



## XXIV. Some account of the poisonous and injurious honey of North America

Benjamin Smith Barton M.D.

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The Board of Longitude has sent a quadrant to Flauguergues at Viviers, and one to Dangos at Tarbe, to enable them to make more correct and more continued observations.

Flauguergues has already employed his observations to determine the latitude of his observatory  $44^{\circ} 29' 22''$ , greater by  $18''$  than what was given by the triangles; he has assiduously continued to observe the eclipses of Jupiter's satellites; he has observed the spots of the sun, which were frequent this year, and has calculated a great many positions of the stars.

Chabrol has communicated to us a new analytical method for eclipses, and has calculated several; he has also verified the tables of Mars and Mercury by observations in the present year. He has reduced 600 observations of the stars, and has calculated 600 longitudes in the fundamental catalogue: in a word, he shows himself a young zealous co-operator, curious and void of ambition, who is entitled to our grateful acknowledgments.

C. Mougin, curé of La Grande-Combe-des-Bois, in the mountains of the department of Doubs, has sent us a large table of precessions; that is to say, of the annual changes of the stars in right ascension, according to the data with which I furnished him. For thirty years past we have received from this worthy pastor marks of zeal, application, curiosity, and courage, very rare, especially in the deserts.

Dr. Maskelyne has sent us his observations of 1800, a continuation of the valuable collection he has been making for 36 years; and he has announced to us the Nautical Almanac of 1806.

[To be concluded in our next.]

XXIV. *Some Account of the Poisonous and Injurious Honey of North America.* By BENJAMIN SMITH BARTON, M.D.\*

IN the year 1785 I had an opportunity of observing some of the disagreeable effects of our wild honey upon several persons who had eaten of it, in the western parts of Pennsylvania, near the river Ohio. From these effects I was persuaded, that a substance which is generally considered as entirely innocent, is capable of doing much injury to the constitution. I was, therefore, induced to pay some

\* Read before the American Philosophical Society, and communicated to the Editor of the Philosophical Magazine by the author. It will form part of the fifth volume of the American Transactions.

attention

attention to the subject. The result of my inquiries I now communicate to the Philosophical Society.

It is not necessary to make any remarks on the fabric of honey. It may be sufficient to observe, that the honey will always partake, in a greater or a lesser degree, of the smell, the taste, and general properties, of the flowers from which it is obtained. This obvious fact should have solicited more of the attention of those whose employment it is to raise large numbers of bees for the purpose of obtaining the valuable product of these little insects. But, in this country at least, hardly any attention has been paid to the subject. Perhaps, the following loose hints, by pointing out some of the sources from which an ill-flavoured or pernicious honey is obtained, may be of some service to the new or remote settlers of our country.

I must observe, that in these hints I do not mean to include among the disagreeable consequences of the eating of honey, the occasional effect of its purging: for although, as I shall presently observe, a purging is one of the common effects of the poisonous honey, yet the most innocent honey will often induce the same state of the body, when it is eaten in large quantities, or when it meets with an irritable state of the bowels.

The honey which I call deleterious or poisonous honey, produces, as far as I have learned, the following symptoms, or effects: viz. in the beginning, a dimness of sight or vertigo, succeeded by a delirium\*, which is sometimes mild and pleasant, and sometimes ferocious; ebriety, pain in the stomach and intestines, convulsions, profuse perspiration, foaming at the mouth, vomiting, and purging; and, in a few instances, death. In some persons, a vomiting is the first effect of the poison. When this is the case, it is probable that the persons suffer much less from the honey than when no vomiting is induced. Sometimes the honey has been observed to produce a temporary palsy of the limbs; an effect which I have remarked in animals that have eaten of one of those very vegetables† from whose flowers the bees obtain a pernicious honey.

Death is very seldom the consequence of the eating of

\* An intelligent friend of mine related to me the case of a person who, for a short time, was severely affected from the eating of wild honey, in Virginia. He imagined that a person seized him rudely by one arm, and then by the other. After this he fell into convulsions, from which, however, he recovered in about an hour. It was imagined that this honey was obtained from a kind of poisonous mushroom.

