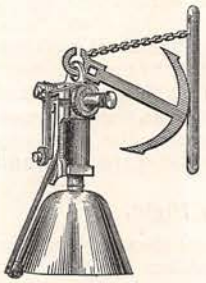
hair and stately presence add a charm to our homes.

Characteristics vary—one will require the soft clinging draperies of cashmere or crépon, satin or velvet, and another the richness of watered silk, poplin, or brocade. Black relieved with rose-pink or mauve, and grey with white are the accepted combination of colours, the soft fine laces now worn being the fittest material for those charming accessories of cap, wrist frill, and neckerchief; the full sleeves devoid of stiffening, with fichu-shaped bodice ornament with stole ends, are also appropriate and becoming. Our sketch is a design for a beautiful gown of crêpe on silk faille, or satin on crépon, with the added richness of dull or bright-cut jet. A. LL. GRIFFITHS.

*Cut paper patterns for making costumes from the original designs illustrated in this article may be had, cut to the sender's measurements, for one shilling and sixpence each, or one shilling in the case of the child's dress. Application should be made to the Author of "Chit-Chat on Dress," care of the Editor of* CASSELL'S MAGAZINE, *La Belle Sauvage, London, E.C.*


Correspondents are requested, when applying to the Editor for the names and addresses of the persons from whom further particulars respecting the articles in THE GATHERER may be obtained, to forward a stamped and addressed envelope for reply, and in the case of inventors submitting specimens for notice, to prepay the carriage. The Editor cannot in any case guarantee absolute certainty of information, nor can he pledge himself to notice every article or work submitted.

### An Electric Bracket Bell.



The bell shown in our engraving is well fitted for use in shops, offices, and yards. The mechanism is similar to that of the ordinary electric bell, the hammer being moved by an electro-magnet excited by the electric current. The actual size of the bell is about six times that of the figure.

### Life and Colour.

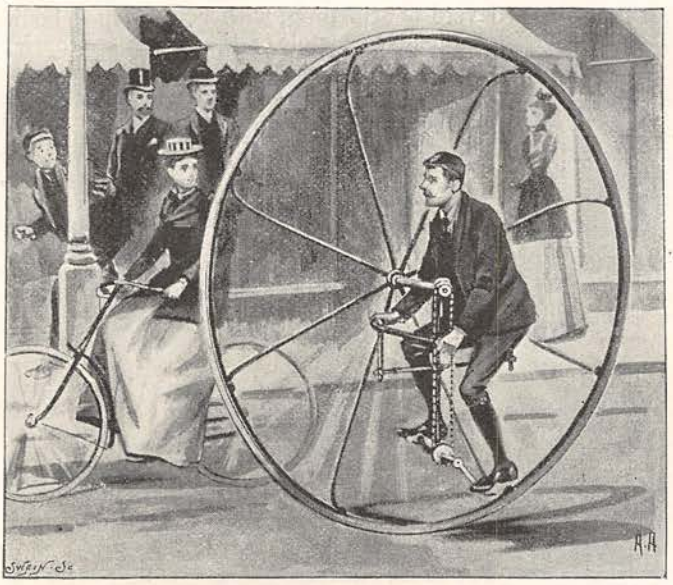
The influence of colour on life is a subject which is now receiving much attention from psychologists and physiologists, or perhaps we should say psycho-physiologists. It has been proved, by test, that children of the white race prefer yellow to other colours, whereas adults prefer red. The American Indians prefer yellow, the Chinese blue or yellow, and the negroes are partial to green. More important is the discovery that red light stimulates, whereas blue light soothes, the nerves. Red light is also found to favour the development of certain seeds and plants. Some curious particulars have also been collected as to the influence of colour on intellectual activity. Wagner, for example, always draped his study with satin hangings of rose or blue colour, and took them with him on his journeys.

