What the Bees Do in *Anna Karenina* and Other Works by Tolstoy: A Study in Three Parts

Rosamund Bartlett

*Oxford, England*

We are so used to seeing Tolstoy’s *Anna Karenina* in terms of the tragic fate of his heroine that it is sometimes easy to forget how much else goes on in this novel. Quite apart from the heartwarming story of Levin’s betrothal and marriage to Kitty Shcherbatskaya and his earnest desire to find some meaning to his life in the face of the inexorable reality of his death, there are numerous more relaxed interludes when Tolstoy’s narrator takes us on an often meandering detour from both his principal plot lines, as if sensing that we might be in need of some repose.

Reading *Anna Karenina* for the first time, readers can perhaps be forgiven for skipping a little briskly through chapters concerning secondary characters and minor events. But a translator has to read, as it were, at grassroots level (the same level at which Tolstoy liked to view history) and proceed steadily and uniformly through every chapter, regardless of its import. Just as when we travel slowly our eyes are invariably opened up to things of beauty we might not ordinarily see, so working on a text at a snail’s pace can open up hidden aspects that are not so obvious at a first glance.

There are many glorious set pieces in *Anna Karenina*. The horse race, so skilfully shown in slow motion from different perspectives, comes to mind, as does the enchanting scene at the ice-skating rink. But one of the things I was struck by while translating *Anna Karenina* was that the most beautiful passages were not where I expected to find them. It was not in those chapters devoted to Vronsky’s passionate pursuit of Anna that Tolstoy wrote his most lyrical prose, but in the ones which are concerned with the natural world, which are all the more moving for their precision and simplicity. Take, for example, one of the many passages in part two in which Tolstoy describes the explosion of spring in the country:

If Levin was happy in the cattle-pens and in the farmyard, he became happier still in the open country. Swaying rhythmically along with the ambling pace of his trusty little horse, drinking in the warm, fresh scent of the snow and air as he rode through the wood, over soft, fast-disappearing snow that was covered with tracks, he rejoiced in every one of his trees, with their swelling buds and the moss reviving on their bark. When he came out of the wood, an
unbroken, velvety carpet of green without a single bare or wet patch stretched out before him in the immense open space, with only occasional patches of melting snow dotting the hollows. (Bartlett 159)

Then there are the peerless descriptions of Levin learning to mow on a hot summer’s day with his peasants which I had mistakenly perceived as dull when I first read Anna Karenina as a teenager, and the endearing chapters later in the novel when we experience the hunt for snipe from the point of view of Levin’s dog Laska:

She stood still, asking him whether it would not be better to carry on as she had started, but he repeated his command in an angry voice, pointing to a waterlogged patch of marsh covered with tussocks where there could not be anything. Pretending to search in order to give him pleasure, she obeyed him by scouring that patch of marsh, then headed back to her previous place and picked up their scent straight away. (595)

As Robin Feuer Miller has shown in her thoughtful article on “Tolstoy’s peaceable kingdom,” animals are a presence both in his literary world and the world in which he lived, affecting his views of “art, death happiness, life, history, causality, ordre and chaos, friendship, relations between men and women, morality, and philosophy” (52).

Horses and dogs are important in Tolstoy, but so are bees. They inspire one of the most important similes in War and Peace, and Miller’s fascinating discussion of contemporary scientific research into swarm intelligence through use of computer models reveals Tolstoy’s views on history to be far-sighted rather than eccentric. She is right to point to the fact that bees in War and Peace “do more than offer metaphors for the ways in which men, thinking they are acting individually, are in fact acting in some unknowable way for the interests of the whole” (66). Bees also feature several times in Anna Karenina, often at crucial moments.

Translating Tolstoy

In chapter fourteen of the eighth and final part of Anna Karenina, some five thousand words before the end of the novel, Tolstoy produces one of his inimitable, participle-laden, congested sentences about the behavior of bees in Levin’s apiary. This was my first draft in English:

In front of the entrances to the hives sparkling bees and drones danced before his eyes as they circled and bumped into each other on one spot, and amongst them, continually plying the same route to the blossoming lime trees in the wood and back towards the hives, flew worker bees with their spoils and in pursuit of their spoils.

And the original text:

Перед летками ульев рябили в глазах кружащиеся и толкающиеся на одном месте, играющие пчелы и трутни, и среди их, все в одном направлении, туда, в лес на цветущую липу, и назад, к ульям, пролетали рабочие пчелы с взяткой и за взяткой.

It is one of those sentences that exemplifies the challenges posed by Tolstoy’s often tortuous but majestic prose in Anna Karenina—a novel he found hard to write due to profound spiritual crisis welling up inside him in the 1870s.

The above translation, which was revised at least a dozen times by the present author for a new edition of the novel commissioned by Oxford World’s Classics, aims at precision by seeking to preserve Tolstoy’s often tortuous but majestic prose in Anna Karenina—a novel he found hard to write due to profound spiritual crisis welling up inside him in the 1870s.

The above translation, which was revised at least a dozen times by the present author for a new edition of the novel commissioned by Oxford World’s Classics, aims at precision by seeking to preserve Tolstoy’s idiosyncratic sentence structure as far as possible, while simultaneously striving to transpose the original into an idiomatic English. This is not easy, since Russian functions in a different way to English, its case endings offering authors enormous flexibility with regards to where they place parts of speech (as with Latin). In the second part of this particular sentence, for example, I chose to add a couple of extra words in English in order to preserve Tolstoy’s syntactic structure. (A
literal translation reads: “[…] and amongst them, continually in one direction, there, into the wood to the blossoming lime trees, and back, towards the hives, flew worker bees with their spoils and for their spoils.”

By way of comparison, we may consider the two most recent English translations. Richard Pevear and Larissa Volokhonsky omit Tolstoy’s repetition: “[…] among them the worker bees flew, all in the same direction, out to the blossoming lindens in the forest and back to the hives with their booty.” Kyril Zinovieff and Jenny Hughes introduce a hyphen, as well as quite a lot of inversion: “[…] between them flew worker bees, always along the same route—to the wood with its flowering limes to collect their booty, and back again, laden with it.”

Translating the passage above brought back memories for me of wrestling with another sentence about bees. This one comes much earlier in the novel, in chapter twelve of part two, and presented difficulties of a different kind. In one of the most lyrical scenes in the novel, Levin, the rejected suitor, finds solace on his estate as spring suddenly begins to burst forth around him.