† The *Kalmia latifolia*.

this kind of honey\*. The violent impression which it makes upon the stomach and intestines often induces an early vomiting or purging, which are both favourable to the speedy recovery of the sufferer. The fever, which it excites is frequently relieved, in a short time, by the profuse perspiration, and perhaps by the foaming at the mouth. I may add, that as the human constitution resists, to an astonishing degree, the effects of the narcotic and other poisonous vegetables that are best known to us, so we need not wonder that it also resists the effects of the deleterious honey which is procured from such vegetables.

It deserves to be mentioned, that the honey which is formed by two different hives of bees in the same tree, or at a little distance from each other, often possesses the most opposite properties. Nay, the honey from the same individual comb is sometimes not less different in taste, in colour, and in its effects. Thus, one stratum or portion of it may be eaten without the least inconvenience, whilst that which is immediately adjacent to it shall occasion the several effects which I have just enumerated.

I have taken some pains to learn what are the signs by which the deleterious honey may, at first view, be distinguished from innocent honey. I am informed that there is no difficulty in the matter.

The poisonous honey is said by some to be of a crimson colour; by others, it is said to be of a reddish-brown colour, and of a thicker consistence than common innocent honey.

These are the signs by which, I am told, the most experienced hunters in the southern parts of North America are enabled to distinguish pernicious from innocent honey.

On a subject such as this, I feel every disposition to pay a good deal of deference to the experience of an American hunter. Even philosophers may obtain much useful information from hunters, however wandering their life, however rude their manners. It is in the power of our hunters to enrich natural history with many important facts. But we ought not, I presume, to confide implicitly in every thing they tell us.

I have good reasons for doubting whether the signs which I have mentioned will enable us, in every instance, to determine whether honey be poisonous or innocent.

The honey of the bee, undoubtedly, sometimes partakes of the colour of the flowers from which it is gathered. The bees gather honey from many flowers of a crimson colour,

\* We shall afterwards see that not one of Xenophon's men died from the deleterious honey which they had eaten, in large quantities, on the shores of the Euxine sea.

and from many flowers whose colour is a reddish brown. In these cases, it is probable that the honey will sometimes borrow, in some degree, the colour of the flowers. Yet there are many crimson-coloured and reddish-brown coloured flowers that are perfectly innocent. The honey obtained from them will, I presume, be innocent also. Mr. Bruce says he was surprised to see, at Dixan, in Abyssinia, "the honey red like blood; and nothing," he remarks, "can have an appearance more disgusting than this, when mixed with melted butter \*." Nothing is said, by this author, that can lead us to suppose that the Dixan honey was poisonous. From the manner in which it is mentioned, it is pretty evident that it was not poisonous. Linnæus informs us, that in Sweden the honey, in the autumn, is principally gathered from the flowers of the erica, or heath, and that this honey is of a somewhat reddish colour; and accordingly, he observes, those provinces of the country that are destitute of the heath, such as the province of Oelandia, furnish a white honey†. The great naturalist says nothing concerning the properties of the heath honey. However, we may presume, when we recollect the minute accuracy of Linnæus, that this honey did not possess any dangerous properties, otherwise he would have noticed the circumstance. Whilst I resided in Edinburgh I had the honey from the Highlands frequently brought to my table. I often remarked that this honey had a dirty brownish colour; and I was told that it was chiefly procured from the different species of erica, perhaps principally from the "blooming hather ‡," which abound in the Highlands. I never heard the people in Edinburgh, although they consume large quantities of this honey, complain that it possesses any noxious property. If it were actively poisonous or injurious, the quality would have been long since observed. I well remember, however, that, for two years that I used it, it almost always rendered me drowsy. Sometimes, indeed, it composed me to sleep as effectually as a moderate dose of laudanum would have done. A foreigner, who had not been accustomed to eat anodyne honey, was better capable of remarking the effect which I have mentioned than the natives, who had been in the habit of using it from their infancy. I do not find that this singular property of the Scots honey has been noticed by any writer §. I have therefore related it,

though

\* Travels to discover the Source of the Nile, vol. v. or Appendix, p. 151, quarto edition.

† Fauna Suecica.

‡ Burns.

