as he hadna bout it, but had changed some owd fashioned jew'lry as had belonged to his wife for th' bracelet, and some money into t' bargain, wi' Caleb Jakes the pawnbroker at Falmouth. Aw should like to know where his wife—poor soul—got hold o' the jew'lry he changed, for her folk as well as his'n weer as poor as church mice."

"What sort o' jimcracks weer they as un changed for t' bracelet?" asked the old sailor.

"Did un tell 'ee, dame?"

"Ay. 'Tweer a locket, he said; but he bid me say nought about it to nobody. But aw don't know why *aw* should howd *my* tongue to please *him*. He may keep t' owd bracelet till he can find a wife to wear it, for *me*."

Jemmy Tapley had by this time drunk his beer and finished his pipe. The entrance of fresh customers put an end to the conversation, and with a "good e'en" to the widow, and a nod to the fishermen, the old sailor quitted the public, and returned to his own humble cottage, muttering to himself, as he stumped along on his wooden leg, and, to all appearance, sunk in deep cogitation over what he had heard from Dame Bolitho.

## THE QUEEN BEE.

The queen bee, as is known to most, is larger, longer, and tapers more than the working bee. The wings are proportionately shorter, and on the under part of the body she is of a yellowish-brown colour. Like the worker she is armed with a sting. You never see the queen roaming about in search of flowers. Neither the queen nor the drone ever does this. Occasionally, however, the "royal mistress of the hive" flies abroad for an airing, or it may be, according to Huber, for some other equally important purpose.

The prosperity of the hive greatly depends upon the life and health of the queen. There are some circumstances under which even "the busy bee" will not work. Flowers may be scattered thickly over every meadow; trees and bushes may be literally dripping with honey; the bee may have a clean, healthy home, with the wax already made; and yet the bee will not work. How is this? The bees have health, strength, wealth—everything that is needed for bee-life—but the queen is wanting, and they are out of heart. They have no brood-cells to watch, no royal mother to defend, and they completely break down under their discouragements.

Who has not seen a royal cell, the "queen's palace" of the hive? This is not her majesty's residence, but her birth-place. It is unlike the other cells, and hangs down from the edge of some piece of comb. The workers and drones are hatched in cells lying in a horizontal position, but the queen is hatched with her head downwards.

Bee-writers tell us that all the eggs laid in the early part of the season are of the working sort; that the eggs for producing drones or males are laid about two months later; and those for the females immediately afterwards. In the first International Exhibition was exhibited a queen said to have been produced from a larva of the working sort; and the production of a queen in this manner has been pronounced "the most remarkable fact ever brought to light in natural history." My opinion is, *that there never was a queen produced in any other way*, and that all eggs produced by the queen are either male or female. Are not the working bees undeveloped females? Naturalists tell us that they are. And will not the larva of the working bee produce a queen at any part of the season, if treated with the attention and respect due to royalty? I have had abundant proof that such is the fact. Why suppose anything so unnatural as that a queen bee should lay eggs male and female, and *something else*, this something else being the greater part of the eggs produced during the season? Or why suppose anything so unnecessary, when it is known that the eggs of the working bee sort will bring queens whenever a queen is wanted?

In the middle of March, 1856, the queen of a very prosperous hive, of good weight, died. I found her outside the hive, in a very weak state, and placed her within the doorway of the hive; but she died before the following morning. The busy tenants of the bereft home pursued their avocations as if nothing had happened, which convinced me that the deceased mother had been fruitful up to the time of her death. If so, according to my theory the bees could in due time raise another queen, but one that would necessarily be barren, as no drones were in the hive or in the garden. I watched this case with considerable interest, as it might confirm my views, or, on the other hand, set all my calculations at nought. For several weeks the bees worked well, and carried home a good deal of bee-bread—a sure sign that they had found nothing amiss. Now, however, the time had come "to pass the rubicon." The eggs of the late queen had all been used up, and, if no more could be hatched, the bees would become spiritless and sad. I felt persuaded that a queen had been secured, or the bees would not have worked so long. On the 16th of April there were evident signs of mischief. The hitherto industrious creatures ceased to carry in bee-bread. I wanted no further proof that the queen's eggs were not hatching, the cause of which was sufficiently clear. One of my hives having produced drones rather early, I had the opportunity of supplying my failing stock with their one *desideratum*. Therefore, on the 23rd of April I placed in the hive six drones, and prevented their exit by closing the doorway for a short time. If I had put these strangers into a hive where they were not wanted, they would have been expelled or killed without ceremony. Not so here. By the 10th of May a marked improvement had taken place. From this time the tide of prosperity flowed; and I find the following memorandum on June 17th:—"Drones still keep possession, and the population increases very fast." On the 4th of August I took a bell-glass of honey from this hive.