The old grass and the emerging needles of young grass turned green, buds swelled on the guelder-rose, the currant bushes and on sticky, resinous birch trees, and bees on their first spring flight from their new home started buzzing about the gold-flecked willows. Invisible larks burst into song above the velvety green shoots and the ice-covered stubble, peewits sent up plaintive calls over wetlands and marshes sodden with murky, stagnant water, and up on high cranes and geese flew past with their spring cackle. (155)

I spent a long time staring at the two adjectival participles in the clause describing bees, the one past passive, the other past active: “[…] и на обсыпанной золотым светом лозине загудела выставленная облетавшаяся пчела.” Both these words (in bold in the Russian) have recognizable roots. The first suggests something that has been “put out” (выставка, vystavka means “exhibition” or “display”). The second identifies something that is “flying around.” The lack of clarity about what they actually mean is reflected in the diversity of translations:

Constance Garnett: “[…] and an exploring bee was humming about the golden blossoms that studded the willow”

Louise and Aylmer Maude: “[…] and among golden catkins and on the willow branches the bees began to hum”

Rosemary Edmonds: “[…] the honey-bee hummed among the golden catkins of the willow”

Pevear and Volokhonsky: “[…] and on the willow, all sprinkled with golden catkins, the flitting, newly hatched bee buzzed”

Zinovieff and Hughes: “[…] an old bee, pushed out of its hive, buzzed in the gold-flecked willows”

Are we dealing here with an “exploring bee,” a “honey-bee,” a “newly hatched bee” or an “old bee pushed out of its hive?” And is the bee humming, buzzing, flitting and buzzing, or buzzing after being pushed out of its hive? Only the Maudes talk about bees in the plural and register the prefix in the verb загудеть, zagudet’ (“to start to hum or buzz”), but they make no attempt to translate vystavlennaya and obletavshayasya.

Having written a biography of Tolstoy, I knew that he had developed a typically obsessive but short-lived passion for beekeeping in the 1860s, and I had a hunch that vystavlennaya and obletavshayasya belonged to the Russian apiarist’s lexicon. And so it turned out. The two words are linked to specific terms used to denote firstly the transfer of beehives from their winter to their
summer resting place, and secondly the first spring flight bees make once their hives have been moved. Hence the wording in the above-cited passage. Now the translator has a new challenge: producing an English version as succinct as the Russian, which is impossible.

My lingering doubts about the oddity of only one bee contributing to Tolstoy’s triumphant evocation of Russian spring were erased when I was invited to take part in a Tolstoy conference organized by the University of Milan on the shores of Lake Garda in April 2010 and had the serendipitous good fortune during a break to mention my apiarial research to Professor Thomas Newlin of Oberlin College, who just happened to be working on an article on “Swarm Life” and the Biology of War and Peace.” Tom confirmed that the singular пчела, pchela for “bee” can be used to denote bees in the plural, which of course makes perfect sense.

When I subsequently wrote to thank the conference organizers for inadvertently helping me to solve this particular translation puzzle, one of them was curious enough to go and consult the most recent Italian edition of Anna Karenina published by La Repubblica in 2004. In Laura Salmon’s translation (un’ape abbandonata che girava lì attorno”) we have “an abandoned bee which was roaming around there,” which made me wonder what the bees get up to in all the other translations of Anna Karenina around the world.

**What the Bees Do in Anna Karenina**

In the autumn of 2013 I was pleased to come into contact with the editor of Beekeeping Quarterly, and so have the chance at long last to share my thoughts about what the bees do in Anna Karenina with a professional beekeeper. It was nevertheless with a certain amount of trepidation that I awaited John Phipps’ verdict on my article. I was relieved to learn my translations passed muster and was greatly interested in his comments about bee behavior, which confirm Tolstoy’s own apicultural expertise and knowledge:

[T]he only thing I would have added (if I were Tolstoy) is that bees working linden often fall heavily in front of their hives—almost drunkenly. This is particularly true if the tree is the small-leaved lime, for the nectar is deemed to be quite strong. Look out on sultry July days for drunken looking bumblebees beneath the trees; usually they perish as birds will peck out their honey sacs.

“Exploring” (Garnett) would really mean foraging. If the bees are flying in relatively large numbers amongst the catkins, they are not exploring, as the source of the location of pollen and nectar has already been revealed to them through the dance language.

“Newly hatched” (Pevear and Volokhonsky) is definitely wrong. Firstly, a larva hatches from an egg, a bee emerges from its cell; secondly, a worker bee would not forage until it is at least three weeks old—it has many inside duties to fulfill first, dependent on its physical development/maturation.

An “old bee” (Zinovieff and Hughes) is in my experience never pushed out of the hive—and certainly not to forage. Old bees usually die on their way home, worn out, bedraggled, often unable to fly, yet try to walk back to the hive. A queen might be pushed or almost driven out of a hive to join a swarm, and of course, drones are towards the end of summer when they are no longer needed. It’s quite sad really—the bees stop feeding them, they become weak, and are harassed as well as pushed.¹

I then sent John Phipps my draft translation of the passage about the visit to the apiary in chapter fourteen of part eight in Anna Karenina that I quote in my article. He was able to compare it with the 1901 translation by Constance Garnett, the version with which he was most familiar.
1. Anna Karenina, part eight, chapter fourteen, translated by Constance Garnett (London, 1901):

Going along the narrow path to a little uncut meadow covered on one side with thick clumps of brilliant heart’s-ease among which stood up here and there tall, dark green tufts of hellebore, Levin settled his guests in the dense, cool shade of the young aspens on a bench and some stumps purposely put there for visitors to the bee house who might be afraid of the bees, and he went off himself to the hut to get bread, cucumbers, and fresh honey, to regale them with.

Trying to make his movements as deliberate as possible, and listening to the bees that buzzed more and more frequently past him, he walked along the little path to the hut. In the very entry one bee hummed angrily, caught in his beard, but he carefully extricated it. Going into the shady outer room, he took down from the wall his veil, that hung on a peg, and putting it on, and thrusting his hands into his pockets, he went into the fenced-in bee-garden, where there stood in the midst of a closely mown space in regular rows, fastened with bast on posts, all the hives he knew so well, the old stocks, each with its own history, and along the fences the younger swarms hived that year. In front of the openings of the hives, it made his eyes giddy to watch the bees and drones whirling round and round about the same spot, while amongst them the working bees flew in and out with spoils or in search of them, always in the same direction into the wood to the flowering lime trees and back to the hives.