§ Dr. Withering says, bees extract a great deal of honey from the flowers

though it rather opposes any objection to the signs employed by our hunters to distinguish poisonous from innocent honey. But he who is studious of truth should relate useful facts as they are, without regarding what is their connection with a favourite system or opinion.

The learned Joseph Acosta speaks of a gray-coloured honey-comb which he saw in the province of Charcas in South America. The honey of this comb, he says, is "sharp and black." He says nothing further of its properties\*.

An ingenious friend of mine †, to whom the public are indebted for a variety of valuable information concerning the natural productions of various parts of North America, informs me, that, in the Carolinas and Floridas, the poisonous honey is often so similar in colour, taste, and odour, to the common or innocent honey, that the former cannot be distinguished from the latter. It is owing, he says, to this circumstance that so many accidents daily happen from the use of the wild honey. He was informed that it is experience alone which enables the hunters and others to determine whether the honey which they find in the woods be poisonous or innocent. They have observed that the injurious effects manifest themselves in a short time after the honey is taken into the stomach. They are accustomed, therefore, to eat a small quantity before they venture to satisfy their appetite. Should this produce *any* disagreeable effects, they do not think it prudent to continue the use of it. But if, in a short time, it should occasion no inconvenience, they think they may, with perfect safety, indulge their appetite to the full.

I have been informed that the poisonous honey, by boiling and by straining, may be rendered as innocent as any honey whatever. It is likewise said, that by long keeping it becomes harmless.

The honey of which I am treating is poisonous to dogs as well as to men.

Hitherto I have not been able to obtain any certain information concerning the means to be pursued in the treatment of persons labouring under the effects of the poisonous honey. It is said that the Indians, and some of the whites, use cold bathing with advantage. It is probable that this

flowers of the *erica vulgaris*, or common heath; and he remarks that, "where heath abounds, the honey has a reddish cast." A Botanical Arrangement of British Plants, &c. vol. i.

\* The Natural and Morall Historie of the East and West Indies, &c. p. 303.

† Mr. William Bartram.

practice

practice has been useful. As the effects produced by this honey are so similar to those produced by several narcotic vegetables that are well known to us, such as opium, henbane\*, thorn-apple†, &c. it is probable that the same means of treatment will be found useful in both cases. Of those means it is not necessary to make particular mention in this place.

It would be curious to ascertain whether the bees are ever injured or destroyed by the quaffing of the nectar of the flowers from which they prepare the poisonous honey. It is probable that they are; and, perhaps, some of the diseases of these little insects may arise from this source‡. It is true, indeed, that there are some poisonous plants the nectar of which the bees will not touch. This is the case with the *fritillaria imperialis*, or crown imperial§. I do not remember to have seen bees in or immediately about the flowers of the common rosebay or oleander||, in the tube of which there is a fluid which destroys thousands of the common house flies. But what is called instinct is not always sure. The bees may prepare an honey from plants that are very injurious to them. The excellent Mr. Evelyn, speaking of the elm, says, "But I hear an ill report of this tree for bees, that, surfeiting of the blooming seeds, they are obnoxious to the lark¶, at their first going abroad in spring, which endangers whole flocks if remedies be not timely exhibited; therefore it is said, in great elm countries they do not thrive; but the truth of which I am yet to learn\*\*."

In South Carolina, in Georgia, and in the two Floridas, but more especially in East Florida, the instances of injuries from the eating of wild honey are more numerous than in any other parts of North America that are known to us.

There is a tract of country included between the rivers

\* *Hyoscyamus niger*.

† *Datura stramonium*.

‡ Dr. James E. Smith asserts that the honey or nectar of plants is not poisonous to bees. Syllabus to a Course of Lectures on Botany, p. 23. I have some good reason to believe that, sometimes at least, the contrary is the case.

§ Linnæus, speaking of this plant, says: "Nulla, excepto Meliantho, copiosiori melle scatet planta, quam hæc; sed apes id non colligunt!" Prælectiones in Ordines Naturales Plantarum, edidit Giseke, p. 287. Hamburgi 1792.

|| *Nerium oleander*.

¶ This is one of the most mortal diseases of bees. It is beautifully described, and the remedies for it mentioned, by Virgil, Georgic. lib. iv. l. 251—280.

