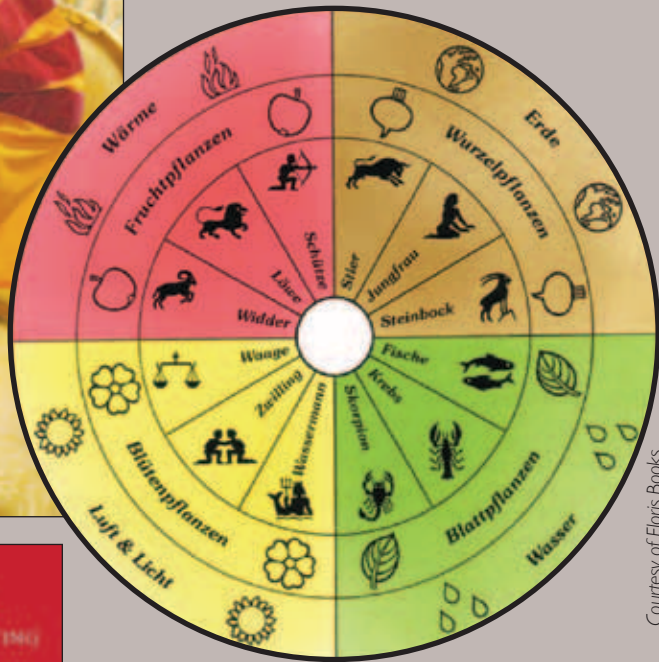
Specially interesting here is the inclusion of basalt in the recipe. Maria Thun firmly believed that the addition of basalt held the key to the preparation's success. Basalt is a young igneous rock formation originating from deep down in the earth's crust. Brought to the surface through volcanic activity, the flowing lava cools rapidly to a very dark and dense rock. In older basalt outcrops such as the Giant's Causeway in northern Ireland, the cooling lava formed itself into huge hexagonal columns - a phenomenon quite unlike that in other rocks. On the face of it one might consider dolerite a suitable alternative to basalt. It is after all a material of the same origin and with similar mineral constituents. Dolerite however, usually appearing between other rocks in the form of sills and dykes, was never exposed to the sun in its molten state. This sun exposure of the molten lava imbued it with a sun impregnated formative quality as it cooled. It became in effect a rock formed not just by the forces of the earth but those of the cosmos too. This is why according to Maria Thun basalt is so beneficial as an ingredient of barrel preparation.

Barrel preparation has a strong soil enlivening effect, stimulates humification processes and brings stability and balance to the soil. It is particularly valuable when added early on to manure accumulating in loose boxes, muck channels and in slurry tanks. Its effect is to stimulate the composting process, reduce odour and nutrient losses and ripen the material. It is usually applied by mixing a small quantity in water and spraying it where it is needed. It is particularly attractive for small scale gardeners with a composting box for whom it would be difficult to use the individual compost preparations. There are many other uses too and it has become a very important tool for the biodynamic farmer and gardener especially during the conversion period. ▶

Maria Thun ready to receive honorary degree



Maria Thun with Roses



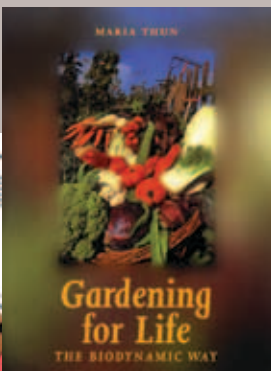
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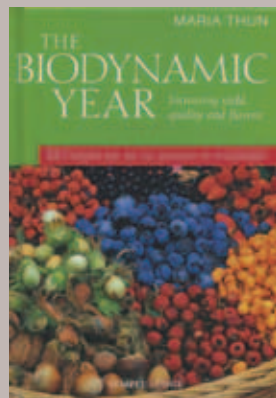
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Radishes sown when the moon is in different constellations



## RADIOACTIVITY

Another surprising discovery concerning barrel preparation is its ability to reduce the effects of radioactive fallout. Random tests carried out soon after the cloud of radioactive rain crossed Europe in the wake of the Chernobyl nuclear disaster, showed that where barrel preparation had been applied, less radioactive substances could be detected in the green leaves (notably of spinach) than elsewhere. The results surprised the German Agriculture Ministry and so they agreed to participate in controlled trials to find out if barrel preparation could reduce the uptake of Uranium by plants growing in contaminated soils.

