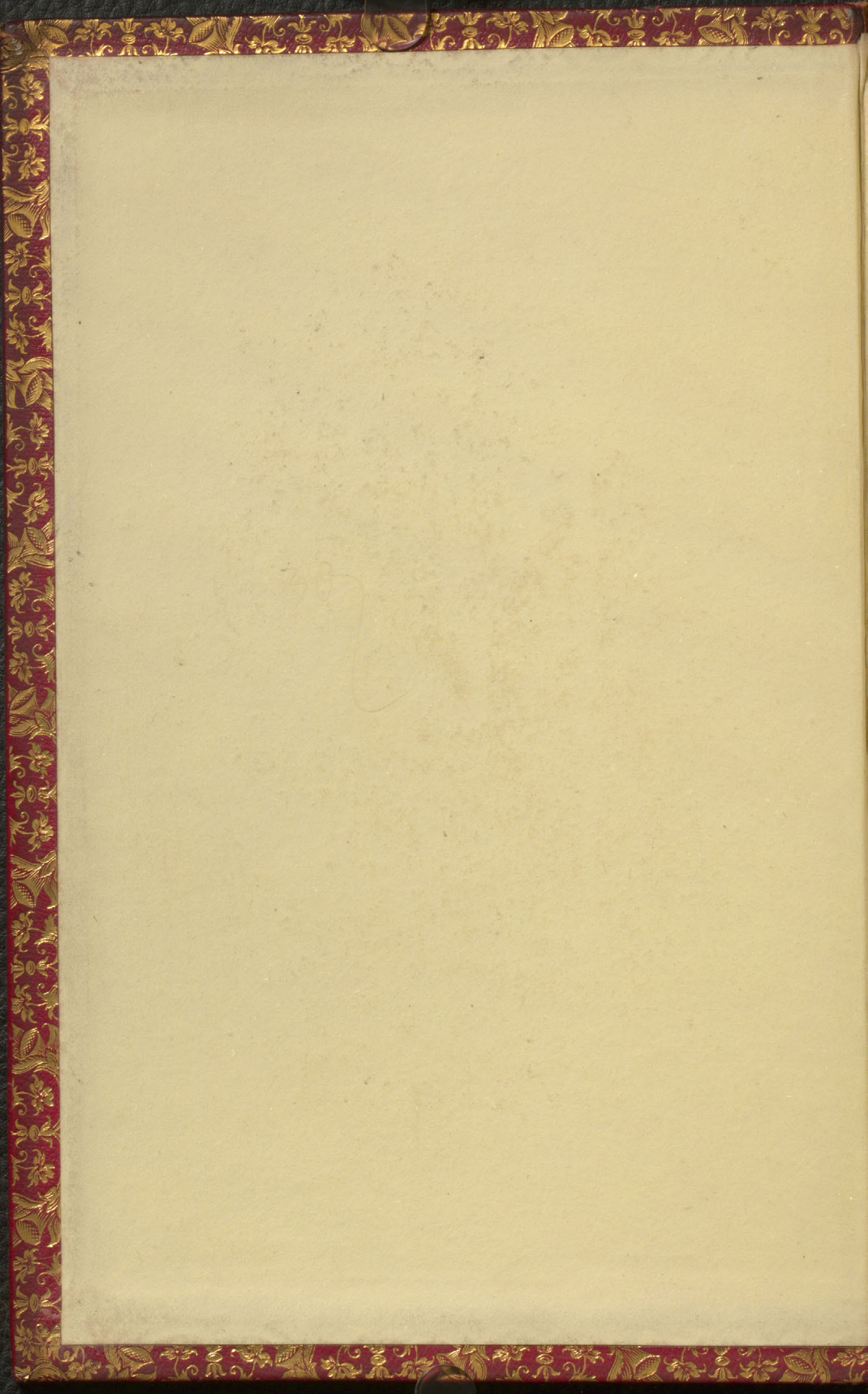
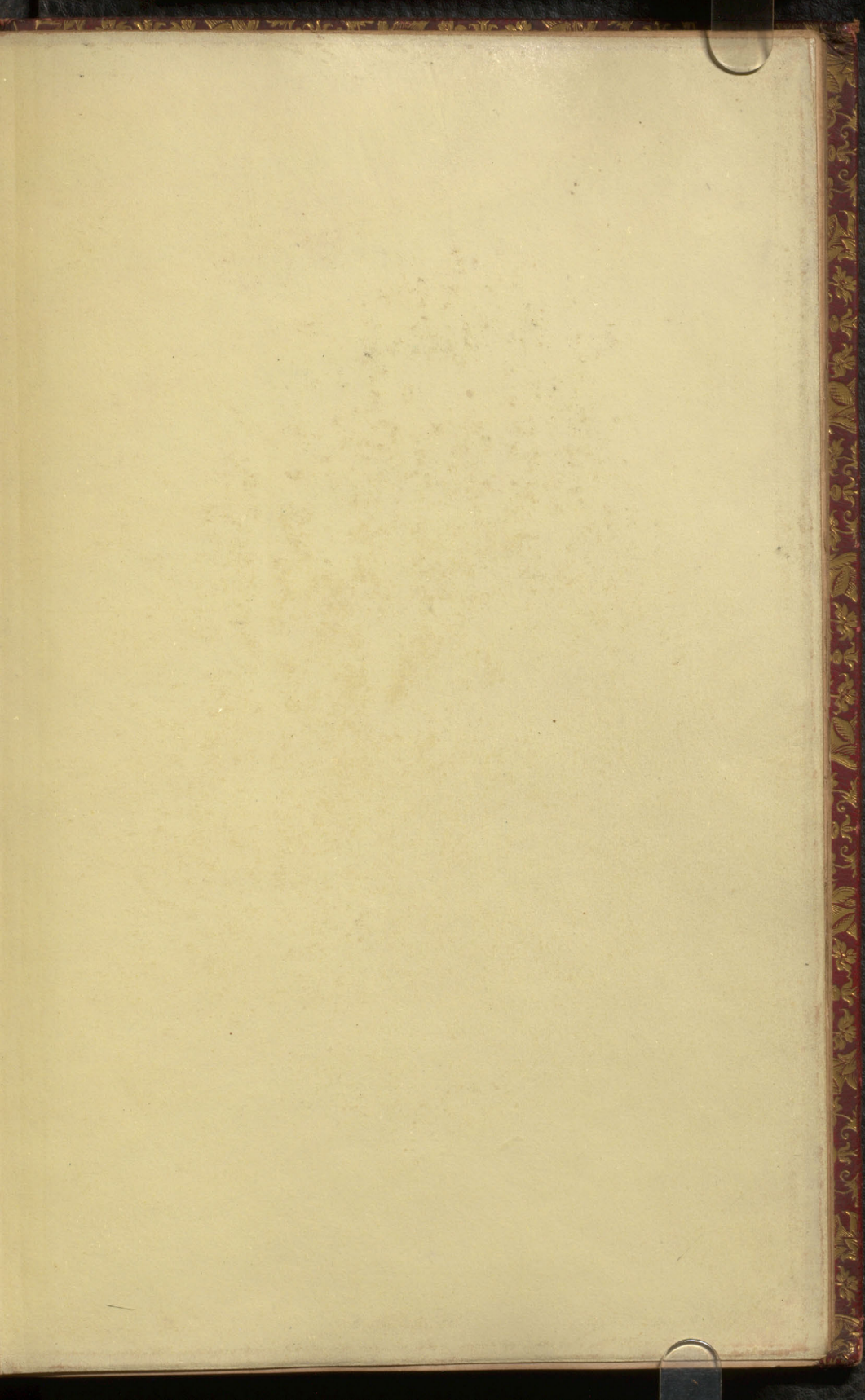