\*\* Silva, or a Discourse on Forest Trees, &c. p. 133 and 134. Doctor Hunter's edition.

St. Illa and St. Mary's, in East Florida, that is remarkable for abounding in vast numbers of bees. These insects, which were originally introduced into Florida by the Spaniards \*, have increased into innumerable swarms, from the facility with which they procure their food, in perhaps the richest flowered country of North America. In this tract of country the alarming effects of the wild honey are often experienced by the settlers, by wandering hunters, and by savages.

It is highly probable that this poisonous honey is procured from a considerable number of the flowers of the countries which I have mentioned. A complete list of these flowers would be acceptable; but such a list it will be difficult to procure at present. Perhaps my hints may induce some intelligent native of the country to favour us with his observations on the subject. Meanwhile, I am happy to have it in my power to mention some of the vegetables from whose flowers the bees extract a deleterious honey, not only in the country between the St. Illa and St. Mary's, but also in some other parts of North America.

These vegetables are the *kalmia angustifolia* and *latifolia* of Linnæus, the *kalmia hirsuta* of Walter †, the *andromeda mariana*, and some other species of this genus.

I. Every American has heard of the poisonous properties of the *kalmia angustifolia* and *latifolia*. The former of these plants is known, in the United States, by the names of dwarf-laurel, ivy, lambkill, &c. It has long been known, that its leaves, when eaten by sheep, prove fatal to them. The following fact will show that the flowers likewise are endued with a poisonous property.

About twenty years since, a party of young men, solicited by the prospect of gain, moved, with a few hives of bees, from Pennsylvania into the Jerseys. They were induced to believe that the savannas of this latter country were very favourable to the increase of their bees, and, consequently, to the making of honey. They accordingly placed their hives in the midst of these savannas, which were finely painted with the flowers of the *kalmia angustifolia*. The bees increased prodigiously, and it was evident that the principal part of the honey which they made was obtained from the flowers of the plant which I have just mentioned. I cannot learn that there was any thing uncommon in the appearance of the honey: but all the adventurers who ate of it became intoxicated to a great degree. From this experiment, they were sensible

\* See Transactions of the American Philosophical Society, vol. iii. no. 31.

† Flora Caroliniana, p. 138.



that it would not be prudent to sell their honey; but, unwilling to lose all their labour, they made the honey into the drink well known by the name of metheglin, supposing that the intoxicating quality which had resided in the honey would be lost in the metheglin. In this respect, however, they were mistaken. The drink also intoxicated them; after which they removed their hives.

In North-Carolina, this species of kalmia and the *andromeda mariana* are supposed to be the principal vegetables from which the bees prepare the poisonous honey, that is common in that part of the United States.

II. The *kalmia latifolia*, known in the United States by the names of laurel, great-laurel, wintergreen, spoon-haunch, spoon-wood, &c. is also a poison. Its leaves, indeed, are eaten with impunity by the deer\*, and by the round-horned elk†. But they are poisonous to sheep, to horned-cattle and to horses. In the former of these animals, they produce convulsions, foaming at the mouth, and death. Many of General Bradock's horses were destroyed by eating the leaves and the twigs of this shrub, in the month of June 1755, a few days before this unfortunate general's defeat and death. In the severe winter of the years 1790 and 1791, there appeared to be such unequivocal reasons for believing that several persons, in Philadelphia, had died in consequence of their eating our pheasant‡, in whose crops the leaves and buds of the *kalmia latifolia* were found, that the mayor of the city thought it prudent, and his duty, to warn the people against the use of this bird, by a public proclamation. I know that by many persons, especially by some lovers of pheasant-flesh, the circumstance just mentioned was supposed to be destitute of foundation. But the foundation was a solid one. This might be shown by several well-authenticated facts. It is sufficient for my present purpose to observe, that the collection of a deleterious honey from the flowers of this species of *kalmia* gives some countenance to the opinion, that the flesh of pheasants that had eaten of the leaves and buds of this plant may have been impregnated with a pernicious quality§.

\* *Cervus Virginianus* of Gmelin.

† *Cervus Wapiti*, *mibi*.

‡ *Tetrao Cupido* of Linnæus.