His ears were filled with the incessant hum in various notes, now the busy hum of the working bee flying quickly off, then the blaring of the lazy drone, and the excited buzz of the bees on guard protecting their property from the enemy and preparing to sting. On the farther side of the fence the old bee-keeper was shaving a hoop for a tub, and he did not see Levin. Levin stood still in the midst of the beehives and did not call him…

2. First draft of Anna Karenina, part eight, chapter fourteen, translated by Rosamund Bartlett (2013):

After following the narrow path to a small unmown clearing, covered on one side by a bright carpet of wild pansies with many tall clumps of dark green hellebores growing amongst them, Levin settled his guests in the dense, cool shade of some young aspens, on a bench and some tree-stumps which had been specially arranged for visitors to the apiary who were afraid of bees, while he himself went off to the hut to fetch bread, cucumbers, and fresh honey for the children and the grown-ups.

Trying to make as few rapid movements as possible, and listening carefully to the bees which were flying past him with ever-increasing frequency, he walked along the path until he reached the hut. One bee started buzzing loudly right in the entrance after becoming entangled in his beard, but he carefully freed it. After going into the shady hallway, he took down his veil, which was hanging from a peg on the wall, put it on, thrust his hands in his pockets and went out into the enclosed apiary, where the old hives, all familiar to him, and each with its own history, stood in regular rows in the middle of a mown area, tied with bast to stakes, while along the wattle fence were the new ones, put in that year. In front of the entrances to the hives sparkling bees and drones danced before his eyes as they circled and bumped into each other on one spot, and amongst them, continually plying the same route to the blossoming lime trees in the wood and back towards the hives, flew worker bees with their spoils and in pursuit of their spoils.
In his ears rang a variety of incessant sounds, from that of a busy worker bee flying swiftly past, to a trumpeting, idle drone, and apprehensive sentry bees protecting their property from the enemy, ready to sting. On the other side of the fence the old man was planing a hoop, and did not see Levin. Levin stood in the middle of the apiary and did not call out to him...

John Phipps responded with some thoughtful observations:

I would like to make just two comments. Firstly, the new hives against the wicker fence—Garnett makes reference to the new hives being from that year’s swarms, and this addition (whether it is there or not in the original) is pointing out that the summer swarms from the colonies are collected and put in new hives in a different part of the apiary.

The second point is what Garnett refers to as “buzzing” and which you describe as “trumpeting.” Buzzing is too ordinary, as it suggests that bees more or less make the same noise, which is incorrect. I don’t believe your version is right either, as trumpeting tends to be an undulating sound. The correct noise made by a drone is simply droning, but the use of the two words close together would be awkward. The noise a drone makes is a low hum, like that of an approaching heavily laden aircraft, and the noise is on one level; it is low when compared with the higher pitched sound of a worker bee when foraging. Angry bees make a very high pitched menacing sound—like the one which would have been made when trapped in Levin’s beard (I have sadly experienced this many times). A lot of work has been done on sounds made by bees even within the hive. It is possible to tap on the side of the hive and if all is OK, the bees will make a short-lived collective hiss—if it continues or becomes a roar, it would suggest that the hive is without a queen.²

Grateful to be educated about bee sounds, and thus have the opportunity to improve my translation, I wrote back to John Phipps to explain my decisions:

The trouble with the addition of “with the swarms hived that year” is that it is indeed not there in the original.

My choice of “trumpeting” was dictated by Tolstoy’s specific use of a verb derived from the word “truba,” meaning trumpet. Your clarification is very helpful indeed, but I still need to come up with a good word, better than Garnett’s “buzzing” and more accurate than “trumpeting,” which, as you point out, is difficult given that drones are so named presumably because of the noise they produce.³ Now you have drawn my attention to this sentence, I am not happy with it myself, so my new revision is as follows:

His ears constantly reverberated with the varied sounds of one moment a busy worker bee flying swiftly past, the next a low-humming idle drone, and the next apprehensive sentry bees protecting their property from the enemy, ready to sting.

[В ушах не переставая отзывались разнообразные звуки то занятой делом, быстро пролетающей рабочей пчелы, то трубящего, празднующего трутня, то встревоженных, оберегающих от врага свое достояние, сбирающихся жалить пчел-караульщиц.]⁴

John Phipps approved the revision and made further revealing comments:

I can perhaps understand now why Tolstoy used a verb derived from the word “truba.” Imagine you are standing in an apiary with worker bees rushing backwards and forwards to
collect and take back nectar to the hive. There would be the constant gentle and relaxing sound of bees. Now, drones—which are fewer in number—would maybe be flying in and out of the hive every couple of minutes or so, their flight marked by the low base note in contrast to their sisters. This intermittent short fly past would indeed sound very much like a drawn out note from a muted trumpet or horn. It is the only explanation that I can come up with.

Tolstoy is differentiating between the industry of the worker bees and the flight of drones and other new workers which are most likely making orienteering flights, ie, when they leave the hive for the first time, they really do look like they are playing. They first make short circular flights around the hive, then rise higher and higher increasing the distance, so that they can fix once and for all the position of their home.5

Before my translation went to press, I was also able to correspond about these passages with Tom Newlin, who made further valuable comments about their vocabulary and grammar. Our discussion regarding his reservations, for example, about my use of the adjective “sparkling” (for рябили, ryabili) and his observation that празднующий, prazdnujuushhiy (which I translated as “idle”) is a verbal and active adjective,6 led me to revise my translation again.

My correspondence with John Phipps and Tom Newlin, and their helpful remarks, inspired me to reflect more widely on the many other passages concerning bees and beehives in Tolstoy’s writing. Studying the passages about the gleeful behavior of the leisurely drones in his later story “Two Different Versions of the History of A Hive with A Bast Roof,” in particular, prompted me in turn to remember that the primary meaning of празднующий is “celebrating” rather than “idling.” I revised the relevant paragraph one more time:

His ears reverberated with the varied sounds of one moment a busy worker bee flying swiftly past, the next a low-humming, jubilant drone, and the next apprehensive sentry bees protecting their property from the enemy, ready to sting. (808)

Tolstoy’s Beehives

From one of the stories which Tolstoy included in one of the children’s reading primers he completed in the early 1870s, we can date his interest in bees in all probability to 1852. That spring he spent several months in Pyatigorsk, where he undertook a leisurely cure at the spa and spent long periods reading, writing, thinking—and also watching bees.