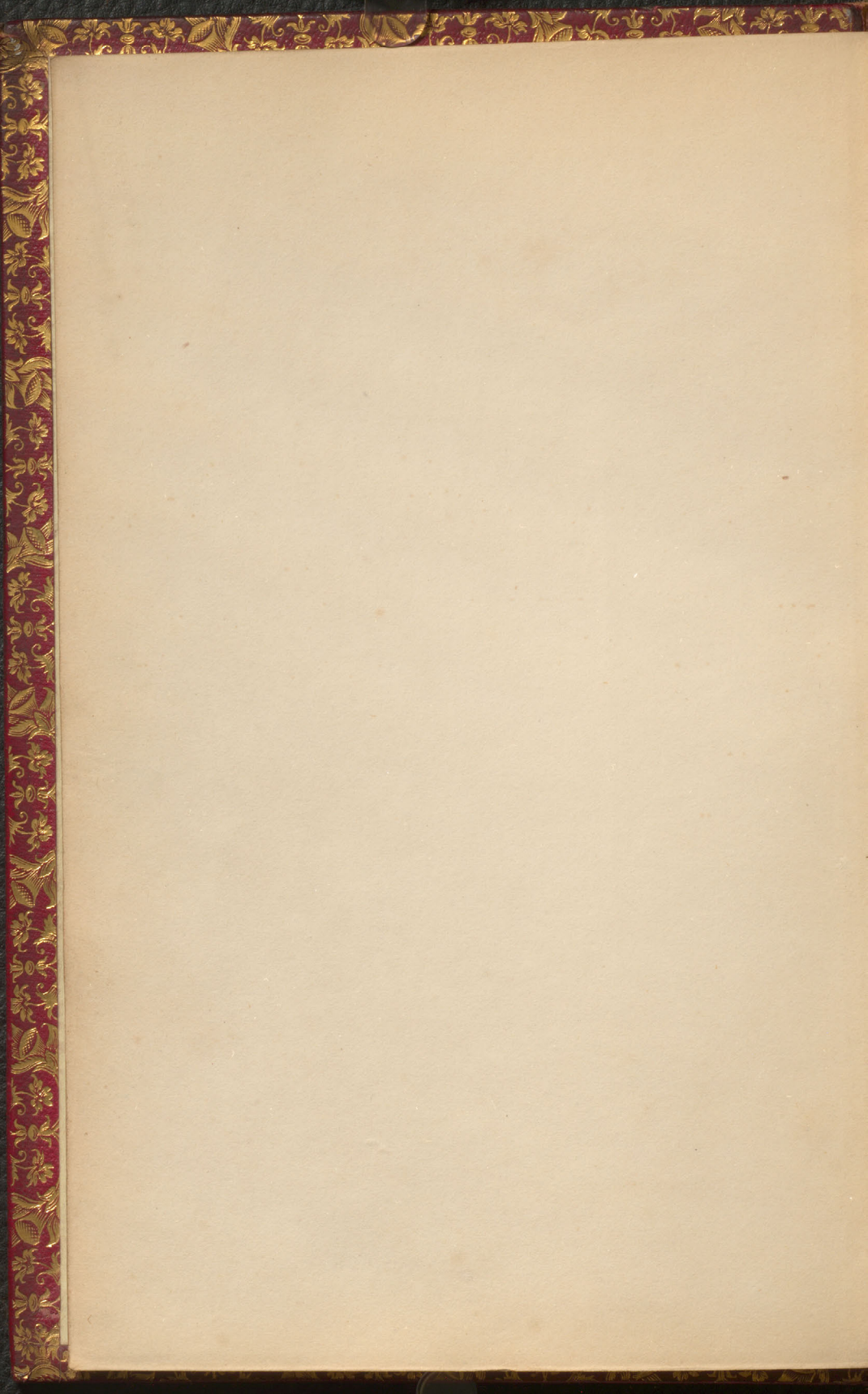


GENERAL  
FLOWERS

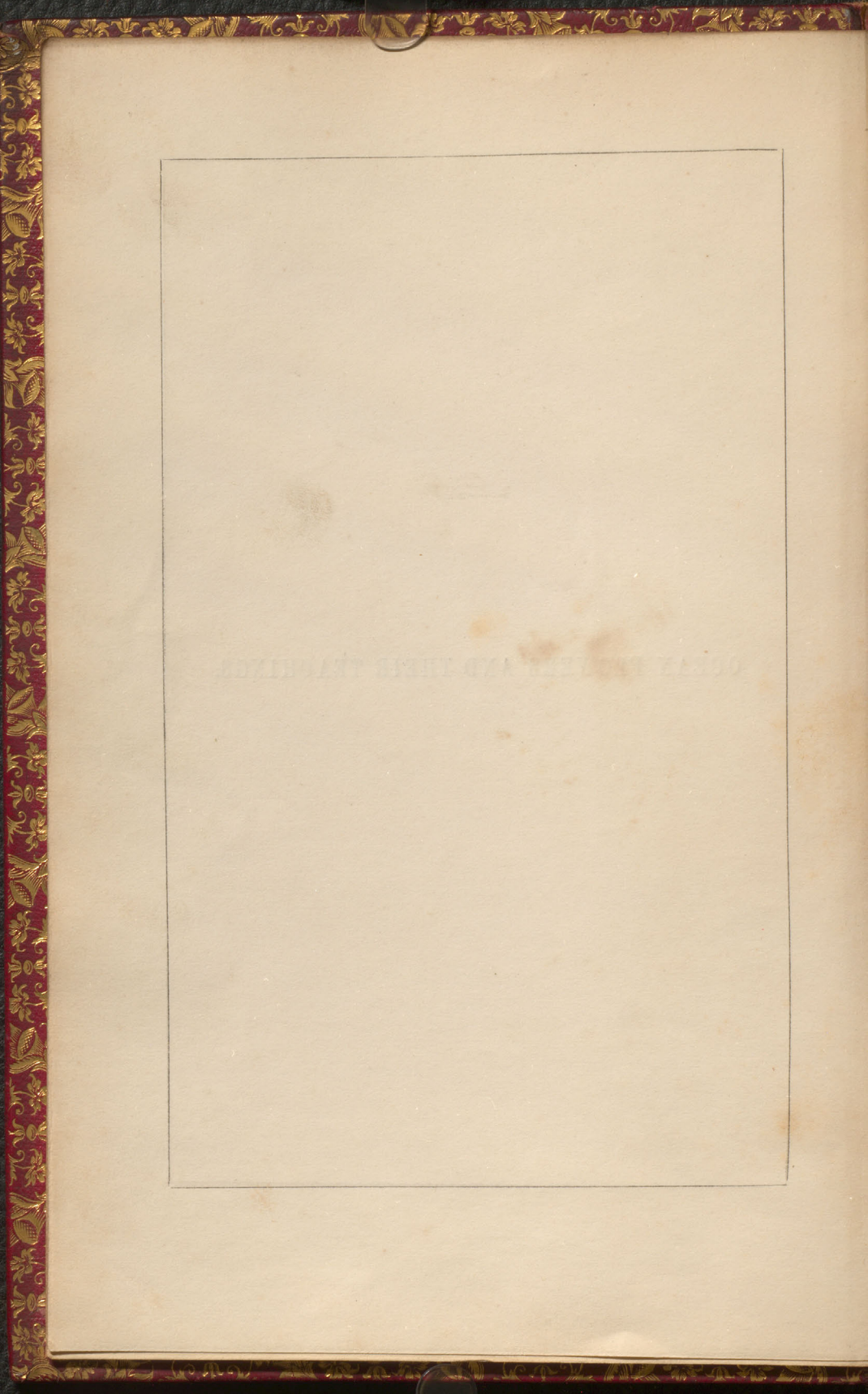
AND THEIR  
USES







OCEAN FLOWERS AND THEIR TEACHINGS.







Not the spoils of conquered seas,  
Ocean's willing off'rings these!  
From her treasure-house not riven,  
But of her abundance given,  
Types of that exhaustless store,  
Mortal mind may ne'er explore.



# OCEAN FLOWERS

AND

## THEIR TEACHINGS.

BY THE AUTHOR OF "WILD FLOWERS AND THEIR TEACHINGS."



Lo! on her varied page creation smiles  
In her commingling charms: the waves and winds  
- - - - - combine to bring  
Exhaustless themes for wonder and for praise "

MONTGOMERY

BATH:

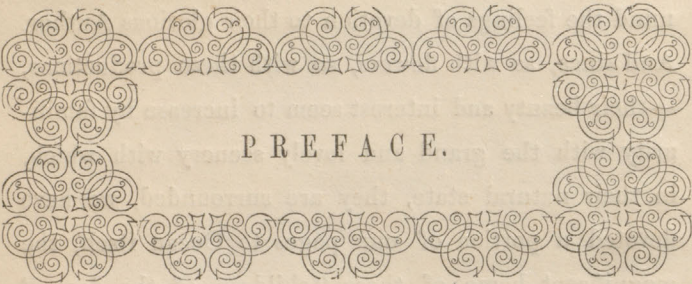
BINNS AND GOODWIN.

LONDON: WHITTAKER AND CO. EDINBURGH: JOHNSTONE.

DUBLIN: W. CURRY JUN. & CO.







P R E F A C E.

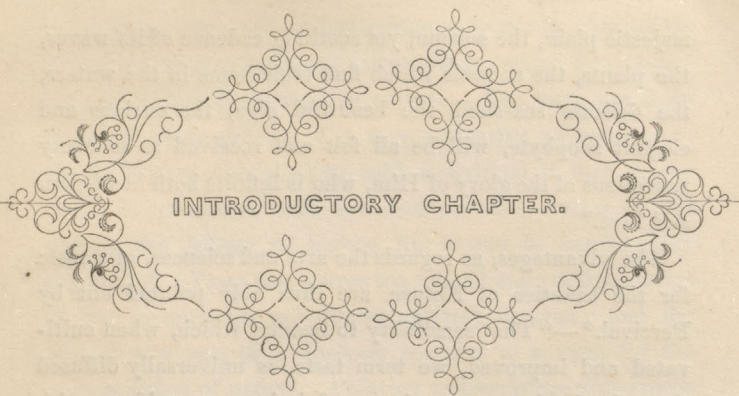
THE title we have selected for our volume, will prepare the reader to look for other than scientific "teachings," since, to speak with botanical precision, our work does not contain a single flowering plant—nor even are all the specimens referable to the vegetable kingdom. But we shall, it is hoped, be readily pardoned for adopting, as the designation of a volume containing so large a proportion of poetry, a name not wholly unknown in song—one, too, so truly descriptive of these elegant productions.

We have indeed been anxious that what little science our book contains, should be correct; but our chief object has been, to give such interesting information as might tend to awaken curiosity, and excite to further enquiry;—and above all, to associate with