For this trial perennial rye grass was sown under glass in pots. Two variants contained soil with 15% by volume of barrel preparation and 36g/Kg of liquid barrel preparation. The other was a control treated with commercial fertilizer. A comparison was made for all variants using neutral soil and soil heavily contaminated with Uranium.

The plants growing in contaminated pots developed more fine root hairs in all three variants and produced about 30% more roots and all measured high levels of Uranium. Significantly less Uranium however was detected in the green shoots of the biodynamic variants with Uranium uptake being on average 55% lower. This suggests that barrel preparation helps to reduce the transfer of Uranium ions from the soil to the aerial part of the plant (full details of this research are available from BDA office).

## PEPPERS AND RHYTHMS

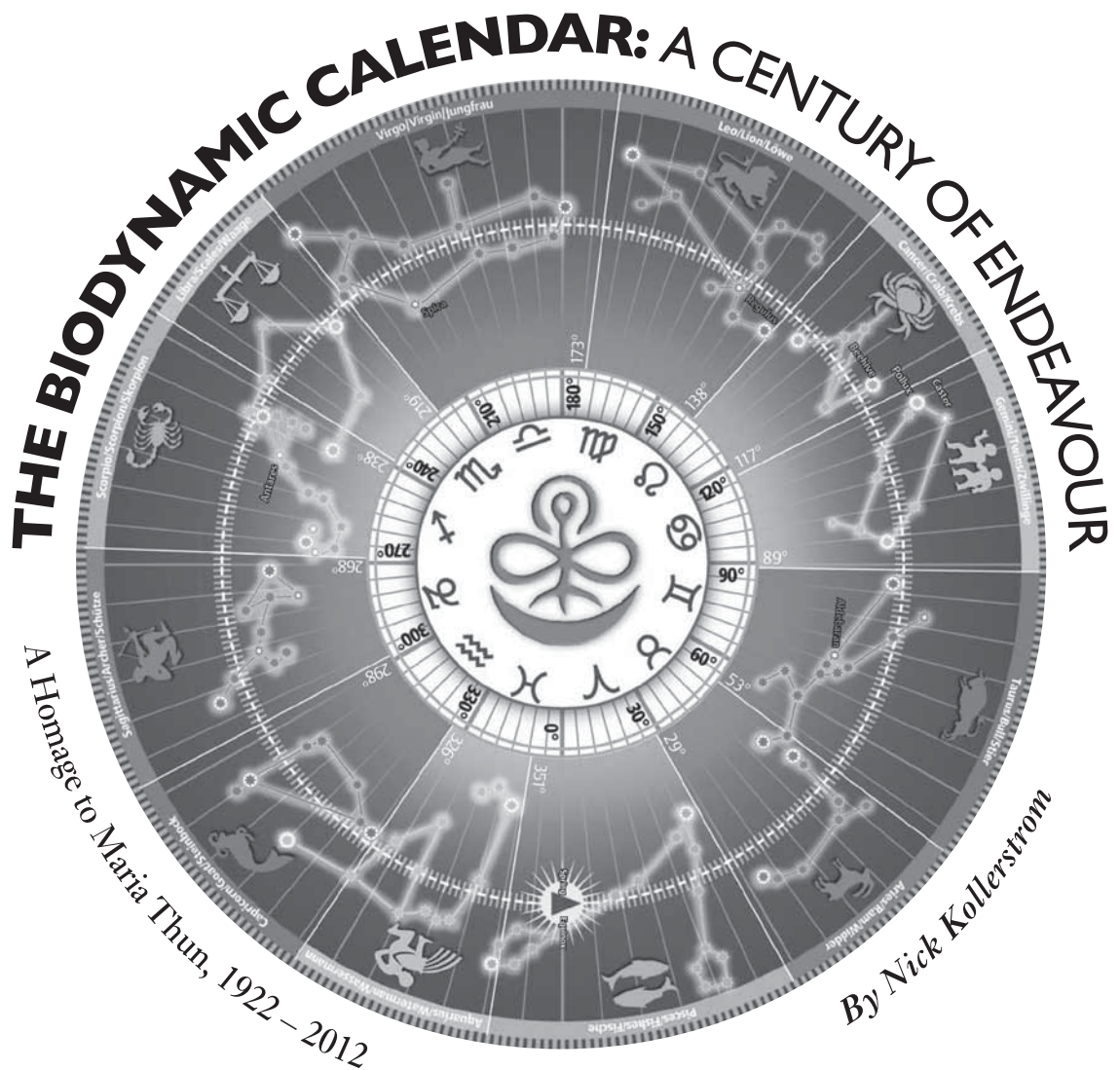
Another field of work to which Maria Thun devoted a lot of time and energy was that of peppering. In his Agriculture course Steiner spoke about ways of regulating weed growth, keeping pests in balance and holding fungal processes in