“What Happened to Bulka in Pyatigorsk” is one of six stories drawn from Tolstoy’s real-life experiences in the Caucasus that concern his dog Bulka (who features in his diaries of the time (PSS 21: 240–241)). Tolstoy first describes renting a little house on the hillside outside Pyatigorsk, whose windows looked out on to a garden containing his landlord’s beehives. These were not the traditional fixed comb hives made from an upright hollowed-out log (колода) like in Russia, he explains, but round woven baskets, and their population was clearly very docile. “The bees were so gentle,” he writes, “that I used to sit in the garden every morning with Bulka in amongst the hives” (PSS 21: 240). It seems reasonable to conclude that Tolstoy learned a considerable amount about bee behavior while observing it at such close hand during this intensely creative period in his life. (It was in Pyatigorsk that he completed Childhood, his first work of published fiction.)

The experiments with modern frame hives undertaken by the semi-autobiographical character Nekhlyudov in his 1856 novella A Landowner’s Morning suggest that Tolstoy had by this point developed a serious interest himself in practical beekeeping. In the early 1860s, at the beginning of his marriage, before he became engrossed with War and Peace, he established an apiary at Yasnaya

...
Polyana, which he remained personally involved with for about two years.

From Tom Newlin we learn that Tolstoy’s passion for beekeeping arose at a time of great apicultural change in Russia, when modern frame hives had begun to appear alongside the traditional log hives, and that he appears to have used Polish beekeeper Jan Dolinovsky’s manual, translated into Russian in 1861, as his principal handbook (Newlin 371). In addition to writing about beekeeping, Dolinovsky also developed a frame hive based on the classic “leaf” model devised by the François Huber, author of a pioneering natural history of bees published in Geneva 1792. While Huber’s hive had been primarily designed for observation, Dolinovsky’s hive, which looked like an elongated, horizontal box and housed up to twenty movable frames, was made for practical beekeepers (“Ян Долиновский”). It was used quite widely in southwest Russia and was the model Tolstoy chose to adopt in his own apiary.

The classic movable frame hive patented by Lorenzo Langstroth in 1852 seems to have been imported later in the early 1880s, but Russia had by then been producing its own indigenous frame hives for decades. These all more or less originated with the famous “Petersburg hive” invented in 1814 by Pyotr Prokopovich (1775–1850), whose magnum opus on beekeeping might have interested Tolstoy had its author been able to publish it during his lifetime and before Tolstoy gave up beekeeping (Jones 1). Nowadays regarded as the world’s first commercial model, since about ten thousand were made, the Prokopovich hive had three vertical compartments, each with its own door at the back, like a log hive and looked like a rectangular-shaped vertical box with a gabled roof. It spawned many successors, such as the taller “Mochalkin hive” (“Российское пчеловодство”).

It is a combination of log and indigenous frame hives that we can see in Alexander Makovsky’s painting “At the Apiary” (На пасеке), completed in 1916. Since beekeepers were often ageing peasants and priests (as in Makovsky’s painting), that is, social groups who rarely had funds to invest in new technology, log hives continued to be used extensively in Russia up until the Revolution, as can be seen in paintings of Russian apiaries dating from the 1860s to the 1890s by artists such as Savrasov, Kramskoi, Shishkin, Nikolai Makovsky, and Levitan. The sacred and folk rituals which unfailingly punctuated rural life provide another reason why Russian beekeepers remained wedded to the time-honored apicultural practices which Tolstoy increasingly favored as time went on, in keeping with his philosophical outlook. It is log hives, after all, that one can see in the background of popular icons of Saints Zosima and Savvaty, the hallowed patron saints of beekeeping in Russia. Founders in the fifteenth century of the remote Solovetsky Monastery in the White Sea, Zosima and Savvaty were the first to bring bees to Russia according to popular legend (Гробов).

Before he rejected the dogma of the Orthodox Church and established his own form of Christianity, Tolstoy was an “unbeliever,” like Levin, so would have left it to his old peasant beekeeper with the long grey beard to ensure his apiary had the customary icon of Saints Zosima and Savvaty, neither of whom are understandably mentioned in Anna Karenina. As Apollon Korinfsky notes in his 1901 ethnographic study of Russian folk belief and customs, nearly every apiary had its own icon of the two saints, while an individual hive which had its own icon of them was called a “Zosima.” Honey and beeswax were so highly valued in Russia that the two saints were in fact revered everywhere there was a wax candle burning before an icon of the Virgin Mary (Коринфский гл. 40).

While Tolstoy may have rejected the church’s rituals associated with bees and honey as superstitions, his beekeeping would nevertheless have naturally followed the rhythms of its calendar, as Levin’s clearly does in Anna Karenina. It was on April 17 (30), for example, the first of the two
days of the year on which St. Zosima is traditionally celebrated, that beehives would traditionally be moved from their indoor wintering place (зимовник, омшаник) and taken outdoors. The calendar for Easter permitting, pious beekeepers would take a candle from church on Maundy Thursday and then place it in their apiary on St. Zosima’s Day in the hope of good honey that year, as well as protection from theft. In Anna Karenina, we read about the bees taking their first spring flights amongst the willows on the day after the “Red Hill” holiday (Красная горка), which is celebrated on the first Sunday after Easter. When Vladimir Nabokov took pains in the 1940s to calculate a real-time chronology for Anna Karenina, he established that the novel begins in February 1872 (Nabokov 190–194). Orthodox Easter was celebrated that year on April 16 (28), so Levin’s bees are beginning to forage soon after St. Zosima’s Day.

On August 1 (14) comes the first of the three Feasts of the Savior, the so-called “Honey Savior” (Медовый Спас), the traditional day for bees to stop production. The beekeeper would cut out a large piece of honeycomb from one of his hives to take for blessing in church in the morning, after which it would be distributed to the clergy and the poor. Then the rest of the day would be devoted to removing the honeycombs from all the hives in the apiary with children allowed to present the beekeeper at dusk with a burdock leaf on which they would each be given some honeycomb as a great treat (Коринфский гл. 34).

The period between September 19 (October 2), the second day in the year on which St. Zosima is commemorated, and St. Savvaty’s Day on September 27 (October 10) is traditionally known in the folk calendar as the “nine bee days” (пчелиная девятина). During this time the year’s harvest of honey would be stored and the bees housed indoors for the winter. It was customary for beekeepers to pray to Zosima and Savvaty before doing anything important in their apiaries, and some even held services amongst their hives at both the beginning and the end of the beekeeping year, on April 17 and September 27.