### "Wrinkles" for Everyone.

It has often been pointed out in THE GATHERER columns that what are called small novelties are frequently those most appreciated by the average housewife and the man in the street. A new way of cooking and serving eggs is foreshadowed by the introduction of the "Premier" Egg Cup, which is made of porcelain, is rather larger than the cups generally used, and is fitted with a nickel cover. The first advantage secured by the new cup is that the sending of bad eggs to table is made impossible. For the egg is broken into the cup, the required seasoning is added, and, the nickel cover having been screwed on, the cup containing the egg is plunged into the saucepan. In a minute or two longer than by the old-fashioned method the egg is cooked, and may be served in the cup. All the mess and untidiness of chipping shells are avoided, and eggs cooked in this way will be found very digestible.—Another novelty which claims the suffrage of all good housewives is the "Little Friend" soap tray, which has been designed by a lady to fit housemaid's pails and washing baths. It is of metal, well perforated, and by means of clips can be attached in a minute to the rim of any pail or bath, where it will hold soap, flannel, or brush, and thus save the worker from groping for these in the water, as well as prevent the waste of soap.—No name plate that could be devised would make an umbrella unstealable! But an "Umbrella Identifyer" which has just been patented seems to open a channel for the return to their lawful owners of umbrellas and sunshades which fall accidentally into the hands of the well-disposed. The "Identifyer" consists of a tiny collar of metal, in which a slot is specially stamped out for the reception of a slip of paper upon which the owner's name and address are written. This metal collar is then clasped automatically upon the roller which encircles the stick. Anyone finding an umbrella or sunshade thus decorated may readily see the address to which it should be sent.

### Monazite.

Monazite, or the "lonely" mineral, is a compound of several rare earths, and is found in small quantities in Bohemia, Norway, Cornwall, Finland, and North Carolina. It occurs in six-sided crystals,



A MONOCYCLE.

and is highly refractory—that is to say, can withstand an intense heat without fusing. Hence it is found suitable for making the hoods employed in the incandescent system of gas-lighting. A demand having sprung up for it, considerable deposits have been discovered in North Carolina amongst the river beds and in the clefts of the gold reefs. Whilst upon this subject we may also state that large deposits of a fine-grained marble, varying in colour from rose red and green to grey, have just been found in the State of Georgia.

### A Monocycle.

Our illustration shows a stable monocycle which has been brought out by a French inventor, M. Gauthier, of St. Malo. The wheel is over six feet in diameter, and the spokes are bent, so that the centre of gravity of the rider is below the centre of the wheel. The idea is not new, but M. Gauthier has worked it out with more success than earlier constructors.

### The Seats of Thought.

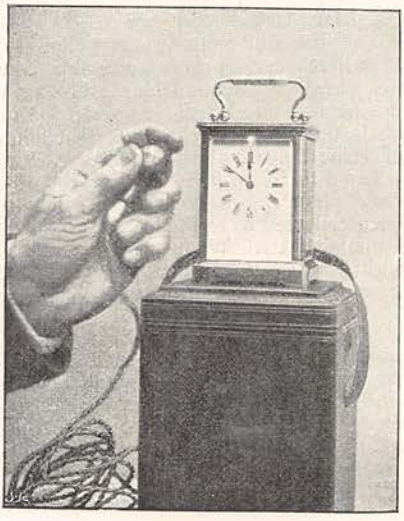
A discovery which, if verified, will be of great importance in mental science is announced by the Rector of the University of Leipzig, a distinguished physiologist. It has long been understood that the outer layer of grey matter forming the "cortex" or bark of the brain is the seat of intelligence, and that the bulk of the brain consists of white fibres which connect the cortex to the ganglia or lumps of nervous matter underlying the hemispheres of the brain, and also to the spinal cord and the various nerves of the trunk and limbs. The outer layer is a kind of root from which the entire nervous system springs, and may indeed be compared to the sending and receiving apparatus of a telegraph station, from which the branching lines proceed. Sensations from the body pass along the nerves to the cortex of the brain, and, contrarily, messages pass from the cortex to the other parts of the body. Ferrier and others have shown that those parts of the brain concerned with the motions of the body are located in the front and sides, and there is reason to believe that the parts dealing with sensation are placed at the back. Hitherto, the centres of thought—that is to say, of the intellectual powers—such as reason, imagination, and memory have been unknown, but suspected to lie in the fore part of the brain. The German scientist claims to have localised four centres of thought under the temporal bone and the parietal or side wall of the head. These areas of the cortex are connected together, and also to the sensory and motor areas, by nervous fibres and in his opinion serve to combine mere sensations into ideas. According to him, they are absent in the lower animals, and only fully developed in a child after it is three months old.