their rightful place. To do this required a knowledge of both the organism concerned and the constellational archetype to which it is connected. Maria Thun undertook many trials in this direction. She once described how they suffered regular invasions of wild pigs from the neighbouring forest - pretty disastrous for the field crops! She followed Steiner's indications and made a pepper from the skin of one animal, sprinkling it around the perimeter of the farm. It had an immediate effect and for seven years they had no more trouble. She also undertook trials with insects and weeds in a similar way. To make the application of the peppers easier she then developed the peppers as homeopathic remedies. This required many trials until she discovered that the most effective potency to use was D8. This has now become the recommended potency for all peppering.

The setting up of the publishing company 'Thun Verlag' by her son Matthias gave them financial security and more recently provided funds for the establishment of a well kitted out laboratory. In this way they were able to pay for everything through their own activity and especially through the income received from sales of the Sowing and Planting Calendar which is today sold worldwide and translated into more than 20 languages. Maria Thun prized her independence and once told me proudly that she had never sought any external funding. She also never once forgot her farming roots - she was a true peasant woman to the end. Everything was put to good use and nothing was wasted. I still remember seeing with amazement her huge larder packed with preserves, pickles and jars filled with the harvest from her farm, all of which she used to feed her many guests. I departed full of admiration for her absolute dedication to the farm, her family, her visitors and her research. ■



*Maria Thun on her visit to the UK*



**The oldest account of a lunar agricultural calendar in Europe, is the ‘Works and Days’ of Hesiod, composed in the time of Homer (1); different days of the (lunar) month were sacred to various deities, giving them different qualities. From that archaic, magical view of the ancient Greeks, there developed the Roman tradition whereby certain days or phases of the month were crucial, described in Pliny’s *Historia Naturalis* (chiefly in Volume VII) composed in about AD 60. Since then, these ancient traditions have splintered into diverse traditions of folk-belief.**

An outline of the historic sequence of events relevant to Biodynamic calendars follows. We take the liberty of starting in 1912 with the Rudolf Steiner movement developing a new awareness of the star-zodiac, so central to the Biodynamic calendar, and allude briefly to synchronous events involving the rediscovery of the ancient star-zodiac in the first half of the twentieth century (2).

**1912:** In Berlin, Rudolf Steiner recommended a new approach to the experience of the twelve constellations of the zodiac, and presented his *Kalendar 1912/13*. It gave positions for sidereal divisions of the twelve constellations, and ‘not only was the moon’s quarter given, but also the constellation occupied by the moon each day’ (3).