§ It is not a new suspicion, that the flesh of animals that have eaten of the leaves, &c. of deleterious vegetables is sometimes endued with a poisonous property. Georg. H. Welschius, a very learned German writer, quoted by Dr. Haller, (see *Historia Stirpium Indigenarum Helvetiæ Inchoata*, tom. i. p. 443.) says, that the flesh of a hare which was fed with the leaves of the *rhododendron ferrugineum* proved mortal to the guests. This species of *rhododendron* is a native of Switzerland, Siberia, and other parts of the Old World.

I have

I have been informed, that our Indians sometimes intentionally poison themselves with a decoction of the leaves of this *kalmia*. The powder of the leaves has been employed (but I suspect with little advantage) in the inflammatory stage of certain fevers. From experiments made upon myself, I find that this powder is sternutatory.

To some constitutions the flowers of the *kalmia latifolia*, even externally applied, are found to prove injurious.

III. The *kalmia hirsuta* appears to possess nearly the same properties as the two species which I have just mentioned. This pretty little shrub is a native of South-Carolina, Georgia, and Florida.

In Georgia and in Florida, this species of *kalmia* is supposed to be the principal vegetable from which the deleterious honey in those parts of our continent is procured.

IV. The *andromeda mariana*, or broad-leaved moorwort, is a very common plant in many parts of North America. The leaves are poisonous to sheep. The petioli, or foot-stalks of the leaves, and the seeds within the seed-vessel, are covered with a brown powder, similar to that of the *kalmia*. This powder applied to the nostrils occasions violent sneezing\*. From the flowers of this plant the bees extract considerable quantities of honey; and it deserves to be mentioned that this honey, as well as that obtained from some other American species of *andromeda*, has frequently the very smell of the flowers from which it is obtained†.

I have already observed, that it is highly probable, that the American poisonous honey is procured from the flowers of a considerable number of the plants of the country. I have mentioned but a few of them. But there are many others which I have some reasons for suspecting are also capable of affording an injurious honey. Indeed, every flower that is poisonous to man, and is capable of affording honey, may

\* For some information relative to the properties of the *andromeda mariana*, see Collections for an Essay towards a Materia Medica of the United States, pages 19, 20, 47. Philadelphia, 1798.

† In justice to the fine genus of *andromeda*, I must observe, that all the species do not furnish a pernicious honey. The *andromeda nitida* or *lucida* of Bartram affords an abundance of nectar, or honey. The flowers of this species are called by the country people of Carolina and Georgia, "honey-flowers," not, however, merely from the circumstance just mentioned, but from the regular position of the flowers on the peduncle, which open like the cells of a honey-comb, and from the odour of these flowers, which greatly resembles that of honey. This species grows abundantly in the swamps called bay-galls. The inhabitants of Carolina are universally of opinion, that it affords the greatest quantity of honey, and that of the best quality.

produce an honey injurious to man; since the properties of this fluid are so dependent upon the properties of the plants from which it is procured. There is, therefore, more poetry than philosophy in the following lines of Mr. Pope:

“ In the nice bee, what sense so subtly true  
 “ From pois'nous herbs extracts the healing dew :”

Essay on Man, Epistle i. lines 211 & 212.

I have been informed that in the southern parts of our continent, there is a plant, called hemlock, from the flowers of which the bees prepare a honey that is poisonous. The flowers are said to be yellow, and the root a deadly poison. I do not know what plant this is. Most probably, it is some umbelliferous plant, perhaps a cicuta, an angelica, or a scandix.

Some species of agaricus, at least some fungous vegetables, that grow in the southern states, are extremely poisonous. As accidents from the use of deleterious honey have happened in the same countries in which these poisonous fungi grow, it has been supposed, and asserted, that the poisonous honey is prepared from a dew that collects upon these fungi. Perhaps, this supposition is not entirely devoid of foundation\*.