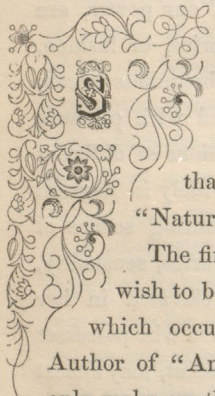
those beautiful and wonderful objects which clothe our rocks, such "teachings" as might deepen in the mind the feelings of devotion to their glorious Author. And since, as with flowers, so with these productions, —their beauty and interest seem to increase by familiarity with the grand and lovely scenery with which, in their natural state, they are surrounded, we have devoted a portion of our pages to Ocean itself, the magnificent home of these "children of the deep;" trespassing yet farther on the time of the reader, for the sake of giving some few passages on the advantages of the study of Nature.

In these two divisions of our work, (and indeed throughout,) we have thought our purpose would be best achieved, by selecting from the writings of as great a variety of approved authors, as the size of our volume would allow; and only hope our readers may feel some of that interest as they proceed, which we, who have been united in the pleasant task of planning and arranging the collection, have ourselves enjoyed—an interest, ever increasing as we pursued the subject.



A decorative floral border with four diamond-shaped motifs at the corners, framing the title.

INTRODUCTORY CHAPTER.

A decorative initial letter 'S' on the left side of the paragraph, surrounded by floral flourishes.

SWEET is the lore which Nature brings," says a great poet of nature, Wordsworth; and it is in the hope of enabling others to extract more and more of this sweetness, that we venture to unfold another volume of "Nature's Teachings."