**1924:** Dr Steiner’s Agriculture lectures led to the founding of Biodynamic farming movement. He made the categorical statement that: ‘we shall never understand plant life unless we bear in mind that everything which happens on the Earth is but a reflection of what is taking place in the cosmos’ (4).

**1932:** A book by Guenther Wachsmuth about the four ethers appeared in 1932. These were envisaged as formative processes that worked throughout the realm of nature. While making many suggestions about them, it did not link these ‘four ethers’ as Steiner had described them with the Moon’s passage around the zodiac.

**1935:** An article entitled ‘The Significance for Seed-germination of the Passage of the Moon through the constellations of the Zodiac’ appeared in a British Biodynamic magazine (5). Its authoress Maria Hachez alluded to ongoing experiments showing the effect of lunar phase on seed germination, alluding to the work of Kolisko though without mentioning her name, and continued: ‘...in addition to the effects of the lunar phases, the influences of Cosmic forces having their origin in the passage of the Moon from one constellation of the Zodiac to another, could also be investigated. These further experiments have been carried out during the years 1930-1935, at the Observatory of the Mathematical-Astronomical Section of the Goetheanum, under the direction of Dr E. Vreede, and with the help of Herr Joachim Schultz. As they were followed up these Cosmic forces of the constellations could be discovered active in the building up of all matter, in the nature of the struc-

tural substances, and in all that brings about the finer differentiations of form, quality and taste.’

An experimental procedure was outlined: ‘Carefully selected seed of various plants was sown at intervals of two to three days, in long experimental beds in the open... We recommend others who may wish to try similar experiments, to sow the seed at the same hour in the morning or evening and at intervals of 2-3 days.’

Four decades elapsed before anyone in the UK tried this.

**1939:** Frau Kolisko, an Austrian who had come to England, due to rows within the Anthroposophical Society in Switzerland, wrote her pioneering work, ‘Agriculture for Tomorrow’ (6). It dealt with lunar phase rhythms in the realm of nature. Graphs indicated maximal seed germination on the days before Full Moon. Years of results (that have proved largely unrepeatable) were shown, of maximal crop yields for Full Moon sowings (7).

**1948:** Franz Rulni produced the first Biodynamic calendar, which lasted into the late 1970s. It contained advice on the mating of livestock and made predictions concerning gender of offspring. The Rulni calendar introduced the ‘obsi’ and ‘nidsi’ moons, from the Emmenthal valley in Switzerland, equivalent to what later became known as the ascending and descending moons. For example, a 1978 Rulni calendar advised for the month of June: ‘With the beginning of ‘Nidsi’ Moon, prepared compost should be spread on all mown meadows and pastures ... Good planting-out time’.

For November: ‘The nidsi moon period should be used for winter cultivation for seed beds for rye and wheat in order to enhance good root formation and tillering... Moon becomes nidsi: use next fortnight for cultivating fallow fields which will then keep clean and weed-free until spring.’

The fortnight of ‘nidsi’ is thus more important in the B.D. calendar than the obsi period, which is the other half of the (tropical) month. Of a May Full Moon in 1978, Rulni’s calendar advised: ‘Full and New Moon times are detrimental owing to the after-working of the eclipses in April. Especially inhibiting due to the node, Full Moon and Perigee occurring so close together. Once these are over and the ground has been well prepared get on with all important sowings.’

**1956:** Maria Thun in Germany had her idea about the four ethers/elements. While Maria Hachez had described supposed effects of individual constellations, Thun perceived the primary effect as emanating from the zodiacal elements. Thun started sowing rows of radish, then other annual crops, and at first it appeared to her that root growth began when the Moon reached its descending node. From observing radish, she came to realize that the plant should be viewed as a fourfold being: ‘I suddenly found that I had discovered a law of life that governs plant growth. Had the first breeders of our cultivated plants an insight into this law? The discovery of this fourfold nature of the plant was an undreamed-of reward for the work of many years.’(8).