I once heard a lecturer (Dr. Carpenter) say that when a queen became old and barren, the bees destroy her, and raise up a young one in her room. If Dr. C. had gathered his knowledge from observation, instead of from books, he would probably have arrived at a different conclusion. The faithful subjects abide by their royal mother to the last; and should her death be of a lingering kind, so that she can lay no eggs for a few weeks, the inevitable ruin of the community follows. I must add, however, that from unhealthy and incompetent queens we get many of our weak stocks, and all our "desertions."

The old queen leaves the hive with the first swarm. When the young queens are hatched, it often happens that another swarm comes off, accompanied by more queens than one; of these, one appears the favourite. Her majesty does not "lead off" her subjects when they colonise, but, dutiful subjects as they are, some of the commonalty precede, and commence clustering on some bush, or other convenient place, the queen following. It sometimes happens that the whole of a swarm will

alight without the queen, in which case they soon return to their old quarters. Take the following in proof. A swarm of mine came off, and "pitched" in their usual orderly manner. Before I had time to secure them they began their homeward flight. As I was watching their movements, I found the queen-mother on the ground, unable to fly; but she appeared to be otherwise in good health. I secured her, and allowed her to enter the hive she had just left. Thinking that the bees might on the following day repeat their attempt to colonise, and with the same result, I resolved to put the queen, with the swarm, into another hive. As I anticipated, the swarm again left the hive and clustered as before. Again I caught the queen, and, having hastily removed the old stock out of the way, put an empty hive in its place, and gave her majesty undisputed possession. Before she had time to complain, "This does not suit my dignity," the swarm, discovering the absence of the queen, again returned to what they expected to be their old home, but chanced to be another, and one not so well provided with conveniences and comforts. As soon as possible I carried away the swarm and replaced the parent stock. Afterwards all things went on smoothly and well.

Upon a similar occasion I found the queen, and thought it best to destroy her. The bees returned as usual, and awaited the advent of a more youthful empress. On the 9th day the hostile trumpet announced the birth of rival queens: one or two of these left with the swarm on the following day.

I once hived a fine swarm, and soon the bees, instead of going off to work, began making a sound which, to the apiarian's practised ear, means "We don't like our new lodgings, master." I went to the parent stock to watch them crowd home. On the doorway-platform of an adjoining hive there was a singular little bunch or coil of bees that attracted my attention. Suspecting that the lost queen might be in the middle, I hastily removed the whole to the hive which the swarm was deserting, put them on the ground, separated the bees, and, seeing the queen amongst them, guided her to the hive. The bees instantly changed their tone, and no more of them left the hive. J. B.

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## THE MIDNIGHT SKY AT LONDON.

### JUNE.

BY EDWIN DUNKIN, F.R.A.S., ROYAL OBSERVATORY.

MIDNIGHT at midsummer, in the latitude of London, is so influenced by twilight, that many of the small stars, visible to the unassisted eye in the dark nights of winter, can only then be seen with telescopic aid, especially those north of the zenith. The sky near the north horizon is now more or less illuminated, while the general aspect of the heavens bears witness that there is no real night, but that there is constant day or twilight throughout the twenty-four hours. To those of our readers who are resident in the north of England, or in Scotland, the absence of complete darkness at midnight will be still more evident; but if we proceed to higher latitudes, or within the Arctic circle, we shall find that there will be no darkness at all, and that the phenomenon of the midnight sun will at that hour be daily observed skirting the northern horizon. In London, however, there is always sufficient darkness on a midsummer midnight to observe stars down to the fifth magnitude with the naked eye, and consequently all contained in our diagrams.