It is soon after “Honey Savior” that Levin treats his guests to honey at his apiary in chapter fourteen of part eight of Anna Karenina, since we know that his half-brother Koznyshev only leaves Moscow in July, when Russian volunteers are departing for the Serbo-Turkish War. Levin’s apiary is situated, like Tolstoy’s own apiary at Yasnaya Polyana, in a lime and aspen wood about a mile from the main house. Tended by an old peasant beekeeper called Mikhailych, it contains traditional Russian upright log hives, fastened to stakes with bast.

On the basis that there were frame hives in Tolstoy’s own apiary, Newlin speculates that the new (“young”) hives along the wattle fence created from that summer’s swarms are of the box-shaped modern sort, which with justification he defines as the “apicultural analogue to the newfangled, western farming methods that Levin experiments with and then rejects in Anna Karenina” (370). But the young hives may also be log hives with Levin engaging in “natural” rather than “artificial” beekeeping. My thinking was that Levin’s beekeeping is more in tune with Tolstoy’s thoughts in the early 1870s, when the novel is set, so reflects his more traditional values then. He does write “young” rather than “new,” and does not differentiate between two types of hive. One of the drawbacks of beekeeping with fixed comb log hives, after all, was the necessity of having to kill many if not all the bees in order to extract the honey, but I’m splitting hairs at this point, I appreciate Tolstoy’s eventual allegiance to old-fashioned natural log hives may have been partly prompted by considerations of bee welfare. Like his co-eval Alexander Butlerov, who wrote extensively about beekeeping in the early 1870s in between pursuing a distinguished scholarly career as a chemist, Tolstoy also seems to have thought about beehive ventilation. This much is evident from one of the
examples he gives to explain moisture in the science section of his revised ABC (Новая азбука), completed in 1875, when he was simultaneously working on Anna Karenina:

Log hives for bees are made from the softest and most rotten wood: the best hives are made of rotten willow wood. Why is that? Because the air can pass through the rotten log, and the air is better for the bees in such a hive. (PSS 21: 216)

Dorothy Galton, author of A Thousand Years of Beekeeping in Russia (1971), reminds us that it is a traditional Russian log hive, not a modern Western box-shaped one, which Tolstoy has in mind when constructing his famous extended simile in War and Peace in which the deserted city of Moscow in 1812 is compared to a queenless hive (cited in Newlin 370). The hive is empty, as its inhabitants have swarmed, like the residents spontaneously fleeing Moscow. The acute, detailed observations Tolstoy makes about life in the hive prior to swarming in this passage are the results of the many hours he had spent in apiaries during the summer months.

War and Peace appears to have been the first work in which Tolstoy drew an analogy between the life of a beehive and human behavior, and it was imagery to which he would return on several subsequent occasions in his later writing.

While Tolstoy was interested in all aspects of beekeeping, he was particularly fascinated by the phenomenon of swarming, as Robin Feuer Miller (65–67) and Tom Newlin (370) have demonstrated, the latter with reference to the memoirs of the beekeeping specialist Khrisanf Abrikosov (Абрикосов). Scion of the eponymous confectionary dynasty, Abrikosov met Tolstoy in February 1898, when the former was still a student at university. A month later he abandoned his studies, as well as his plans for a commercial career, and went to England, where he worked for several months on the newly-established Tolstoyan colony in Purleigh, Essex. After he returned to Russia the following year, he settled in the village of Ovsyannikovo, just over three miles from Yasnaya Polyana, where he helped till the soil for another of Tolstoy’s devoted followers, Maria Alexandrovna Schmidt.

It is likely that Abrikosov’s own passionate interest in beekeeping was inspired by accompanying Tolstoy on his summer visits to a neighboring peasant beekeeper in the village whose apiary contained only log hives, as will be discussed in greater detail below. Abrikosov explains that Tolstoy liked simple rather than artificial beekeeping methods, such as the “natural” swarming generated by the old-style log hives that generally takes place each June, rather than the “artificial” methods associated with frame hives introduced from the West:

He liked swarms, the swarming season, and the gathering and hiving of swarms, when with a [great] hum and victorious cries a swarm goes into a new hive, like a triumphant army entering a city. (Абрикосов 415)

The repeated references to swarming in the two editions of the ABC book Tolstoy compiled in the early 1870s seem to confirm that it was a process that greatly intrigued him. These references begin with the inclusion of the word “swarm” (рой, roj) in the early sections dealing with the pronunciation of words and extend to phrases and simple sentences: “a swarm of bees,” “a swarm of bees landed on my house,” “a swarm settled on a bush. Uncle removed it and carried it away into a hive. And then he had white honey for a whole year” (PSS 21: 17, 40, 42, 55).

Tolstoy included a young peasant’s story about helping his grandfather during the swarming season in one of the graded reading sections (“A Boy’s Story About How He Found Queen Bees For His Grandfather”), and swarming also features in his story “The Willow:” “In the spring the bees buzzed loudly in the willow. During the swarming
season swarms settled on the willow, and the peasants gathered them in” (PSS 21: 80–81, 158).

The work that then claimed Tolstoy’s attention was *Anna Karenina*, where, in ironic contrast to the protracted simile in *War and Peace*, he summarily compares the constant hum at the ball in Moscow in part one, chapter twenty one, to that in a busy beehive. In between the passages associated with bees discussed earlier, which mark the beginning and end of the foraging season, there are two specific references in the novel to peasants dealing with swarms. Levin comes across a peasant carrying a skep of swarmed bees in part three, chapter two, and later in chapter eleven a peasant beekeeper gives Levin a detailed account of the swarming season that year.

One function of swarming that seems to have absorbed Tolstoy in the 1880s, after he had founded his new form of Christianity, has to do with natural methods of population containment. In *The Kreutzer Sonata*, written in 1889, the protagonist Pozdnyshev is a mouthpiece for Tolstoy’s uncompromising views on procreation, which seem at least partly inspired by the natural lifecycle of a beehive:

In order to refrain from struggle with other animals, the human race—the highest species of animal—should converge into one, like a swarm of bees, and not reproduce infinitely: it should also raise those who are sexless, like bees, that is to say, strive for continence, and certainly not the excitement of lust, towards which the entire structure of our life is directed. (PSS 27: 30–31)

Correctly subjecting this passage to critical scrutiny, Thomas Newlin comments that, in referring to the (female) worker bees in this passage, “Tolstoy knew perfectly well that in a beehive not all bees are “sexless individuals” and that the sole function of the queen and the drones is in fact procreation” (383). Tolstoy, however, is perhaps proposing here that large numbers of women should remain chaste, like worker bees, as a means of population control and that humanity should move towards emulating the ratio of worker bees to drones in a hive, which at its highest is 100:1. As outlandish as this idea is, it is not impossibly remote from the equally unusual views Tolstoy expressed in 1870 regarding the “woman question,” whereby he argued that the “sterile flowers” of society (such as Sonya in *War and Peace* and Varya in *Anna Karenina*) had important roles to play as aides to mothers (McLean 115–116).