She envisaged these four stages as energized by the sidereal lunar orbit, and then realized, she said, that a lecture by Dr Wachsmuth had made the same claim. We may compare this with Robert Powell’s version of events: ‘It was Guenther Wachsmuth who first postulated (in a lecture) that since a certain element predominated in each of the four types, then the signs of the zodiac are likely to exert a corresponding influence. For example, the watery element is predominant in cabbages,

therefore the growth of cabbages should be enhanced by the signs of Cancer, Scorpio and Pisces. Thun proceeded to test this hypothesis’ (9).

She then investigated this pattern with a variety of crops: carrots, parsnips and scorzonera were tested as representatives of root-types; lettuce, spinach, corn salad, cress and a few brassicas as leaf types; zinnia, snapdragon and aster as flower types; beans, peas, cucumber and some tomatoes as fruit-seed types. Cucumbers sown on leaf days showed lush leaf growth but a reluctance to flower. Leo, she concluded, was especially beneficial for seed formation. Of what constituted good soil, she observed: ‘It is evident that it is a soil which though good cultivation with adequate dressings of compost has the power of receiving cosmic influences and transmuting them into processes necessary for growth, of being able to bring star-forces to activity within the plant whereby new qualitative relationships are brought about, producing food fit for man.’

Once Thun had decided to use the constellations, she turned to the ‘Sternkalender’ of the Anthroposophists which used unequal constellation boundaries. These had been derived from boundaries fixed by the International Astronomical Union in 1928. The I.A.U. had there ruled that thirteen constellations lay across the ecliptic. Anthroposophists modified these boundaries somewhat, and changed the number of ecliptic constellations back to twelve.

**1963:** Thun published her first lunar gardening calendar. There were two main differences between Franz Rulni’s calendar and the Thun calendar which became its successor: Thun removed the synodic or phase cycle, inserting in its place the four element sidereal rhythm. Both calendars were built upon four monthly cycles, but differed in their choice thereof. Rulni placed more emphasis upon the adverse effects of eclipses, as shown by the above quotation, while Thun only avoided the day of an eclipse. Rulni set great store on the usually favourable influences of the monthly Moon/Saturn oppositions, while in the 1970s the Thun calendar used no planetary aspects; they were incorporated into her calendar in the 1980s.

Over seven years from 1963 to 1970, Thun performed systematic trials chiefly using potatoes and these were later written up jointly with statistician Hans Heinze. Her experiments (10) were made on field plots in her large garden.

**1973:** Independent corroboration of the Thun effect appeared in 1973, when Dr Ulf Abele presented his research findings from growing barley, as part of a PhD on Biodynamic farming methods: he found that yields were increased significantly on ‘seed-day’ sowings (11). In 1977, Graf reported some fairly positive results with root crops and different soils (12). Experiments in Britain (organized by this writer) also were first reported in 1977 (13).

**1978:** The US Kimberton Hills Agricultural Calendar began (nowadays ‘Stella Natura’), with recommendations very similar to the Thun calendar (14). It gives various celestial events, conjunctions and oppositions, lunar and planetary each month which the Thun calendar does not.

**1980:** Two new cycles appeared in the Thun calendar: that of apogee/perigee, then in 1981 the nodal cycle (15). These transferred over from Rulni’s calendar, but it is not clear how Rulni came by them, their use was not traditional. Up until then the Thun calendar had comprised solely the sidereal and tropical cycles (having the same 27.3 ▶

day period). Two components of the Rulni calendar which Thun never adopted were the phase cycle and the monthly Moon-Saturn oppositions. Then planetary trine aspects made their appearance in 1982. In the 1980s the mantle of siderealism descended on the booklet 'Planting by the Moon' by Best and Kollerstrom, We brought out a yearly Moon-calendar through the 1980s using the sidereal zodiac, when no other sidereal journal was functioning. We tried to integrate the insights of Kolisko (phase cycle) and Thun (sidereal), while rejecting that of Rulni (ascending-descending cycle). In the 1970s, both Robert Powell and the present writer had advocated use of this equal-interval Sidereal zodiac for the Biodynamic schedule (19).