Referring first to the lower map, or to the southern half of the sky, it will be perceived that, although there is a general absence of very conspicuous constellations, yet several well-known stars are to be seen in different directions. Let us confine our attention at present to the sky east of the meridian, starting, as usual, from the zenith. The first star which naturally attracts our notice is Vega, about ten degrees south-east of that point. Very near Vega, in the same direction, are Beta and Gamma Lyræ, two stars of the third magnitude. Directly below these, and between Lyra and Aquila, are the small constellations, Vulpecula, the Fox, and Sagitta, the Arrow. Aquila can be distinguished midway between the zenith and the horizon, by its group of three stars in the neck of the Eagle, the central and the largest being Alpha Aquilæ, or Altair. Between Aquila and the horizon, Capricornus is situated. The position of this sign of the zodiac is not, however, well marked, owing to the paucity of large stars in that neighbourhood. North-east of Vega several bright stars in Cygnus are clearly visible, four of them being of the third magnitude. These are all generally known by a Greek letter, the star nearest to the zenith being Delta, the next Gamma, then Epsilon, and the last Zeta Cygni. To the north of Gamma, Alpha Cygni, or Deneb, shines as a star of the first magnitude; but this object is included in the northern half of the sky, and consequently will be found in the upper map. Between Cygnus and the eastern horizon the space is occupied by the constellation Pegasus, one half of which at midnight is south, and the other half north of the imaginary line separating the two halves of the sky. Several bright stars in Pegasus can be seen near the horizon in the east. Three of these, together with the principal star in Andromeda, will form conspicuous objects in future diagrams, the combination being popularly known as the square of Pegasus. Between Aquila and Pegasus two small constellations, Equuleus and Delphinus, may be noticed, the latter more especially by a group of fourth and fifth magnitude stars. The horizon from due east to due west is occupied by several of the signs of the zodiac, the constellations, commencing from the east, being Aquarius, Capricornus, Sagittarius, Scorpio, Libra, and Virgo, the last-mentioned extending to a little north of west.

The principal stars on the meridian at this time are those in Ophiuchus, the chief object in which is Ras Alague, or Alpha Ophiuchi, about forty degrees from the zenith. Between Ophiuchus and the zenith the space is occupied solely by the constellation Hercules, which extends to a point very near the two bright stars in the zenith, Beta and Gamma in Draco. Ophiuchus spreads over a large portion of the sky on each side of the meridian, and reaches nearly to the south horizon. Excepting two or three stars near Ras Alague of the third magnitude, there is very little to attract the attention of observers in this constellation. West of the meridian, several well-known objects, the positions of which we have pointed out in the descriptions of the diagrams of preceding months, are still very conspicuous. First, near the horizon in the W.S.W., but out of the limits of our diagram, Spica, and other bright stars in Virgo, are on the point of setting. Arcturus, and a few other tolerably large objects in Boötes, are now a little south of west, about forty degrees from the horizon. They can be readily found by the ruddy appearance of Arcturus. Between Arcturus and the meridian, Alphecca and its companions, forming the Northern Crown, can be easily observed by the regularity and compactness of form of that small constellation. Directly south of Corona Borealis, and exactly midway between the zenith and horizon, Serpens, with a group of several bright objects, can be seen, the principal star being between the second

terity. There was a custom prevailing at the beginning of this century, though it is nearly obsolete now, of hiring farm servants at certain periodical gatherings, called "mops." The labourers who came to be hired used to intimate their calling by wearing certain insignia round their hats—a wisp of hay denoting a carter, a wisp of straw a thatcher, a plait of horsehair a ploughman, and so on; now, if the Dick of the queer hatband was a candidate for service on any such occasion, the circumstances that gave rise to his renown may be easily imagined.