### Natural Breathing.

An observation of much importance to the health of men and women, and also in the art of singing, has been made at the Physiological Station, Paris, by means of the instantaneous camera. It has been supposed that men breathe chiefly by the movement of the diaphragm, and women by the movement of the thorax; but photography shows that a woman unrestricted by a corset breathes in the same way as a man—that is to say, by the diaphragm and thorax.

### Telling Time by Night.

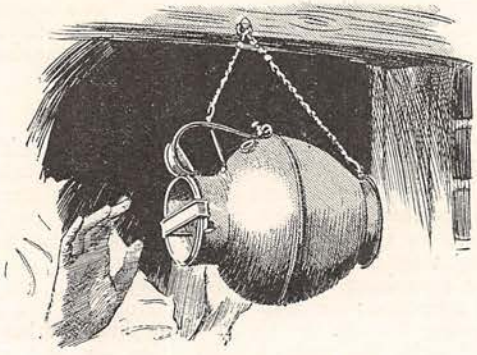
An ingenious application of electricity to the illumination of clocks and watches has just been introduced. A tiny incandescent lamp is fixed inside and immediately above the glass of a clock or watchstand, and is coupled up to a dry battery. A flexible silk wire with a push-piece



enables the tenant of the room to flash a light upon the clock face, and so tell the time without getting out of bed. The utility of this application, particularly in sick rooms and to medical men, must be apparent. And it is equally useful when applied to carriage clocks.

### A Hanging Churn.

The little churn for home use, which we illustrate, is called the "Jersey Baby," and consists of



A HANGING CHURN.

a Jersey milk-jug, fitted with a view-glass, and made air-tight by a simple arrangement of the lid. The churn is suspended from a nail or hook, as shown, and the operator swings it to and fro through a range of several inches. Although the churn has no internal beaters or dashers, the butter comes in five or ten minutes. It can make as many as 5 lbs. of butter at a time, but, of course, it is not intended for a large yield.

### A New Chimney-Pot.

The "duplex chimney-pot" for the cure of smoke is of simple construction, and has no revolving parts to get out of order. It consists of a galvanised iron cylinder about five feet long or more, tapering towards the top, where it opens out in a basin-shaped mouth, the sides of which incline towards the vertical at an angle of 36 degrees, and thus deflect the wind upwards instead of downwards into the chimney. The wall of the shaft is doubled, and tends to improve the up-draught by keeping the ascending smoke and air warm. The shaft, moreover, offers no internal obstacle to the sweeper's broom, and has a neat appearance.

### Cold and Non-Conductors.

The researches of Pictet, Cailletet, Dewar, and others have shown that when the non-conductors of electricity are cooled to an extremely low temperature they become conductors, and M. Pictet has recently proved that non-conductors of heat behave in a similar way. Cotton-wool, for example, is a very bad conductor of heat, or conversely of cold, at ordinary temperatures; but when cooled under 80 degrees Centigrade below the freezing point, it loses this power. A cylinder of copper at a temperature of 170 degrees Centigrade below zero, and packed in cotton-wool twenty inches thick, recovered its ordinary temperature as rapidly as it did when bare.