**1984:** Dr Spiess began publishing reports describing his results from the late '70s and early 1980s. He carried out sequential sowing experiments with winter rye and radish, reporting synodic and perigee effects but finding no sidereal pattern in final yield.

**1993:** The American Llewellyn 'Moon Sign Book', which enjoys a larger annual sale than any other publication in this area (going since 1904), discussed the Biodynamic sowing calendar. It referred chiefly to the Kimberton Hills calendar, and summarized parts of Maria Thun's book, 'Work on the Land and the Constellations' in a fairly sympathetic manner. Concerning the irreconcilable differences in theory and practice, it struck an optimistic note: *'Even though the two systems differ so drastically (one system's fruitful dates may be the other system's barren dates) the reasons and basic tenets are the same.'* (16).

On this, we may demur.

**2001:** The new millennium saw a series of articles by Dr Ernst Zurcher working at the prestigious ETH college (where Einstein had worked) in Zurich, confirming the presence of synodic monthly and daily lunar rhythms in tree metabolism. Also, a comprehensive review of evidence for the 'Thun effect' was published in Biological Agriculture and Horticulture. It refuted Spiess's claim (17).

**2006:** The BBC filmed a successful Moon-gardening experimental trial by a student at the Royal Horticultural College at Kew, using this writer's lunar calendar. (18)

**2009:** A slim new Thun booklet 'When Wine Tastes Best' receives near-rapturous endorsement from top British wine-tasters, supermarket chains and even newspaper columnists; it was based on a polarity between the elements of Fire and Earth, where warmth-days lead to an experience of the best taste, while root-days are the worst.