"As mad as a hatter" is another mysterious comparison, which even people of education do not disdain to use, though no one is kind enough to vouchsafe an explanation of it. If it be assumed, as a friend suggests, that hatters must be mad to go on, from year to year, perpetrating the frightful cylinders that gentlemen wear on their heads, we feel bound to rebut, in their behalf, the charge of insanity, and to transfer it to the wearers of the said abominations instead of the makers, who only exercise their industry in satisfying the demands of the public.

The amount of pleasure implied in being "as jolly as a sand-boy" we cannot tell, never having belonged to that free-and-easy profession, the members of which, so far as our observation goes, pass a considerable portion of their time in the exhilarating and healthful exercise of assmanship (their empty sand-bags serving them as saddles), their jollity being most exuberantly demonstrative when their merchandise has been transmuted into cash.

"As merry as a grig," is also a frequent similitude, though we have never been able to get at the secret of the grig's merriment—a grig, as the reader may require to be informed, being a small eel which has not arrived at years of discretion, and manifests its lack of that virtue by perpetually wriggling and twisting its body and wagging its slimy tail.

But we must draw bit, lest we provoke somebody to a comparison which shall illustrate our tediousness.

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## THE WORKING BEE.

Towards the end of March the workers embrace every opportunity to carry home "bee-bread"—the pollen or bloom-dust of flowers—as this is required as food for the young, which are now requiring much attention.

As the queen lays all the eggs that produce the three sorts of bees, everything depends upon her health and fecundity. In the height of the season the number of eggs laid in a single day amounts to several hundreds, and this for weeks together.

Reaumur states that a healthy queen will lay 12,000 eggs in twenty-four days. This may be rather a high figure. I once made a careful observation upon the increase of a good hive, with the following result:—

In the year 1844 I hived a swarm on the 22nd of May. The swarm consisted of 25,000 bees. On the 3rd of July, a maiden swarm (a swarm from a swarm) came off numbering about 20,500. On the 15th of July there was a second swarm of about 10,500 bees. Reckoning the bees still remaining in the hive, with those lost by death, at 9,000, we have a total of 40,000. From these take the original swarm of 25,000, and 15,000 will remain to be accounted for. These must have been hatched in thirty-three days, as could be easily shown; thus showing a figure nearly approaching Reaumur's high estimate of 500 a day.

During April the bees are not likely to do much towards storing. They find work enough to "hold their own" and attend to the brood. I once had a hive that increased in weight fourteen pounds, from April 17th to 24th; but this is a very rare occurrence. Should a hive with a good healthy queen require feeding at this season, feed liberally.

About this time, a hive that is weak through the imperfections of the queen, is likely to suffer "a desertion." In this case the few remaining bees, accompanied by the queen, forsake the hive, leaving only the empty combs. It not unfrequently happens that this small and forlorn community enters another hive in the same apiary.

Towards the end of May, the drones having become numerous, and the hive nearly full of workers, "the musicians of the queen's band" find plenty to do, in fanning their wings to lower the temperature of the hive, and show their pleasure at the successful operations going on within.

The crowded state of the hive may now cause the bees to "swarm." Within the whole range of instinctive operations, what is more remarkable than a swarm of bees? Thousands of bees, that yesterday would have died in battle or starved themselves to death in defence of the tenderly-nursed brood, will to-day leave them all without the slightest hesitation, fully bent upon their "new move."

The bees that leave the hive before the queen, move off in a stately march, as if conscious that their choicest treasure remained behind. After the queen has left, the rush made by the rest of the swarm is remarkable. It is then all "who shall be first?" Whether the queen leaves the hive of her own accord, or whether she is compelled to do so by the workers, is a disputed point. I once saw the queen on the platform, and as she attempted to return to the hive, the workers forced her to take wing; but a solitary case proves nothing. The bees, if they like their new home, begin to work without delay.

On the 9th of July, 1859, I put a swarm of about 24,000 bees into a hive with the combs already made, and they stored a pound of honey the same afternoon.