The first and sweetest of these lessons we would wish to be that embodied in the following question, which occurs in the tale of "Gertrude," by the Author of "Amy Herbert;" works whose many beauties only make us the more deeply regret that they should be tainted with the errors of a peculiar and too popular school.

"Can you not fancy the infinite charm of being able to read the spirit of nature truly—of being so thoroughly religious, as never to look coldly on the meanest flower, because God made it; and really to feel that 'His voice is in the thunder, and his glory in the seas?' This is indeed precious 'lore;' and with a mind thus attuned, the glories of ocean, the crested billows, the ever-changing hues of that

majestic plain, the solemn, yet soothing cadence of its waves, the plants, the animals which find their home in the waters, the delicate sea-shell, the beautiful alga, the curious and elegant zoophyte, will be all felt and received as so many reflections of the glory of Him, who is infinite both in wisdom and love."

The advantages, as regards the arts and sciences, of a taste for the beauties of Nature, are thus ably pointed out by Percival.\*—"That sensibility to beauty, which, when cultivated and improved, we term taste, is universally diffused through the human species; and it is most uniform with respect to those objects, which being out of our power, are not liable to variation, from accident, caprice, or fashion. The verdant lawn, the shady grove, the boundless ocean, and the starry firmament, are contemplated with pleasure by every attentive beholder. But the emotions of different spectators, though similar in kind, differ widely in degree: and to relish, with full delight, the enchanting scenes of nature, the mind must be uncorrupted by avarice, sensuality, or ambition; quick in her sensibilities; elevated in her sentiments; and devout in her affections. He who possesses such exalted powers of perception and enjoyment, may almost say, with the poet—

"I care not, Fortune, what you me deny,  
 You cannot rob me of free nature's grace:  
 You cannot shut the windows of the sky,  
 Through which Aurora shows her brightening face;  
 You cannot bar my constant feet to trace  
 The woods and lawns, by living streams at eve.  
 Let health my nerves and finer fibres brace,  
 And I their toys to the great children leave;  
 Of fancy, reason, virtue, nought can me bereave!"

\* Moral and Literary Dissertations.

“Perhaps such ardent enthusiasm may not be compatible with the necessary toils and active offices, which Providence has assigned to the generality of men. But there are none to whom some portion of it may not prove advantageous; and if it were cherished by each individual in that degree which is consistent with the indispensable duties of his station, the felicity of human life would be considerably augmented. From this source the refined and vivid pleasures of the imagination are almost entirely derived; and the elegant arts owe their choicest beauties to a taste for the contemplation of nature. Painting and sculpture are express imitations of visible objects: and where would be the charms of poetry, if divested of the imagery and embellishments which she borrows from rural scenes? Painters, statuariers, and poets, therefore, are always ambitious to acknowledge themselves the pupils of nature; and as their skill increases, they grow more and more delighted with every view of the animal and vegetable world. But the pleasure resulting from admiration, is transient; and to cultivate taste, without regard to its influence on the passions and affections, ‘is to rear a tree for its blossoms, which is capable of yielding the richest and most valuable fruit.’ Physical and moral beauty bear so intimate a relation to each other, that they may be considered as different gradations in the scale of excellence; and the knowledge and relish of the former, should be deemed only a step to the nobler and more permanent enjoyments of the latter.”

“And there is happily,” as Jane Taylor remarks,\* “this difference between natural, rational pleasures, and those that are artificial, and it is one by which they may readily be

\* Contributions of Q. Q.

distinguished;—that from the former, the transition to religious thoughts and engagements is easy and agreeable. Whether we contemplate nature with the eye of taste, or investigate it with that of philosophy, our thoughts are readily led upwards, to the great Author of all, ‘all whose works praise Him;’ and it is at such times that the Christian can say with peculiar appropriateness—

“‘This awful God is ours,  
Our Father and our Friend.’

“But from trifling thoughts and dissipating amusements, the transition is violent and difficult indeed; and is, in fact, very rarely attempted.”

To write elaborate panegyrics on the beauties of nature might well be deemed a vain and useless expenditure of time, if not a folly akin to that which would “gild refined gold, or paint the lily, or add new perfume to the violet’s breath.” Popular taste has of late years undergone a marked change in favour of simplicity and reality; and nature is at last recognized as the true model and standard of all that is really beautiful and admirable in the works of art. The effects of this change are clearly visible in our literature. Let any one take the popular poetry of the reigns of Anne and the first Georges, with its formal stilted descriptions of nature, thickly besprinkled with allusions to heathen mythology, and compare it with the fresh and glowing pictures of Cowper, of Wordsworth, of Coleridge or Howitt, and he will be convinced that in the latter case the writers described what they had felt and enjoyed—in the former, what they had read or heard about.



A taste for the picturesque in natural scenery, like a taste for music, is indeed much oftener professed than felt; but the very affectation of it proves that its value is appreciated.

Many, however, who are enthusiastic in their admiration of nature in her grander features, are very far from comprehending in their admiration her finer and minuter traits. They admire nature as a whole, they care not to individualize her charms; and hence they look coldly upon the study of natural history. But are they wise in so doing? We think not. There are few pursuits, which, when taken up in a right spirit and pursued within due bounds, are capable of affording more true satisfaction to the understanding, or which tend more to calm that feverish longing after the ideal to which most minds are at times subject, than the study of natural history. It is the study of reality; and it has been well observed,\* that "The study of natural history is within the reach of every one; and he who is engaged in it is presented at every step in his progress, with something capable of awakening pleasing emotions. The whole earth is to him a vast museum, in which are crowded beautiful and sublime objects, animate and inanimate, in an almost endless variety, all combining to amuse the understanding and gladden the heart.

"This search into nature produces also a highly beneficial influence on the understanding. Mathematics do not more effectually strengthen and discipline the judgment. By a continual analysis, comparison, and generalization of things, the study of natural history teaches the art of thinking clearly and accurately, and of reasoning with precision and force, with a much less degree of weariness, than that which usually

\* "Naturalist's Poetical Companion," by a Fellow of the Linnæan Society.

accompanies the study of simple quantities and mere abstract forms. An attention to natural objects also improves the taste. Nature is the admitted standard of perfection. The student who is closely examining the proportions of her inimitable forms, is taking the surest way to acquire a correct judgment of what is fit and elegant."

The opinion of Professor Henslow\* so well follows up these ideas, that we cannot omit it. He says, "The old and bygone sneer of '*cui bono*,' by which the naturalist was formerly taunted, now offers no serious impediment in the way of those who are willing to enquire for themselves. Even the few who still think that no advantage would result from the encouragement of natural history as a branch of general education, no longer attempt any very decided opposition wherever they meet with others prepared to uphold it. Our pursuit has been so often and so satisfactorily shown to be productive of direct practical benefit to the general interests of society, that nothing further need here be said on that topic. But we would more especially recommend it as a resource which is capable of affording the highest intellectual enjoyment; and as much worthy of general notice for *mental* recreation, as air and exercise are for our bodily health."