I shall now mention a few vegetables from the flowers of which, I think, it will be found, that the bees collect a poisonous or injurious honey. These are:

\* If the celebrated author of the *Recherches Philosophiques sur les Américains* be still living, this account of our poisonous and injurious honey (should my memoir fall into his hands) would afford him some entertainment. I would advise him to connect the facts, which I here communicate, with the remarks concerning our insects contained in the first volume of the *Recherches* (see p. 169 and 170.) I hope, however, that Mr. De Pauw, who, notwithstanding his love of system and his many errors, is certainly a man of great reading, will recollect, that the Greek and Roman writers (as we shall afterwards see) have said much concerning the poisonous honey of various parts of the Old World. And now let me add, that in America there is as good honey as in any other parts of the world; and there is not a scarcity of this good honey. The honey which is collected from the flowers of the tulip-tree (*liriodendron tulipifera*), the buckwheat (*polygonum fagopyrum*), the red maple (*acer rubrum*), the clover (*trifolium*), and many other plants, is excellent. The Abbe Clavigero says the bee of Yucatan and Chiapa makes “ the fine clear honey of Estabentun, of an aromatic flavour, superior to that of all the other kinds of honey with which we are acquainted.” *The History of Mexico*, vol. i. p. 68.† Perhaps on some future occasion I may communicate to the Philosophical Society a list of those indigenous vegetables which, as furnishing an innocent and excellent honey, are worthy of preservation in the neighbourhood of apiaries. The list is an extensive one.

† This fine honey, according to the Mexican historian, is “ made from a fragrant white flower like jessamine, which blows in September.”

I. The

I. The rhododendron maximum, or Pennsylvania mountain laurel. This belongs to a very active genus of plants. We have already seen, that one of the species, the rhododendron ferrugineum, was, long ago, observed to produce the same effects which have been ascribed to the kalmia latifolia. Another species, the rhododendron crysanthum, has been found a powerful medicine, and has been used, in Russia, with much advantage, in the ischias, in chronic rheumatism, and in other diseases; and we shall immediately see that from another species a poisonous honey has been procured in the neighbourhood of the Euxine Sea. The footstalks of the leaves, and also the seeds, of our rhododendron maximum are covered with the same brown powder as I observed covered the leaf-footstalks and the seeds of several of the andrómédæ, and the kalmiæ. This powder in the rhododendron, as well as in the andromedæ and kalmiæ, excites sneezing, and it is curious to observe that a sneezing is mentioned by Dioscorides among the symptoms produced by the honey about Heraclea Pontica. That honey, as will be presently shown, is procured from the rhododendron ponticum.

II. The azalea nudiflora. This fine shrub is well known in Pennsylvania, and other parts of the United States, by the name of wild honeyfuckle. Of its properties I know nothing certain. It has, however, too much of the family face, and is too frequently found in company with the rhododendron maximum, and the kalmiæ, not to make me suspicious that it partakes also of the characters of these deleterious vegetables. Moreover, a species of this genus, the azalea pontica of Linnæus, is supposed to be the ægolethron of Pliny, who mentions it as the plant from which the poisonous honey about Heraclea Pontica is prepared. The tube of the flower of our azalea is perforated by the large bee, called bumble-bee.

III. Datura stramonium. This plant is known by a variety of names, such as Jamestown-weed, gymfin, flink-weed, French-chestnut. Its active and poisonous properties are now pretty generally known. Children have often been injured by eating the seeds. The tube of the flower contains a considerable quantity of honey. This honey is bitter, and has much of the poisonous smell. Bees quaff it. But admitting that it is of a poisonous nature, it does not follow that our cultivated bees (if I may be allowed to use this expression) will collect so much of this honey as to prove injurious to those who eat of it. But, in particular places, where this plant has been permitted to increase to a great degree, large quantities of honey may be collected from it:

and I cannot help suspecting that the use of this honey may prove injurious\*.

Some of the ancient writers of Greece and Rome have related instances of the deleterious properties of the honey of certain countries. The botanist Dioscorides, speaking of the rhododendron ponticum, a species of the same genus to which our mountain laurel belongs, has the following words: "About Heraclea Pontica, at certain seasons of the year, the honey occasions madness in those who eat of it; and this is undoubtedly owing to the quality of the flowers from which the honey is distilled. This honey occasions an abundant sweating; but the patients are eased by giving them rue, salt-meats, and metheglin, in proportion as they vomit. This honey," continues the Greek botanist, "is very acid, and causes sneezing. It takes away redness from the face, when pounded with costus. Mixed with salt or aloes, it disperses the black spots which remain after bruises. If dogs or swine swallow the excrements of persons who have eaten of this honey, they fall into the same accidents†."