Bees swarm at various times and seasons. I have had a swarm as early as the 30th of April, and as late as the 23rd of September. One has left the hive at 7.45 A.M.; another at 4.48 P.M. One swarm has consisted of no more than 5,600 bees; another could boast of an army of colonists, 27,000 strong.

Notwithstanding the decision of bee-writers to the contrary, I have had a good swarm two days before the appearance of drones; and I have also had a swarm that did not leave the parent stock till the drones had appeared sixty-five days.

Honey-collecting is about as much dependent upon the weather, as haymaking. I have known a nice swarm, after having improved every opportunity, starved to death at the end of three months; and I have had a swarm which collected five-and-a-half pounds of honey in one day, and at the end of five days had reached the weight of a good winter's stock.

Hundreds of times, including almost every possible variety of circumstance, I have weighed bees, and do not doubt but the result would surprise the apiarist as well as the general reader. For instance—The weather being hot, with a clear sky and calm air, a good hive increases in weight three pounds daily. The day following is equally hot, but thick clouds pass over the face of the sun every few minutes, and the increase in weight is only a quarter of a pound daily. But notwithstanding this, a clouded sky sometimes proves an advantage. A

striking instance of this kind happened in August, 1853, a hive dropping suddenly from three pounds a day increase to nothing, solely on account of the weather becoming very bright and drying. A bountiful honey-dew being the chief source of supply, affords the explanation.

If you interrupt bees in their work they will accommodate themselves to circumstances in a most interesting manner. If you contract the hive, they will at once contract the size of the cells to meet the difficulty. If you break a piece of comb, and make it lean on one side, they at once throw across buttresses to keep it in position; I have made them do this, and almost given the "wise folk" credit for something beyond instinct.

The manner in which bees communicate their plans to each other is amongst the most noteworthy of their "doings." Place a piece of honeycomb or other tempting bait at the distance of ten or twelve yards from the apiary. A solitary bee shall first be attracted, and, having satisfied itself, shall return to the hive. From this hive, in a few seconds, the bees will come out in an excited manner and off to the newly-discovered treasure, whilst the bees in the other hives remain undisturbed till similarly enlightened by some member of their own community. I once hived a swarm, and shortly afterwards another swarm attempted to find a home in the same hive. The greater part of the second swarm clustered around the outside; and, fearing that the population would be too great, I tried to separate the swarms, and so far succeeded that they occupied two hives the remainder of the day. At night they were placed as two distinct swarms, with several hives of bees between them; early on the following morning the bees left one of the hives in a very matter-of-fact sort of manner, and I expected them to return to the parent stock, but was not a little surprised to find that they had discovered the whereabouts of the other swarm, which they soon joined without molestation.

The manner in which the workers treat the drones is interesting. In the economy of the bee nothing has puzzled naturalists more than the use of so many drones in the community. The highest number of drones in a hive is estimated at 2,000, but with my own hand, I have killed 2,800 in one family, and need hardly say that I failed to secure the whole brood. The drones live upon the fat of the land and are never satisfied with less than a plenty. They fly abroad in the hotter part of every fine day, and seem to enjoy their life of ease and pleasure as much as any human drones ever do. The workers are very fond of the drones as long as they feel their presence to be necessary. Towards the close of the honey-season the case alters, and the poor creatures are found to be in the way. First, they are treated with disrespect; but this is soon followed by more visible marks of displeasure. The workers begin their determined attack upon the drones by hunting them away from the open cells of honey, and forcing them into some corner of the hive where they can find no food. Sometimes, if the weather should prove unfavourable for getting abroad, the poor creatures remain in their barren position so long that they are unable to fly when the weather permits their going out. In such case (which is not common), they may be seen crawling upon the ground in front of the hive by hundreds. In fine weather, and owing to the strength of the drones, the workers (most of them being in the field) cannot confine them, and they keep leaving the hives and returning, to the sad annoyance of their foes. At length, the bees, losing all patience, resort to their stings, and then the poor drones fall an easy prey.