**2010:** The London International Wine Fair annual meeting promotes Thun's new wine-taste fire-trigon theory. ■

## References

- (1) Hesiod, 'Works and Days' Loeb Classical Library, Heinemann, 1977.
- (2) See Michael Baigent, 'From the Omens of Babylon' 1993; 'Astronomy Before the Telescope', Ed. C. Walker 1996, Ch.3.
- (3) In 'Concerning Moon-Harmonics in Plant Growth' (Mercury Star journal, Winter 1978) I claimed that in 1976 Robert Powell had argued (MSJ, 'On the Divisions of the Firmament' Easter and Summer 1976) that Rudolf Steiner's indications concerning where the boundaries between the constellations should be drawn corresponded more closely to the Babylonian equal-interval sidereal zodiac than to the divisions nowadays embodied in the BD sowing calendar.
- (4) Rudolf Steiner's Agriculture, 1927, 1991 Edn. Kimberton, PA, p.27. The sole monthly cycle to which these alluded was the synodic, however they also referred to the 'ascending period' of Saturn. It seems that, by analogy, this has led to the Biodynamic adoption of the tropical month: Vreede 1936 (Ch.2, ref 23).
- (5) Maria Hachez, 1935.
- (6) Kolisko, Agriculture for Tomorrow, 1940, reprinted 1978, Ch.2. Ebertin (in The Combination of Stellar Influences, Aalen 1972, p.7) describes how Elizabeth Anna Kolisko (1998-1976) began her research in 1920 at the former Institute of Biology at the Goetheanum, Stuttgart, "into the effects of very slight quantities of elements, minerals and drugs (silver, gold, mercury, cadmium etc.) on plant life and growth." These experiments were followed by others studying the effects of solar and lunar eclipses as well as certain planetary configurations. She worked there for sixteen years, and her three-volume, 'Mittellung des Biologischen Instituts am Goetheanum' (Stuttgart, 1934-5) forms a fine introduction to her work, integrating the several aspects of her researches. In 1936 she emigrated to England with her husband Eugene Kolisko, owing to difficulties within the Anthroposophical Society (he was expelled in 1935) and they settled in Bray-on-Thames, London. In 1939 her husband, a medical doctor; died from a heart attack on a train coming to Paddington station at the age of 46. The couple were then all ready to start work on their magnum opus Agriculture for Tomorrow. She then moved to Edge, near Stroud in Gloucester and started work upon the book in late 1939. Named Elizabeth Anna, she called herself 'Lily' to avoid having the same initial as her husband and the book was published as authored by 'E. and L. Kolisko'.
- (7) Replications of this effect in the 1930s by others were however reported in: Kolisko, 1933, and in the June 1931 issue of the UK Bio-dynamics journal, pp.55-56.
- (8) Thun op. cit. 1963, p.5. Her discovery is described in Thun, 'Cosmic working in soil and plant of sidereal Moon-Rhythms' Mercury Star Journal Summer 1978, pp.42-51. Being familiar with Franz Rulni's calendar; she sowed several different batches of radish seed, and 'the shapes of the root-bulbs were so varied that this phenomenon gave me no peace.' She sowed radish batches daily, and the next year she let some go to seed, and 'Only then could one see that we had to do with 4 distinct types.' A few years later in 1956 she heard Dr Wachmuth's lecture about the four ethers in relation to the Zodiac.
- (9) Robert Powell, 'Lunar Calendar for Farmers and Gardeners', Mercury Star Journal summer 1977, p.55. This journal appeared quarterly for the five years 1975-9.
- (10) There is no experimental write-up of any Thun vegetable-growing trials, except those performed with Dr Heinze, a fact which (I was advised) contributes to the mood of skepticism that is prevalent in Germany. Brief outlines of some of her experiments are given in 'Hinweise aus der Konstellationsforschung' translated into English as 'Results from the BD Sowing & Planting Calendar' 2003.
- (11) Abele, 1973, 1975;
- (12) Graf, 1977.
- (13) N.K., 'Zodiac Rhythms in Plant Growth - Potatoes' Mercury Star Journal, Summer 1977.
- (14) The Kimberton Hills Agricultural Calendar (more recently called, 'Stella Natura') is available from: P.O. Box 550, Kimberton, PA 19442, USA.
- (15) Thun's 1977 publication 'Work on the Land and the Constellations' had described the effect of these two cycles, indeed her very first essay on the subject (1963) described how she experienced the growth-inhibiting effect of perigee upon radish.
- (16) 'Bio-Dynamic Gardening' in Llewellyn's 'Lunar Organic Gardener' 1993, pp.216-220, 217, Foulsham's.
- (17) Op cit (35).
- (18) Thea Pitcher; see the BBC's DVD, 'A Year at Kew, Series Three' 2007, Episode 9 (Its online if you google her name). She grew various sets of lettuce, sweet peas, onions, swiss chard and leeks at Kew, and assured me (and the BBC) that she had obtained around 30% yield increases from sowing at the 'proper' time. It was done as a gardening project for her horticultural course. She would not accept any suggestion that her expectations might have affected the results. Thus a successful lunar-gardening experiment was performed at the Kew Royal Horticultural College and filmed by the BBC - but, not written up.
- (19) Powell op. cit., p.57: "The reason why bio-dynamic farmers use the constellations is primarily historical, i.e. in the first half of this century the constellations, handed down from Greek astronomy, were the only sidereal divisions generally known. It is only in the second half of the twentieth century that widespread knowledge of the signs, originating from Babylonian astronomy, has been acquired. Even now the signs are to a large extent unknown, but thanks to the painstaking work of a number of science historians, especially Otto Neugebauer, the highly sophisticated Babylonian astronomy of the last centuries B.C. has been reconstructed in some detail.' 'The Sidereal Zodiac' by Powell and Treadgold appeared in 1979, and was reprinted in 1985 by the American Federation of Astrologers;