The somewhat contemptuous tone in which Dr. Johnson has spoken of the collectors of "stones, mosses, and shells," has called forth the following reply, which we give the more readily for the sake of the "note" appended to it; and we think our readers will agree with us, that the sentiments therein expressed are more in accordance with the tastes, and I may say the convictions of the present day, than those of "The Doctor."

\* Descriptive and Physiological Botany.

“And to have rambled in search of shells and flowers, had but ill suited with the capacity of Newton.”—RAMBLER, No. 83.

NOT so!—oh, not unworthy task  
Of mightiest mind,  
Humbly at Nature's door to knock, and ask  
From out her treasured store  
Of hidden lore,  
The truth, her least and lowest holds enshrined.

Not stars alone, that high above,  
The world-quire lead,  
In mystic order marshal'd, brightly move ;  
But all things here below,  
In even flow,  
To one same heavenly air their mazy circles tread.

One is their Maker,—One His name,  
And One His praise !  
The key-note and the chord for aye the same,  
Whether yon glorious star,  
That shines afar,  
Or simplest weed of earth, the anthem raise.

In ev'ry truth, the lowest, dwells  
A gleam, a tone  
To watchful souls that of the loftiest tells ;  
As in thin films the light  
Of rainbows bright—  
As in the whispering shell the voice of Ocean's moan.

What not thy Maker to create  
 Unworthy found,  
 Hold'st thou unworthy thee to contemplate?  
 This know—e'en shell and flower  
 Are links of power,  
 With thee in Being's mighty chain close bound.

We stand as wondering children stand  
 By sea-beat shore,  
 Gath'ring up Ocean's treasures from the sand;  
 Yet doth th' exhaustless deep  
 Its fulness keep:  
 Some scatter'd stores they glean—earth's wisest do no  
 more.\*

(M.S.) A. J. VIDAL.

Yet the Doctor himself, though no very zealous worshiper of nature, either in the whole or in detail, yields a kind of modified approbation to the study. He says: "Mankind must necessarily be diversified by various tastes, since life affords and requires such multiplicity of employments, and a nation of naturalists is neither to be hoped or desired; but it is surely not improper to point out a fresh amusement to those who languish in health, and repine in plenty, for

\*"Science therefore, in relation to our faculties, still remains boundless and unexplored; and after the lapse of a century and a-half from the era of Newton's discoveries, during which every department of it has been cultivated with a zeal and energy which have assuredly met their full return, we remain in the situation in which he figured himself, standing on the shore of a wide ocean, from whose beach we have culled some of those innumerable beautiful productions, which it casts up with lavish prodigality, but whose acquisition can be regarded as no diminution of the treasures that remain."—SIR JOHN HERSCHELL, "Discourse on the Study of Natural Philosophy."

want of some source of diversion that may be less easily exhausted; and to inform the multitudes of both sexes, who are burdened with every new day, that there are many shows which they have not seen."

Chalmers, in his *Bridgewater Treatise*, has beautifully accounted for the too frequent tendency there is in our minds to disparage those pursuits with which we do not ourselves fully sympathize. We will first give a passage from the *Rambler*\* in which this tendency is described:—

"Between men of different studies and professions, may be observed a constant reciprocation of reproaches. The collector of shells and stones derides the folly of him who pastes leaves and flowers on paper, pleases himself with colors that are perceptibly fading, and amasses with care what cannot be preserved. The hunter of insects stands amazed that any man can waste his short time upon lifeless matter, while many tribes of animals yet want their history. Every one is inclined not only to promote his own study, but to exclude others from regard; and having heated his imagination with some favourite pursuit, wonders that the rest of the world are not seized with the same passion."

Now hear Chalmers' account of this matter.—"It is the very perfection of the Divine workmanship which leads every inquirer into the wonders of nature, to imagine a surpassing worth and grace and dignity in his own special department of it. The fact is altogether notorious that in order to attain a high sense of the importance of any science, and of the worth and beauty of the objects which it embraces, nothing more is necessary than the intent and

\* *Rambler*, No. 83.

persevering study of them. Whatever the walk of philosophy may be on which a man may enter, that is the walk which of all others he conceives to be the most enriched by all that is fitted to entertain the intellect or arrest the admiration of the enamoured scholar. The astronomer who can unravel the mechanism of the heavens, or the chemist who can trace the atomic processes of matter upon earth, or the metaphysician who can assign the laws of human thought, or the grammarian who can discriminate the niceties of language, or the naturalist who can classify the flowers and the birds and the shells, and the minerals and the insects, which so teem and multiply in this world of wonders, each of these respective inquirers is apt to become the worshiper of his theme, and to look with a sort of indifference bordering on contempt towards what he imagines the far less interesting track of his fellow-labourers. Now each is right in the admiration he renders to the grace and grandeur of that field which himself has explored; but all are wrong in the distaste they feel, or rather in the disregard they cast on the other fields which they have never entered. We should take the testimony of each, to the worth of that which he does know; and then the unavoidable inference is, that that must be indeed a replete and a gorgeous universe in which we dwell, and still more glorious the Eternal Mind from whose conception it arose, and whose prolific fiat gave birth to it in all its vastness and variety."

There is one aspect of the study of natural history, in our view so important—namely, its adaptation as a pursuit to the invalid—that we gladly avail ourselves of a few remarks on the subject from the pen of a medical friend.—

"None but the naturalist can fully appreciate the enjoy-

ment there is in his pursuit, or the tranquilizing effect it has upon the mind.

“It is said that naturalists seldom become insane; and perhaps there is something in the habitual contemplation of the actual, and in the tracing of cause and effect, that restrains the mind from becoming unhinged by trains of false reasoning—and mental derangement is perverted reasoning.

“It is true that individuals of lofty mind have sometimes looked with indifference and contempt on the labours of the naturalist, deeming him occupied with puerile and trifling objects; but they forget that by a close observation of these apparent trifles, large additions have been made to the happiness of the human race. Many a treaty of peace, many a battle, has had little effect upon the general happiness of private individuals; but the discovery of a new plant, a new mineral, has relieved the suffering, or added to the comforts of thousands. Thus, while the names of statesmen who have extended the territory of their nation, or of warriors who had ravaged the territories of others, are lauded to the skies, the discoverer of quinquina, the cultivator of coffee, should not be forgotten.