J. B.

# Varieties.

ROYAL ACADEMY.—The works of art sent for exhibition this year amount to the unprecedented number of 3,011. The pictures alone amounted to 2,683. With closest packing, the number placed on the walls was 896, while of pictures "accepted but not hung" there were 180.—*Sir Francis Grant.*

SHAM WINES.—When consular agent at Rheims, I legalized many an invoice of "Madeira," "Sherry," "Port," "fine old Cognac," and the "best Holland Gin," and of all sorts of *liqueurs*, "Chartreuse," "Curaçoa," and "Kirsch," exported to the United States from Epernay, by an expert manufacturer of that place. I had reason to believe that within his extensive premises he had brought together the vinous powers of production of the whole world, and could, without travelling beyond his own walls, summon at his call the rich cordial of the Alps, the fiery spirit of the Low Countries, the wine of the Cape, the *liqueur* of the Antilles, or the products of any other quarter of the globe. In fact, it is no secret in Champagne that this ingenious and wealthy manufacturer, whose success has been commensurate with his wondrous enterprise, has virtually abolished all the geographical divisions of the earth, and, recognising their diversity only in name and idea, produces within his own inclosure any wine, spirit, or *liqueur* a customer may demand. I know by name his agent in the United States, and I would no more think of drinking of his vari-coloured bottles than I would of those of an apothecary's shop.—"*The Champagne Country*," *by R. Tomes.*

THE "CLAQUE" IN PARIS.—In Paris, the *claque* exists in all theatres, with the honourable exception of the Théâtre Italien. At the Grand Opéra, the present *chef de la claque*, M. David, is a man of importance and intelligence. He has a staff two hundred strong under his command. With cunning generalship he distributes his forces in batches of ten or twenty throughout the house. Each of these he places under the surveillance of trusty lieutenants—men of caution and of superior address. He occupies a conspicuous position himself, and conducts the applause with as much care and precision as the *chef d'orchestre* directs the music. . . . . In most of the theatres the *claque* sit together, and occupy the centre of the pit. With a little practical experience you can pretty well tell which of the artists on the stage is liberal towards the *claque*, and which the reverse. On a first night, the *claque* is an object of interest to authors, actors, singers, and managers. The *chef* has long and serious interviews with the *impresario*, at which are discussed the different "points" that are to be distinguished, where the *claque* is to laugh loudly, or express approbation by an encouraging "bravo." Auguste, David's predecessor at the Opéra, insisted upon all first nights confided to his care being sustained *à la crescendo*. He used to declare it would never do to exhaust the influence of his efforts upon the first and second acts, but as the piece progressed so should the excitement of the *claque* increase, until the last act ended in the mad enthusiasm of his myrmidons.—*The Impresario.*

FRANZ BOPP.—Born at Mentz in 1791, the future Comparative Grammarian received the greater portion of his education at Aschaffenburg. He showed very early a desire to study languages, not for their literature alone or chiefly, but in order to understand their organism. For the prosecution of these studies he went to Paris in 1812, and consumed the next five years of his life in the acquisition of Sanskrit and reading largely in the great Sanskrit epics, especially the Mahâ-Bhârata, from which he subsequently published several of the most interesting episodes, both in the original and in translations. In 1816 was published at Frankfort a short treatise entitled, "On the System of Conjugation in Sanskrit, compared with that used in Greek, Latin, Persian, and German." Bopp removed from Paris and resided in London in 1817, where he published, in the "Annals of Oriental Literature," an elaborate article entitled, "Analytical Comparison of the Sanskrit, Greek, and Teutonic Languages, showing the Original Identity of their Grammatical Structure." It is said to have been partly through the credit gained by this paper that he was appointed, in 1821, to an Extraordinary Professorship of Oriental Literature and General Philology at the University of Berlin. This was elevated into an Ordinary Professorship in 1825, and held until his death. His life thenceforward was outwardly uneventful. The "Comparative Grammar" appeared in six parts in from 1833 to 1852. Bopp was a man of great gentleness and simplicity of character, devoted to his special studies, and taking no part in the world of politics. He died at the age of seventy-six, October 23, 1867.