Tolstoy may also have been thinking of bees when he gave the violinist who accompanies Pozdnyshev’s wife in The Kreutzer Sonata the name of Trukhachevsky, which is slightly reminiscent of the Russian word трутень, truten’ (“drone”). As an artist, Trukhachevsky is perceived in Pozdnyshev’s jaundiced imagination, after all, as a social parasite, whose only role is to seduce his wife, much as the drone performs no useful work in the bee colony, and serves only to fertilize the queen.

If Tolstoy was fascinated with the phenomenon of swarming, he also derived much interest from studying life in a bee colony as a paradigm of human behavior. In 1864, while he was still beekeeping himself, Tolstoy persuaded his sister-in-law Elizaveta to translate sections of a pamphlet by the German naturalist and left-wing politician Carl Vogt, hoping to publish them. Vogt’s underlying motive in *Der Bienenstaat* (“The Bee Colony” or “The Bee State”), which he wrote in 1851 in exile in Switzerland following the 1848 Revolutions in the German states, was to suggest a parallel between the structure of a bee colony and that of the Prussian constitutional monarchy. Tolstoy was not interested in the pamphlet’s mild political content (in which the worker bees exhort each other to rise up against the drones, on the grounds that in other species, which have no drone equivalents, everything is done for “the people”) (Johach 228). He admired, however, what Vogt had
to say about the natural history of bees, also from a literary point of view (Newlin 368).

Tolstoy’s efforts to publish the translated extracts were not successful, but it is unlikely he would have approved the exaggerated Russian version of Vogt’s allegory that the radical young critic Dmitry Pisarev had produced two years earlier, in 1862, shortly before he was arrested. The Bees (Пчелы) was published after his untimely death in 1868. Pisarev deleted all the Prussian references in order to construct a far more trenchant and sharply satirical allegory about class divisions, so that his article had relevance to the Russian situation. To give a flavor of Pisarev’s polemical style, we might quote a passage from the end of his article, when the onset of autumn and the disappearance of a readily available food supply prompts the drones begin to assert their position:

“We are the privileged class,” one of them exclaims, proudly spreading his wings. “We enjoy the exceptional favour of our gracious sovereign. The workers must take care of our nourishment. That is their primary duty; during the summer days they collected a lot of honey, and we must have our share of it. It is our birthright to enjoy public property. Now, to our great misfortune, we see the uneducated mob placing our rights under doubt. The worker bees think the stocks belong to them alone, because they alone gathered the honey and arranged it in the cells. They are obviously turning the most elemental foundations of logic and justice upside down […] Can a hive exist without drones, without the privileged class? The stocks belong to us—to us first of all. Once our existence is assured, we will willingly give part of the surplus to the hungry poverty-stricken workers, but we must first satisfy our hunger and consolidate production on our behalf in the future. (Писарев 268)

It is unlikely Tolstoy read this article, as his attitude to the three main nihilist critics, Chernyshevsky, Pisarev, and Dobrolyubov, was generally negative (Orwin 19–21). He did, however, develop a similarly critical attitude towards the “drones” of society in a less well-known passage about bees in book three, part one, chapter nine of War and Peace, although he is, as ever, driven by moral rather than political imperatives.

In this chapter Prince Andrei is musing on the different constituencies amongst the officer class in the Russian army on the eve of the great battle with Napoleon. He defines the eighth and largest party as a “drone population” motivated by self-interest, and its concern with “roubles, decorations, and promotions” he deprecates as an impediment to the “common task:”

Whatever question arose, a swarm of these drones, without having finished their buzzing on a previous theme, flew over to the new one and by their hum drowned and obscured the voices of those who were disputing honestly. (War and Peace 683)

Tolstoy returned to the theme of contemptible drones when he was compiling stories for his ABC book a few years later in the early 1870s. In his mission to convey ethical values to children in a less dry and didactic way than in the foreign primers he had studied, Tolstoy turned time and time again to Aesop’s fables. Amongst the hundreds of stories he alighted on was “The Bees, The Drones, and the Wasp,” the source for many later potent allegories:

The bees had built their honeycombs up high in an oak tree but the lazy drones insisted that the honeycombs were theirs. The case went to court, with the wasp presiding. Given that the judge was well acquainted with both the bees and the drones, she made the following proposal to the two parties: “Your bodies are not dissimilar and your colouring is the same, which makes this an undeniably difficult decision. Of course, I want to be absolutely scrupulous, avoiding any hasty judgments. So,
please take these hives and fill them full of waxen cells. The taste of the honey and the shape of the combs will reveal which party is actually responsible for the honeycombs in question.” While the drones refused to comply with this request, the proposal greatly pleased the bees. Thereupon the judge pronounced the following sentence: “It’s clear who was incapable of making those honeycombs, and who it was that made them. Accordingly, I return to the bees the fruit of their labours.” (Aesop 178)

As with all the other fables he considered for his ABC book, Tolstoy condensed and simplified this one after translating it afresh:

When summer came, the drones started to quarrel with the worker bees about whom the honey belonged to. The bees summoned a wasp to judge. The wasp said:

“I can’t judge you straightaway. I don’t yet know which of you is making the honey. So split up into two empty hives—the worker bees in one and the drones in another. In a week’s time I will see who makes the best and the most honey.

The drones started arguing.

“We don’t agree,” they said. “Judge us now.”

The wasp said:

“Now I will judge you straightaway. You drones don’t agree because you can’t make honey, and you just like eating honey that does not belong to you. Drive them away, worker bees.

And the worker bees beat up all the drones. (PSS 21: 407)

As with the hundreds of other stories he prepared for his graded reading primers, to which he devoted, if anything, even more time and attention than his adult fiction, Tolstoy probably also revised this translation several times in a desire to maximize its clarity and expressive power. As one can see, his version follows the original closely with the exception of the treatment robustly meted out to the drones at the end.