Pliny has also taken notice of this poisonous honey. "In some years," says the Roman naturalist, "the honey is very dangerous about Heraclea Pontica. It is not known to authors from what flowers the bees extract this honey. Here is what we have learned of the matter. In those parts, there is a plant called ægolethron, whose flowers in a wet spring acquire a very dangerous quality, when they fade. The honey which the bees make of them is more liquid than usual, more heavy, and redder. Its smell causes sneezing. Those who have eaten of it sweat excessively, lie upon the ground, and call for nothing but cool drinks‡." He then makes the very remarks which I have quoted from Dioscorides, whose words, indeed, as Mr. Tournefort observes, he seems to have merely translated. The following remark, however, appears to belong to Pliny. "Upon the same coast of the Pontus, there is found another sort of honey, which is called mænomenon§, because those who eat of it are rendered mad. It is supposed, the bees collect it from the flowers of the rhododendros, which is common among the forests. The people of those parts, although they pay the Romans a part of their tribute in wax, are very cautious how they offer them their honey‡."

\* See the late Dr. Samuel Cooper's Inaugural Dissertation on the Properties and Effects of the *Datura Stramonium*, p. 33. Philadelphia, 1797.

† Dioscorides, as quoted by Mr. Tournefort.

‡ C. Plinii Secundi Naturalis Historiæ Lib. xxi. cap. 13.

§ From the Greek verb *μανωμαι*, *insanio*.

‡ Ibid.

The Greeks and the Romans have often described the various plants that were known to them, in such dark and obscure terms, that the botanists of modern times are frequently at a loss to determine, not merely the species but also the genus the ancient writers have mentioned. With respect, however, to the plants which I have just mentioned, the difficulty does not seem to be great. Mr. Tournefort has, I think, shown, in a very satisfactory manner, that the ægolethron of Pliny is the *chamærhododendros pontica maxima*, *Mespili folio*, flore luteo of his *Institutiones*, a plant since described by Linnæus and by other botanists by the name of *azalea pontica*. Mr. Tournefort has likewise shown, that the other plant called by Pliny *rhododendros* is his *chamærhododendros pontica maxima*, *folio laurocerasi*, flore cæruleo purpurascens\*. This is the *rhododendron ponticum* of Linnæus. It is considerably allied to the *azalea pontica*.

Xenophon has recorded the remarkable effects of some poisonous honey, in his celebrated work called *Memorabilia*.

When the army of the ten thousand had arrived near Trebifond, on the coast of the Euxine or Black Sea, an accident befel the troops, which was a cause of great consternation. "As there were a great many bee-hives," says the illustrious general and historian, "the soldiers did not spare the honey. They were taken with a vomiting and purging, attended with a delirium, so that the least affected seemed like men drunk, and others like mad men, or people on the point of death. The earth was strewed with bodies, as after a battle; not a person, however, died, and the disorder ceased the next day, about the same hour that it began. On the third and fourth days, the soldiers rose, but in the condition people are in after taking a strong potion†."

The same fact is recorded by Diodorus Siculus.

Mr. Tournefort thinks there is every probability that this poisonous honey was sucked from the flowers of some species of *chamærhododendros*, or *rhododendron*. He observes that all the country about Trebifond is full of the species of this plant, and he remarks that Father Lambert, Theatin missionary, agrees that the honey which the bees extract from a certain shrub in Colchis or Mingrelia, is dangerous, and causes vomiting. Lambert calls this shrub *oleandro giallo*, or the yellow rose-laurel, which Mr. Tournefort says is, without dispute, his *chamærhododendros pontica maxima*,

\* *Institutiones*, &c.

† These are nearly the words of Mr. Tournefort's translation. I am sorry that I have not the original work of Xenophon at hand.

Mespili folio, flore luteo\*; the azalea pontica, already mentioned.

There are several passages in the Roman poets, which plainly show, that they were no strangers to the poisonous properties of certain kinds of honey. It is not necessary to mention all these passages. But the following are worthy of notice.