### Comets of the Year.

Encke's comet, which is now visible to the naked eye, is remarkable for a certain resistance to its motion which it encounters in space. This has the effect of driving it nearer and nearer to the sun at every revolution in its orbit. The nature of the resistance is unknown, but there is reason to believe that a very little gas is distributed throughout space. Another comet, which will be visible during the summer, is that discovered by Professor Barnard. It reappears every five and a half years, and in June will be as near the sun as the orbit of Mars.

### A Nest-building Shrimp.

The little creature in our illustration was sketched from life as he was perched at the entrance of his tubular dwelling, fastened against the side of the tiny aquarium in which he lived. He and his fellows—for there be many which form dwellings of various kinds—are among the commonest of the "common objects" of the seashore, especially where pools occur that are filled at each incoming tide. Some species, indeed, are so abundant, as to be pests to the collector who is looking for the rarer kinds. The tube which our "shrimp" inhabits is semicircular, and composed of sand and small pieces of seaweed, cemented together with a glutinous matter, secreted by the builder. When it commences operations it lies on its back, and with its long feelers—antennæ is their proper name—gathers to itself a small heap of decaying vegetable matter and sand. Then it pours out upon these the secretion from its mouth, and uses the front pair of legs, the last joints of which are very large, as building tools, adding bit by bit to the structure, till it is large enough to form a secure dwelling and refuge. It is probable, though not certain, that in such dwellings the young are born and nurtured

for a time. The correspondent who placed the material for our sketch at the disposal of the Editor, writes: "Of some half-dozen specimens of the same species (*Amphithoë littorina*) that lived for about four months in a small aquarium, and

built several tubes, two were females bearing eggs. I was hoping to see the young born and reared in the tubes, so as to determine whether these structures were really nests or merely shelters. Unfortunately the death of the females put an end to the observations." These creatures differ from true shrimps in having the eyes set in the head, not borne on foot-stalks like those of the lobster and crab. They may be found among the thread-like green weed in any rock pool, and the fronds of Carrageen moss are often studded with the mud-tubes of an allied species.

### A Toast Crisper.

Toast is apt to soften on the breakfast table; and as crispness is desirable, the little device

which we illustrate will be useful. The toast is put into the receptacle, which is kept hot by a lamp underneath. Moreover, the final crisping or "caramelising" of the toast can be effected in this way. Toast, as is well known, has not only an appetising flavour, but is more nourishing than plain bread, and peculiarly grateful to invalids.

### An Artificial Moon.

M. Stanislaus Meunier, an eminent French experimental geologist, has imitated the lunar surface in miniature, by exposing a plaster composition wetted with water to the heat of a stove. The escaping steam forms bubbles, which burst, forming the familiar volcanic peaks and craters of the moon. The mimic volcanoes occur along certain lines and in various groups; tracts of the surface remain flat, like the "seas" of the moon; long lines of fracture are produced, and if sand is first sprinkled on the plaster, the resemblance of its blistered surface to the moon becomes still greater.

### The Limit of Telescopes.

Professor Barnard, the well-known American astronomer, is of opinion that the telescope of the future will be of the reflecting type—that is to say, the image will be formed in the focus of a great reflector, not by means of a large object-glass or lens, and it will, he thinks, probably be constructed after the model of the great reflecting telescope which the French are making for their exhibition at the close of the century. It is not that opticians cannot manufacture lenses up to seven or eight feet in diameter; but the larger the lens, the more difficult it is to get a distinct image from it, owing to the tremors of the atmosphere. Even with lenses thirty and forty inches in diameter it is very seldom that a good image can be obtained, and Professor Barnard does not believe in the plan of making multiple lenses, similar to those in the eye of an insect.

### Vegetables and Infection.

The disease of turnips called Finger-and-toe is, according to Professor W. Somerville, extremely infectious, one field of turnips catching it from another by merely inoculating its soil with that of the other. Care should, therefore, be taken to avoid carrying soil or roots from a diseased to a healthy field. The tainted soil can, moreover, be disinfected with lime—a fact which points to a micro-organism as the cause of the disease.