“But my present object is not so much to extol the study of natural history in a general point of view, as to impress upon my readers its desirableness as a pursuit, when health fails, and the common every-day engagements of life are broken in upon. I do this both in my capacity as a physician, and from my experience as an invalid. In my professional capacity I have frequently been a witness to the miserable state of mind of those patients, who, having been actively engaged in the business of life, are suddenly laid aside from all their customary employments, while they have no taste for any thing

else. The disease under which they may be labouring, often produces not a tenth part of the discomfort and unhappiness consequent on the direful complaint of having nothing to do. \* \* \* Reading often wearies head, eyes, and mind alike;—besides, it is perhaps necessary to be much in the open air, and how melancholy is it to ramble up and down without an object! On such patients, I would urge the cultivation of a taste for natural history, and just as much pursuit of it, as their circumstances will admit. \* \* Perhaps the invalid may have to resort for health to the sea-coast, and there abide for a considerable time. And here he will peculiarly need the solace of such pursuits as we are recommending. The majestic grandeur of ocean will indeed strike him with wonder and admiration; he will love to wander along the sands, or sit upon the beach and listen to the murmur of the waves; to gaze on the crested billows rolling in, fierce and impetuous like an armed multitude in the storm of battle; but after a while, he will be tired of being a mere passive spectator, and will long for *something* to do. It is now especially, that if he have a taste for natural history, that taste will amply repay him. The sea is a vast magazine of partly unexplored wealth; and there are objects connected with it, which will open new fields of interest. Which of us, as a child, has not been gratified with those beautiful productions of the deep, the sea-shells, even though we used them merely as playthings? And when we apply our minds to consider them with more advanced knowledge, we shall see, not merely in the shell, but in the animal which is its inhabitant, abounding proofs of Divine wisdom and goodness. Why has the Creator been so lavish of elegance and beauty in the depths of ocean? How vain a question!



Is not our God a perfect being?—and all his works must therefore be perfect. Beauty is but ideal; some objects may appear to our eyes more wonderful and beautiful than others; but not the faintest line that encompasses a shell or a flower, but has been designed by infinite wisdom. Look again at those tangled weeds thrown up by the waves, or covering the rocks at low water; there are mines of interest to the diligent enquirer.

“Well do I recollect the feelings of pleasure which pervaded my own mind, when I first began to examine these productions. I was then an invalid, and had had my fairest prospects in life blasted by disease; hope, as far as this life was concerned, scarcely lent me her solace; and I took up the subject, merely to wile away the languor and ennui with which I was oppressed. I meant not to go far into the study, but merely to get acquainted with their characters and names. As I proceeded, great was my delight when I became acquainted with the distinctive character of the Zoophytes. And when I examined both them and the Algæ more minutely, and discovered the wonderful structure and economy of each kind, I can scarcely describe the thrill of wonder and admiration which I experienced. And whilst my mind was withdrawn from vain regrets, and raised in adoration to the God of mercy, my frame was invigorated by the healthful sea-breezes.

“As a fellow-sufferer then, no less than as a medical adviser, I can recommend the study of natural history to those—and in this world of sickness and sorrow, there are many—whose full vigour of mind or body has been impaired; and let no one think slightly of any pursuit, which, not put in the place of the higher realities of religion, but used as an auxiliary

to them, has such capabilities of restoring tone to the mind and vigour to the body."\*

The following remarks from an able and scientific pen,† may fitly conclude what we have to say on the study of Nature.

“To those few well-informed persons who still from old prejudices accuse us,

‘—of dropping buckets into empty wells,  
And growing old in drawing nothing up,’

we may say, that till the well of Creation be emptied, there is no danger of our returning from our labours without abundant food for thought; and if we do not always make the best use of it, the blame must rest with us, and not with natural history. \* \* \* \* It is enough for her if she but furnish food which is capable of nourishing the well-directed heart; it is not her province either to cleanse that heart, or to give it powers of digestion. For this she must refer her votary to a higher and holier voice; and if she ever speak of looking

‘Through Nature up to Nature’s God,’

she does so with a humble deference to her elder sister, whose province it is to lead the heart to that contemplation. Science and religion must not be confounded:—each has her several path distinct, but not hostile; each in her way is friendly to man, and where both unite they will ever be found to be his best protectors; the one a light to the eyes, opening to him the mysteries of the material universe—the

\* J. Marchness, M. D., Hastings. (M.S.)

† “Manual of the British Algae,” by the Hon. W. H. Harvey.

other a lamp to his feet, leading him to the immaterial, incorruptible and eternal. The eye, it is true, will grow dim when the light of this world fails; and happy is he who has then a lamp lighted from heaven, and trimmed on earth, to guide him through the hours of darkness. But the eye must not be blamed because it is not the lamp; nor should science be disdained because she leaves us far short of fresh conceptions of the invisible world. Her highest flight is but to the threshold of religion; for what a celebrated writer has said of philosophy generally, is equally applicable to every branch of scientific inquiry:—‘In wonder all philosophy began, in wonder all ends, and admiration fills up the interspace. But the first wonder is the offspring of ignorance, and the last is the parent of adoration. The first is the birth-throe of our knowledge; the last, is its euthanasia and apotheosis.’”

“What are Art and Science,” asks one of the authors of the “Guesses at Truth,” “if not a running commentary on Nature? What are poets and philosophers, but torchbearers leading us through the mazes and recesses of God’s two mighty temples, the sensible and the spiritual world? Books, as Dryden has aptly termed them, are spectacles to read Nature. Æschylus and Aristotle, Shakspeare and Bacon, are the priests who preach and expound the mysteries of man and of the universe. They teach us to understand and feel what we see, to decipher and syllable the hieroglyphics of the senses. Do you not, since you have read Wordsworth, feel a fresher and more thoughtful delight whenever you hear a cuckoo, whenever you see a daisy, whenever you play with a child?”

This is as true in fact as it is beautiful in expression; and

our present attempt is to carry out this idea, to use these "spectacles," and thus to administer materials for a "fresher and more thoughtful delight," to those who now gaze with somewhat of undefined and bewildered feelings on the Sea and its Productions.

It is an interesting employment to compare the various descriptions of different writers one with another, and to trace in the aspects under which they view the same object, the varied characteristics of their individual mind. The misanthropic spirit, "awearry of the world," and dissatisfied with its fellow-men, exults in the sea, as a thing independent of man's control; whilst a happier and more social temper leads its possessor to rejoice in the exhilarating and health-giving influences of Ocean.

There is scarcely any one natural object which we can select which has been the object of so much literary homage as the Sea, "the multitudinous sea," "the always wind-obeying sea," as that great voice of Nature, Shakspeare, with all but Greek facility and grace of epithet, has called it.

Can the glorious lines of Byron addressed to this magnificent work of the Creator, ever be forgotten, whilst the English language lasts? Would that he had never written anything we less wish to remember!