Virgil cautions us not to suffer a yew tree to grow about bee-hives :

Nec propius tectis taxum sine. —————

Georgic. lib. iv. l. 47.

In his 9th Eclogue, the same philosophic poet speaks of the yews of Corfica as being particularly injurious to bees.

Sic tua Cynæas fugiant examina taxos. l. 30.

The honey of Corfica was, as Dr. Martyn strongly expressed it, “infamous for its evil qualities†.”

The raising of bees, for the purposes of procuring their honey and their wax, may, at some future period, become an object of great importance to the United-States. Surely then it would be a matter of consequence to attend to the cultivation or preservation of those vegetables which furnish an innocent and a well-flavoured honey, and a good wax. But even in a more limited view of the subject, some knowledge of these vegetables seems to be indispensably necessary. And in the new settlement, whither the settler has carried his bees,

\* See Tournefort's Voyage into the Levant, vol. iii. p. 68. English translation. London, 1741.

† See his translation of the Georgics of Virgil, note to line 47, in book iv. Dr. Martyn's criticisms and annotations always demand attention. I greatly doubt, however, if the taxus of Virgil be the common yew, or any species of that genus. Martyn himself allows, that “it does not appear from other writers (beside Virgil), that Corfica abounded in yews.” I have been assured, that the yew is not an indigenous vegetable in that island, and that it is even rare among the foreign vegetables. It may, indeed, be said, perhaps it was common in the time of Virgil. I would observe, that the yew is much less poisonous than has been commonly supposed. I know not that any modern writer has pretended that the bees procure a pernicious honey from its flowers. These facts give rise to my suspicion, that the taxus of Virgil was not the yew, or taxus of the modern botanists. If not the yew, what vegetable was it? Perhaps, the buxus virens, or box. This vegetable abounds in Corfica, where to this day it is known by the name of *taxo*. The gentleman from whom I received this information assured me, that the bees of Corfica are very fond of the flowers of the box, and that the honey from this source is reputed poisonous. The box is, unquestionably, a poisonous vegetable. But there is still a difficulty in the case. Virgil mentions both taxus and buxus. I think there can be no doubt that his buxus (see Georgic. lib. ii. l. 449.) is the buxus of the modern botanists.

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where improvements are still very imperfect, it cannot be deemed a trivial task to have pointed out some of those vegetables from which an injurious honey is obtained.

The ancients, who, in some respects at least, were equal to the moderns, appear to have paid much attention to this subject. Virgil\* and Columella have both told us what plants ought to grow about apiaries. It is unnecessary to repeat, in this place, what the two Roman writers have said on the subject. The *Georgics* of the Mantuan poet are in the hands of every man of taste; and the work of Columella† *should* be read, wherever agriculture engages the attention of gentlemen.

The proper management of bees may be considered as a science. It is not sufficient that bees merely make honey and wax. Their honey may be injurious or poisonous, and their wax may be nearly useless. To assist and to direct the labours of these little insects, the knowledge and the hand of man are required. Let, then, this interested being be at least attentive to his own benefits and pleasures. Let him carefully remove from about the habitations of his bees every fetid or poisonous vegetable, however comely its colour or its form. In particular, let him be careful to remove those vegetables which are noxious to himself. In place of these, let him spread the "marjoram and thyme," and other plants, "the love of bees‡," and his labours will be rewarded. He may, then, furnish his table with an honey not inferior to that of Mount Hermettus, or of Athens; nor to that of Sicily, to which Virgil has so handsomely alluded in the seventh Eclogue:

Nerine Galatea, thymo mihi dulcior Hyblæ,  
Candidior cyenis, hederâ formosior albâ. L. 37, 38.

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XXV. *Description of the Arseniates of Copper and of Iron.*  
By the Count de BOURNON.

[Concluded from p. 12.]

THE modification which we have just seen the primitive crystal assume at one of its solid angles, and only on one side, sometimes takes place also (only on one side) at its two other angles. Then, if the act of crystallization has continued so long, under the same mode of increase, that the new

\* See *Georgicorum* lib. iv. l. 30—32.

† *De Re Rustica*, libri xii.

‡ *Armstrong*.