### The Alpine Glow.

"Alpenglühen" is the name given to a beautiful effect of sunset in the high Alps during clear calm weather, which is familiar to many from actual observation or in pictures. The snowy peaks blush in the rays of the setting sun, and the rosy tinge fades out, then reappears, not once, but sometimes twice. It is, of course, an effect of refraction; the rays of light from the sun in passing through the higher atmosphere are bent, and strike the peak, but its dying out and re-appearance has been a mystery. Dr. Amsler attributes it to changes of temperature affecting the refractive power of the air at high altitudes. The repeated waxing and waning of the glow is due, he thinks, to cold rising from the air below the peaks after the sun's rays are withdrawn from it, and to heat afterwards rising from the soil.

### The Best Teas.

An interesting paper on teas was recently read by Mr. A. G. Stanton before the Society of Arts; and in the discussion which followed the reading, it was stated that Assam tea is richest in theine, the effective principle of tea. One speaker said that Indian and Ceylon teas did not keep; another speaker declared that tea actually improved by keeping it, provided the box was air-tight. The best teas of all came from Darjeeling. Moreover, as we have already mentioned in THE GATHERER, the "strong black brew" of other days is now condemned as unwholesome, and the infusion should not last beyond a few minutes.

### A New Sash Fastener.

The sash fastener in our figure resembles an ordinary one, and is worked in the same way; but in turning the lever, L, from the unfastened position

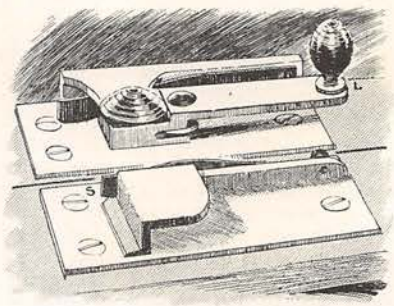
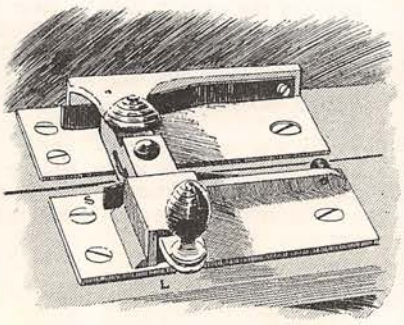



FIG. 1.

of Fig. 1 to the fastened position of Fig. 2, the upper sash is pressed—by means of the spring, S—against the outer head of the window-frame, and




NEW SASH FASTENER.—FIG. 2.

the lower sash against the inner head, thus fixing both sashes in one operation, and stopping all tendency of the sashes to rattle in the wind. The fastener has been tested during the wildest winter weather, and found satisfactory.

### Fossil Bacteria.

Bacteria are old-established denizens of the world. According to a paper read before the Académie des Sciences, M. Renault has found their fossils in the coal measures and in the flints of Esnost, in France. The oldest yet discovered is the bacillus varax. Those found are known as destroyers of the *débris* of plants.

### Sunstroke and Fatigue.

Experiments made with dogs exposed to heat and shaded from it whilst turning a sort of treadmill have proved that sun- or heat-stroke, caused by intense sunshine or the heat of furnaces, is always, or nearly always, a consequence of fatigue. Fatigue, in short, predisposes the body to heat-stroke, as it does to "mountain sickness." It follows that people should beware of exerting themselves too much in hot weather, and that troops should not be exercised during the hottest hours of the day in summer.

### Natural Soap.

For some time past a number of men have been at work collecting a saponaceous material, or natural soap, from the banks of Owen's Lake, California. The soap appears to be formed from a solution of borax and soda in the water of the lake and the oil from the myriads of dead flies which fall into the water. It gathers like a scum on the surface, and is nearly an inch thick. The layers forming year after year have collected into a bank of natural soap.