"ROLL on, thou deep and dark blue Ocean, roll!  
Ten thousand fleets sweep over thee in vain.  
Man marks the earth with ruin; his control  
Stops with the shore—upon the watery plain  
The wrecks are all thy deed—nor doth remain  
A shadow of man's ravage, save his own,  
When for a moment, like a drop of rain

He sinks into thy depths with bubbling groan,  
Without a grave, unknell'd, uncoffin'd, and unknown.

“The armaments which thunderstrike the walls  
Of rock-built cities, bidding nations quake  
And monarchs tremble in their capitals,  
The oak leviathans, whose huge ribs make  
Their clay creator the vain title take  
Of Lord of thee and arbiter of war,—  
These are thy toys, and as the snowy flake  
They melt into thy yeast of waves, which mar  
Alike the armada's pride or spoils of Trafalgar.

“Thy shores are empires, changed in all save thee.—  
Assyria, Greece, Rome, Carthage, where are they?  
Thy waters wasted them while they were free,  
And many a tyrant since ; their shores obey  
The stranger, slave or savage ; their decay  
Has dried up realms to deserts : not so thou,  
Unchangeable save to thy wild waves' play—  
Time writes no wrinkle on thine azure brow—  
Such as Creation's dawn beheld, thou rollest now.”

With this address of Byron's we may compare one by  
Barry Cornwall in his “*Marcian Colonna*.”

“OH thou vast ocean! ever-sounding sea!  
Thou symbol of a drear immensity!  
Thou thing which windeth round the solid world  
Like a huge animal, which downward hurl'd  
From the black clouds, lies, weltering and alone,  
Lashing and writhing till its strength be gone ;

Thy voice is like the thunder, and thy sleep  
So like a giant's slumber, loud and deep.  
Thou speakest in the east and in the west  
At once; and on thy heavily-laden breast,  
Fleets come and go; and shapes that have no life  
Or motion yet are moved and meet in strife.

The earth hath nought of this ; nor chance nor change  
Ruffles its surface, and no spirits dare  
Give answer to the tempest-waken'd air ;  
And o'er its wastes the weakly tenants range  
At will, and wound its bosom as they go.  
Ever the same, it hath no ebb, no flow ;  
But in their stated rounds the seasons come,  
And pass like visions to their viewless home,  
And come again and vanish : the young spring  
Looks ever bright with leaves and blossoming ;  
And winter always winds its sullen horn ;  
And the wild autumn, with a look forlorn,  
Dies in his stormy manhood ; and the skies  
Weep, and flowers sicken when the summer flies.  
Thou only, terrible ocean, hast a power,  
A will, a voice; and in thy wrathful hour,  
When thou dost lift thine anger to the clouds,  
A fearful and magnificent beauty shrouds  
Thy broad green forehead. If thy waves be driven  
Backwards and forwards by the shifting wind,  
How quickly dost thou thy great strength unbind,  
And stretch thine arms, and war at once with heaven!  
Thou trackless and unmeasurable main !  
On thee no record ever lived, again

To meet the hand that writ it ; live nor dead  
 Hath ever fathom'd thy profoundest deeps,  
 Where, haply, thy huge monster swells and sleeps,  
 King of his watery limit, who, 'tis said,  
 Can move the mighty ocean into storm.  
 Oh! wonderful thou art, great element!  
 And fearful in thy spleeny humours bent,  
 And lovely in repose :—thy summer form  
 Is beautiful ; and when thy silver waves  
 Make music in earth's dark and winding caves,  
 I love to wander on thy pebbly beach,  
 And hearken to the thoughts thy waters teach :—  
 Eternity, Eternity and Power.”

In the following beautiful lines of Bernard Barton, there is an idea similar to that of the closing line in Barry Cornwall's address—the idea of Eternity.—

“BEAUTIFUL, sublime, and glorious ;  
 Wild, majestic, foaming free ;  
 Over time itself victorious,  
 Image of eternity!  
 Epithet-exhausting Ocean,  
 'Twere as easy to control  
 In the storm thy billowy motion,  
 As thy wonders to unroll.

“Sun, and moon, and stars shine o'er thee,  
 See thy surface ebb and flow ;  
 Yet attempt not to explore thee  
 In thy soundless depths below.

Whether morning's splendours steep thee  
 With the rainbow's glowing grace,  
 Tempests rouse, or navies sweep thee,  
 'Tis but for a moment's space.

"Earth,—her valleys, and her mountains,  
 Mortal man's behests obey :  
 Thy unfathomable fountains  
 Scoff his search, and scorn his sway.  
 Such art thou, stupendous Ocean !—  
 But if overwhelm'd by thee,  
 Can we think without emotion  
 What must thy Creator be ?"

Crabbe, whose early residence by the sea-coast gave him a life-long interest in maritime objects, has thus painted the sea in his own graphic manner :—

"TURN to the watery world !—but who to thee  
 (A wonder yet unview'd) shall paint the sea?  
 Various and vast, sublime in all its forms,  
 When lull'd by zephyrs or when roused by storms ;  
 Its colors changing, when from clouds and sun,  
 Shades after shades upon the surface run ;  
 Embrown'd and horrid now, and now serene  
 In limpid blue, and evanescent green ;  
 And oft the foggy banks on ocean lie,  
 Lift the fair sail, and cheat the experienced eye."

Wordsworth is not by any means a poet of the sea ; the mountain and the lake are his peculiar property ; yet has he given a beautiful description of ocean's waters in the following lines, written by the sea-shore in the Isle of Man.



“WHY stand we gazing on the sparkling brine,  
With wonder smit by its transparency,  
And all enraptured with its purity?  
Because the unstain'd, the clear, the crystalline,  
Have ever in them something of benign;  
Whether in gem, in water, or in sky,  
A sleepful infant's brow, or wakeful eye  
Of a young maiden, only not divine.  
Scarcely the hand forbears to dip its palm  
For beverage drawn as from a mountain well ;  
Temptation centres in the liquid calm ;  
Our daily raiment seems no obstacle  
To instantaneous plunging in deep sea,  
And reveling in long embrace with thee.”\*

Nor can we pass over unnoticed the exquisite lines of Campbell, written at St. Leonard's, though their length forbids our giving them entire.

“HAIL to thy face and odours, glorious sea !  
’Twere thanklessness in me to bless thee not,  
Great beauteous being ! in whose breath and smile  
My heart beats calmer, and my very mind  
Inhales salubrious thoughts. How welcomer  
Thy murmurs, than the murmurs of the world !  
Though like the world thou fluctuatest, thy din  
To me is peace, thy restlessness repose.  
E'en gladly I exchange yon spring-green lanes,  
With all the darling field-flowers in their prime,

\* The sea-water on the coast of the Isle of Man is singularly pure and beautiful.