Ultimately, Tolstoy decided not to include his version of “The Bees, The Drones, and the Wasp” in the revised edition of his ABC in 1874, but he was to return to it fourteen years later, when he conceived the idea of reworking Aesop’s pithy fable along modern lines. Under the impact of his newfound religious fervor in the 1880s, the allegory now acquired a sharply moral dimension when Tolstoy realized that the unequal relationship between drones and worker bees offered the perfect model for understanding the nature of poverty in modern society. What resulted was a parable about social and economic disparity preached through the divergent “history” of one particular hive in a Russian apiary, as told first by its drone residents and then its worker bees. The first draft of “Two Different Versions of the History of a Hive with a Bast Roof” was completed in 1888, just before he wrote The Kreutzer Sonata.

The immediate impetus for writing this story seems to have been Tolstoy’s lengthy treatise about modern poverty, What Then Must We Do?, written between 1882 and 1886. Here the wealthy “drones” of society are no longer mere social parasites but explicitly condemned by Tolstoy as “robber-bees” whose self-serving exploitation of the working majority is responsible for the ills of society:

I came to understand that man, besides living for his own good, must work for the good of others […] I understood that this is the natural law of man, by fulfilling which he can alone fulfil his calling and therefore be happy. I understood that this law has been and is being violated by the fact that men (as robber-bees do) free themselves from labour by violence, and utilize the labour of others, using this labour not for the common purpose but for the personal satisfaction of their constantly
increasing lusts, and also, like robber-bees, they perish thereby. I understood that the misfortune of men comes from the slavery in which some men are kept by others; and I understood that this slavery is brought about in our days by military force, violence, by the appropriation of land, and by the exaction of money. (PSS 25: 292–293)

Like Aesop’s fable, “Two Different Versions of the History of a Hive with a Bast Roof” presents a scenario of drones who attempt to rob the worker bees of their rightful goods and who are punished for their crime.

The story’s cumbersome title belies its brevity (at less than fifteen hundred words) and the forceful elegance of its invective. A fine example of Tolstoy’s highly tendentious late satirical style, the story’s thinly disguised anarchist barbs are, as usual, directed squarely against the Russian government, and its sophisticated, self-important minions (the drones).

As well as enabling him to make his indictment of the tsarist system more comprehensive, the beehive allegory provided Tolstoy with a vehicle for preaching one of the lessons closest to his heart: the importance of earning one’s daily bread through manual labor on the land. Tolstoy presents the reader first with the history of the hive as compiled by the distinguished drone historiographer “Prupru” (whose name faintly echoes that of Vronsky’s horse Frou-Frou). The other history, three times as short, is by an unnamed worker bee.

There are obvious parallels here with War and Peace, in which Tolstoy satirizes French and other professional writing about history, and the pivotal role played by “great leaders,” and contrasts it with his own chaotic, ground-level history involving a cast list of thousands, through the medium of his narrative, which he naturally projects as a far truer reflection of events. As with Aesop’s fables, the reader of Tolstoy’s story is encouraged to see through the heavy irony with which the drone history is recounted and draw his own conclusions at the end.

Prupru’s history has all the right scholarly apparatus and is prefaced by a list of sources, which include the memoirs and correspondence of famous drones, a court journal, drone songs, and oral legends, criminal proceedings between drones and worker bees, and statistical data about the varying quantities of honey in the hive. From the point of view of the drones, the hive’s history begins on June 6 (20), the start of the swarming season, when they make their first appearance in the hive. At two o’clock in the afternoon that day, we read, when “like pack horses” working bees are continuing their “ceaseless, humdrum, lowly work,” the “large, black, furry, smooth drones” fly out of the hive for the first time, creating a spectacle of unprecedented magnificence according to those who witness it. The hive with the bast roof, which is under the “special protection of Grandfather Anisim himself,” is the envy of all the other hives in the apiary for producing the first drones. But upon leaving the hive, instead of heading straight over the fence to forage in the woods and meadows “like ordinary bees,” whom, to their consternation, they continually bump into, the drones immediately soar upwards, circling overhead like eagles while they hold a meeting and conduct their business (PSS 34: 321–322).

This business is dealing with the unsatisfactory performance of the worker bees, an issue on which they are unanimous. In order to take steps for improvement, the drones immediately elect the most able of their community to become “rulers, deputies, deputies of deputies, censors of morals, observers, guardians of morality, judges, priests, poets and critics,” and each are given appropriate emoluments. The next day they all take up their posts and, although it seems they are doing the same as before, circling over the hive, they are in fact doing important and difficult work, as can be seen from the diary entry of one of the main drones:
I have been unanimously elected to ensure the worker bees fly correctly. My duties are difficult and complicated, and I am fully aware of their importance, so I am trying to do my very best to fulfill them; but it is hard on my own, so I have invited A to be my deputy, not least since my aunt’s cousin asked me to find him a position. I did the same for B, C and D. They will also need deputies, so all in all we will have 36 or 38 people in our department. (322)

There are mild echoes here of scenes from part six of Anna Karenina in which, in the hope of securing a position he covets, Stiva Oblonsky does the round of his well-placed Petersburg acquaintances, including his sister Anna’s self-righteous bureaucrat husband Karenin, who deplores such nepotistic practices. Rather more like Karenin, whose life’s work is bound up with proposals and commissions and committees, this ambitious drone puts forward a program of measures to the general assembly. Since opinions about it prove to be divided, a vote is proposed, and since the question of voting is not sufficiently clarified, the drones decide to appoint a commission whose brief is to report to the next meeting (323).

The hive flourishes for the drones until St. Peter’s Day, on June 29 (July 12). Although Prupru records a minor perturbation when some of the worker bees suddenly take it upon themselves to fly with the queen out of the hive and hang off a rowanberry branch, the drones are fortunately able to ensure that the worker bees do not even entertain the idea that they have acted on their own volition, without the permission of their drone leaders. The swarmed bees are pronounced outcasts. Nevertheless by the end of August the drones begin to find their access to the honey in the hive blocked by the remaining worker bees. Since none of them has “stooped to working for his living,” they all eventually die. But the drones conclude their history by assuming the worker bees also die in the anarchy that results from the absence of their leaders.