### Commercial Acetylene.

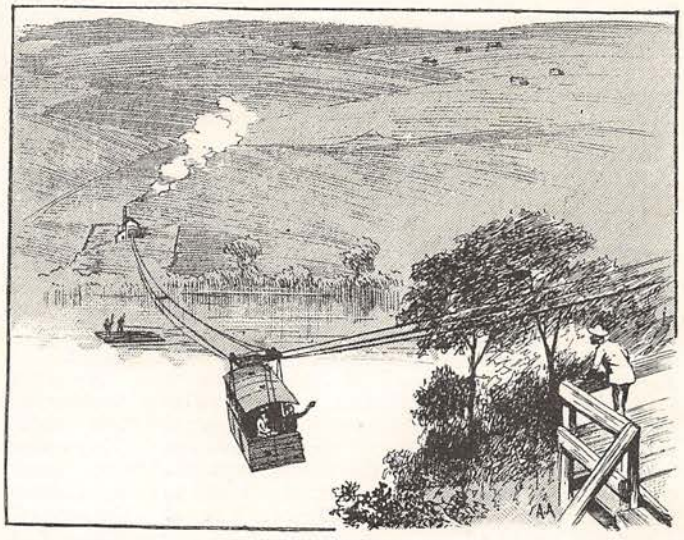
The hydro-carbon gas acetylene can now be made commercially by the process of Mr. T. L. Wilson, who first forms calcic carbide in the electric furnace from a mixture of lime or chalk and carbon; then adds water to the calcic carbide, producing calcic oxide or lime and acetylene. A ton of calcic carbide yields eleven thousand cubic feet of the gas, and costs about £4 to make. Since a flame of 240 candle-power is obtained by burning five cubic feet of the gas per hour, the process is likely to be valuable. Acetylene will also be useful for enriching the poorer coal or water gas, and, moreover, the chemist is able to manufacture all the other illuminating hydro-carbons from it. It is highly instructive to find that calcic carbide, hitherto regarded as a useless and malodorous product of experimental chemistry, has at length found a mission, and bids fair to enjoy a brilliant future.

### Rhythm and Light.

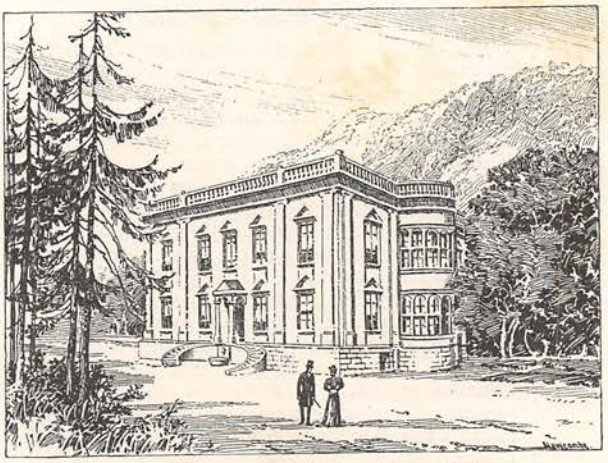
Experiments are now in progress at the Depôt of Lighthouses in France which may revolutionise the system of flashing lighthouses. It is found by M. Charles Henry that certain rhythms in the flashes of a light enable it to be seen much further, owing to the sensibility of the eye, and there is one rhythm in particular which gives the longest range of visibility.

### An Aerial Tramway.

Our illustration will give some idea of a suspended tramway, now at work near Knoxville, Tennessee, United States. It is the invention of Mr. Gagnier, of Detroit, and was designed to transport passengers to the summit of a hill, from which a magnificent view is obtained. The rails are of flexible steel, and the car, suspended from its wheels, is drawn by a cable. The span of the line is about 1,000 feet, and the gradient is 33 feet of vertical rise for 100 feet of horizontal span. The carriage, with sixteen passengers and the drivers, weighs about two tons, and the speed is about



AN AERIAL TRAMWAY.



A HOUSE OF CONSTANT TEMPERATURE.

twenty-four miles an hour. It is proposed to construct a similar tramway across Niagara.