The worker bee history begins, not on June 6 with the first swarms, but in early spring, when the hive “is moved out into the sun, and the bees immediately evacuate it and fly to the blossoming pussy willow.” One by one, the trees and shrubs come into flower, and the enjoyment they take in their work is fused with their enjoyment of blossoming nature. Soon the colony has to divide up due to “excessive reproduction,” and it is just at this time that the worker bees notice drones circling over the hives after midday. The notes of one worker bee present a startlingly different view of this period in their history to that of the drones, who regard them as unappreciative of all the work they do on their behalf:

Our gentlemen dispersed today. They droned and circled over the hives aimlessly for four hours and seriously prevented people from working. They only went away at four o’clock. They wore us all out by doing nothing, and then immediately they started eating. Well, never mind. There is enough for them. It’s just annoying that they prevent us from working. (324)

At the end of May the worker bees release the old queen so she can take charge of a new kingdom, while they remain with a newly fertilized queen who immediately lays eggs. The lime trees come into flower, and the worker bees need to work hard to make the most of their short season in blossom and produce sufficient honey for winter.

Problems arise when the worker bees can no longer allow the drones to keep eating the honey they are making. Without conferring or making any decisions, they one day simultaneously stop granting the drones access to the honey and even start striking the more insolent ones. The drones all perish, but not only does the hive not perish along with them, but is in fine shape to prepare for winter. When winter arrives, the worker bees quiet
down and settle into their places, keeping their children warm, and await spring and the joys of life again (324).

Tolstoy finished the first draft of his story about the beehive in 1888 and handed the manuscript over for safekeeping to Vladimir Chertkov, who had become his chief disciple, amanuensis, and archivist (590). It was only in 1894 that he remembered it again. The distinguished scholar Nikolay Storozhenko asked Tolstoy to contribute something from his recent belles-lettres, “if only a fragment,” for the annual of the venerable Lovers of Russian Literature Society, of which he had just become president.

Tolstoy asked Chertkov to copy the story about the beehive out and send it back to him so he might finish it. Six years later, in 1900, Tolstoy finally completed the story—rather too late for Professor Storozhenko’s annual (590). That year the idealistic young Khrisanf Abrikosov was living in Ovsyannikovo, working on the land alongside Maria Alexandrovna Schmidt. One of her neighbors there was Grandfather Biryuk, a peasant beekeeper who lived in a rudimentary dwelling he had constructed in the middle of his apiary, in which there were several dozen log hives. Grandfather Biryuk and his family lived in one half of the building, whose earth roof was planted with wild strawberries, while the other half served as a winter home for his bees (Абрикосов 414). He had enclosed the apiary with a wattle fence along which he had planted raspberry canes.

Abrikosov records Tolstoy making several visits that summer to Grandfather Biryuk’s apiary. Tolstoy, we learn, liked the “poetry” of its picturesquely arranged log hives with bast roofs. “How are the bees, are they swarming?” Tolstoy asked when he arrived one hot day, before going on to observe that the bees seemed to be flying heavily as they came back from foraging, even though the lime trees had not yet come into blossom. Next he wanted to know which hives had queens “singing” in them, and went off with the beekeeper to go and listen, exclaiming how good it was to be in the apiary (415).

It was thus under the fresh impressions of his visits to Grandfather Biryuk’s apiary that Tolstoy finally finished his history of the hive with the bast roof.

Clearly there are some parallels between Tolstoy’s story and Pisarev’s The Bees, written thirty two years earlier. Tolstoy shared Pisarev’s contempt for the drones of the tsarist regime, for example, but differed from him in his clear identification of the hard-working, self-effacing, ever-generous worker bees with the Russian peasantry, whom he wished to see thrive without governmental or other constraints. Pisarev may have been increasingly drawn to socialism in the 1860s, but he was not an anarchist. While he identifies the worker bees in his essay with the oppressed majority, he does not see the peasantry as Russia’s source of regeneration. Unlike Tolstoy, he also believed resolutely in science and the role of an intellectual elite. In What Then Must We Do?, Tolstoy by contrast advocates social equality:

In order to free ourselves from the labour that is proper and natural to us all and transfer it on to others, while at the same time not considering ourselves traitors and thieves, only two suppositions are possible: firstly that we, the people who take no part in common labour, are different from working people, and have a special destiny to fulfil in society, just as drones or queens have a different destiny to fulfil than worker bees; and secondly that the work that we, the people freed from the struggle for existence, do for other people, is so useful to all people that it must compensate for the harm we do to other people in making their position more burdensome. (PSS 25: 316)

Tolstoy did not live to see his story about the beehive appear in print but would have been under no illusion as to the likelihood of such provocative content being subject to severe censorship. Indeed,
when Chertkov included it in one of the volumes of *Posthumous Artistic Works* he published in Berlin and Moscow in 1912, two years after Tolstoy’s death, a full third of the story was censored for the Russian edition, including both passages cited above (*PSS* 34: 590). Even in the more permissive climate in Russia following the 1905 Revolution, Tolstoy’s fable was evidently not fabulous enough for Nicholas II’s government.

**Notes**

The author would like to express her gratitude to Tom Newlin for his generous and expert counsel on the topic of Tolstoy and bees over a sustained period, and also to Michael Denner for his comments on the first draft of this article. An earlier version of the first section was originally commissioned for a special issue of *New Ohio Review* (vol. 13, 2013) devoted to “translation cruxes,” during which a diverse group of literary translators was asked to discuss one or two particularly difficult passages in texts they were currently working on. An earlier version of parts two and three was published in *Beekeepers Quarterly* (March and June issues, 2014). Thanks are due to the editors of both these publications.

1. Personal communication, November 9, 2013.
2. Personal communication, November 12, 2013.
3. The word “drone” comes from the Old English drān, dræn, meaning “resound, boom” and is related to Dutch dreunen (“to drone”) and the German dröhnen (“to roar”).
5. Personal communication, November 14, 2013.
6. Personal communication, March 29 and April 7, 2014.
7. The present study is indebted to the painstaking research carried out in this article.
9. This passage is quoted in a slightly different translation in Newlin (370).
10. It later formed part of his 1859 book *Altes und Neues aus Tier und Menschenleben* (“Old and New from Animal and Human Life”). See Pont et al.

**Works Cited**


Долиновский, Иоанн. Начала Пчеловодства, примененное к устройству рамочного улья. Перевод с польского языка Адам Мечинский. Санкт-Петербург, 1861.


Прокопович, П. И. Школа пчеловождения или практическое руководство к изучению жизни пчел и правильному рациональному уходу за ними. ч. 1–2. Москва: Издание книгопродавца Д. И. Преснова, 1960.


*(PSS)* Толстой, Л. Н. Полное собрание сочинений в 90 томах, академическое юбилейное издание. Москва: Государственное Издательство Художественной Литературы, 1928–58.