### A House of Constant Temperature.

A house of one uniform temperature, summer and winter, is a dream of hygienists, which has been realised by M. Caron, at Chamounix, in Upper Savoy. Our illustration shows the châlet as it appears, and the secret of construction is merely an elaborate system of water-pipes forming the framework and supporting the wooden walls and floors. In summer cold water circulates through these pipes, and in the cold season this water is heated to the desired temperature before it enters the pipes. There is little doubt that M. Caron's plan will be adopted for hospitals and public buildings, as well as for private villas.

### Pressure and Bacteria.

Mr. H. Roger has been trying the effect of high pressures on bacteria. The germ of erysipelas bore a pressure of 1,000 kilograms per square centimetre without injury, but one three times greater killed some of them, and rendered the others less virulent. Other microbes were similarly affected, and he concludes that a pressure of at least 2,000 kilograms per square centimetre on the culture containing certain microbes is required to do them appreciable harm.

### A Book about Dante.

Of living English writers on Dante, none has a higher reputation than Mr. A. J. Butler. But his new book on "Dante: His Times and His Work" (A. D. Innes & Co.) is not addressed to the scholars and specialists so much as to beginners in the study of the great Italian. As a popular key to the riddle of Florentine politics and social state, and to that extent as a help to the right understanding of the poet's work, Mr. Butler's latest book is a distinct acquisition. The earlier chapters of the book are devoted to historical matter and personal history, then follows an admirable summary of the "Commedia," and in a couple of appendices are given "Some Hints to Beginners," and notes upon "Dante's Use of Classical Literature."

### "A Bachelor Maid."

This is the latest addition to Mr. Fisher Unwin's "Autonym Library," and is from the pen of Mrs. Burton Harrison. The scene of the story is laid in New York, and its theme is "Woman's Rights"; but the tone of the story is so healthy, its interest so keen, and its leaning so obviously sound, that we can commend it most heartily to our readers. Indeed, we should think it would serve as an admirable corrective in the hands of any girl who was inclined to take extreme and unnatural views of the rights of her sex.

## GARDENING IN APRIL.

SPRING should be really with us in April days. It is not always so; but, no matter how unseasonable the weather, get on with sowing flower-seeds. All seeds intended to produce blossoming plants should be sown this month, and where they are to remain, as transplanting very late in spring means a poor and fleeting harvest of bloom. Sow thinly, and let every seedling have sufficient space to develop. The lawn will need mowing every week, and made to look velvety and glossy. A good way to spoil the aspect of a lawn is to mow it badly, or to allow the grass to grow tall. Prune roses early in the month. Climbers need little attention, but cut back strong shoots on dwarf plants to about three eyes from the base, removing very weakly spray, especially if in the way of more robust wood.

Auriculas are now in full bloom, and must be shaded from bright sun, to preserve the beauty of the flowers. Seed sown now germinates readily if sown in a shallow pan of light soil, and placed in a greenhouse or cold frame. We care most for the glorious border-kinds, those lovely flowers that give rich perfume and superb colours, from sapphire to almost crimson. But to get a good selection, poor kinds must be weeded out.

In the kitchen garden much work is on hand. Everyone who has even a modest plot wants a few potatoes. Now is the time to plant, and such famous kinds as Schoolmaster, Magnum Bonum, White Elephant, and Reading Russet will give a bountiful return of large well-flavoured tubers. Sow spinach, parsley, cabbage of most kinds—a remarkably useful sort being Ellam's Early Dwarf—and salading, such as radish, lettuce, etc.

The grape-vine is in vigorous growth. It makes much useless wood, an abundance of shoots that should be rubbed off, retaining only one, or at the most two, on each branch, and then those best placed.

One often sees in gardens a dearth of good climbing plants, but this need not be whilst we have such gems as the climbing Nasturtium (*Tropæolum*), Canary Creeper (*Tropæolum canariense*), and the many beautiful forms of the climbing Convolvulus, with their large showy flowers. Get seed of these in now, sowing at the foot of an arbour or anything one wishes to cover.