And gardens haunted by the nightingale's  
 Long trills and gushing ecstasies of song,  
 For these wild headlands, and the seamen's clang.—

The spirit of the universe in thee  
 Is visible; thou hast in thee the life—  
 The eternal, graceful, and majestic life  
 Of nature; and the natural human heart  
 Is therefore bound to thee with holy love.

There is a magnet-like attraction in  
 These waters to the imaginative power,  
 That links the viewless with the visible,  
 And pictures things unseen. To realms beyond  
 Yon highway of the world my fancy flies,  
 When by her tall and triple masts we know  
 Some noble voyager, that has to woo  
 The trade-winds and to stem the elliptic surge.  
 The coral groves—the shores of conch and pearl,  
 Where she will cast her anchor, and reflect  
 Her cabin-window lights on warmer waves,  
 And under planets brighter than our own:  
 The nights of palmy isles, that she will see  
 Lit boundless by the fire-fly—all the smells  
 Of tropic fruits that will regale her—all  
 The pomp of nature, and the inspiring  
 Varieties of life she has to greet,  
 Come swarming o'er the meditative mind.

Old Ocean<sup>er</sup> was,  
 Infinity of ages ere we breathed  
 Existence.—And he will be beautiful

When all the living world that sees him now  
Shall roll unconscious dust around the sun.  
Quelling from age to age the vital throb  
In human hearts, Death shall not subjugate  
The pulse that swells in *his* stupendous breast,  
Or interdict his minstrelsy to sound  
In thundering concert with the quiring winds ;  
But long as man to parent Nature owns  
Instinctive homage, and in times beyond  
The power of thought to reach, bard after bard  
Shall sing thy glory, beatific Sea."

The "attraction to the imaginative power" attributed by Campbell to the sea, appears to have been felt by many writers—by Montgomery, for instance, in the following lines from his Address to the Ocean, written at Scarborough.

"ALL hail to the ruins, the rocks, and the shores !  
Thou wide-rolling Ocean, all hail !  
Now brilliant with sunbeams, and dimpled with oars,  
Now dark with the fresh-blowing gale,  
While soft o'er thy bosom the cloud-shadows sail,  
And the silver-wing'd sea-fowl on high  
Like meteors bespangle the sky,  
Or dive in the gulph, or triumphantly ride,  
Like foam on the surges, the swans of the tide.

From the tumult and smoke of the city set free,  
With eager and awful delight,  
From the crest of the mountain I gaze upon thee ;  
I gaze,—and am changed at the sight ;

For mine eye is illumined, my genius takes flight,  
 My soul, like the sun, with a glance  
 Embraces the boundless expanse,  
 And moves on thy waters, wherever they roll,  
 From the day-darting zone to the night-shadow'd pole."

In Miss Edgeworth's clever tale, "Ennui," she represents her hero, Lord Glenthorn (the victim of ennui), as finding his chief recreation in sitting by the sea-shore.

"It was my regular practice to sit down upon a certain large stone, at the foot of a rock, to watch the ebbing of the tide. There was something in the contemplation of the sea and of the tides, which was fascinating to my mind. I could sit and look at the ocean whole hours together; for without any exertion of my own, I beheld a grand operation of nature, accompanied with a sort of vast monotony of motion and sound, which lulled me into reverie."

Such reveries indeed may become both delightful and profitable, as the following lines well indicate:—

"If ever to mortals sensations are given  
 As pledges of purer ones hoped for in heaven,  
 They are those which arise, when, with humble devotion,  
 We gaze upon thee, thou magnificent Ocean."

BERNARD BARTON.

"Oh! how I love to stand on some high rock,  
 And gaze upon the foaming wild abyss  
 Of ocean—all unshaken by the shock  
 Of billows beating 'gainst the precipice;  
 To gaze upon the whirl, and hear the hiss  
 Of thousand surges bursting at its base.  
 To me there is a horrid charm in this—

A charm to see the white foam run its race,  
And as one wave dissolves, another take its place.

\* \* \* \* \*

“Thou hast thy creatures too, a populous world  
Of uncouth beings—monsters of the deep,  
That are born there and die: thy billows curl’d,  
Mount over caverns where the white pearls sleep,  
And, hid within thy depths, the seaweeds creep,  
And grow beneath the surf that widely raves,  
Unmindful of the storms that o’er them leap,  
And the rude winds that lash the dreadful waves,  
Until, like beaten hounds, they howling seek thy caves.

\* \* \* \* \*

“Farewell, vast Ocean!—beautiful art thou  
In calm and tempest.—Now calm reigns o’er thee,  
Serene and quiet is thy glossy brow,  
Thou glorious mirror of the Deity!  
And how sublimely grand art thou, when He,  
In foaming characters, upon thy face  
Writes His almighty anger! Thou, proud sea!  
Art the wide page—the chosen tablet-place,  
On which he chooses his tremendous wrath to trace.

“O Ocean! it is o’er thy trackless way  
He shows himself most mighty:—there he wields  
The sceptre that the winds and waves obey:—  
He rides in storms above thy watery fields.

Thou seemest most his own ; to man he yields  
 Part of the rule o'er earth,—but over thee  
 He shows his anger :—and his mercy shields  
 The seaman over many a stormy sea,—  
 And there sweeps many a one into eternity.

“ I am not young—my life has past its prime—  
 Perhaps I ne'er again shall tread this shore.  
 Life is a billow on the sea of time  
 That, once burst, rises never more.  
 Perchance mine soon may melt amid the roar  
 Of tempests rising on that boundless sea :  
 There will my grief and sorrow all give o'er,—  
 There shall life's joy or misery cease to be,  
 And I shall be resolved in vast eternity.”\*

The influence of the ocean on the character of those who frequent its paths, is alluded to in the following lines :—

“ HAIL, glorious Ocean ! in thy calm repose  
 Majestic like a king. The emerald isles  
 Sleep on thy breast, as tho' with matron care  
 Thou in a robe of light didst cradle them,  
 Hushing the gales that might disturb their rest.  
 Those chasten'd waves that in rotation throng  
 To kiss their chain of sand, methinks they seem  
 Like pensive teachers, or like eloquent types  
 Of the brief tenure of terrestrial joy.  
 Tho', roused to sudden anger, thou dost change  
 Thy countenance, and arm'd with terror, toss  
 Man's floating castles to the fiery skies ;

\* Miss M. A. Browne.

Yet still thou art his friend. Thy magic spell  
Looseneth the tie of kindred, lures his feet  
From earth's green pastures to the slippery shrouds,  
Weans his bold spirit from the parent hearth,  
Till by the rough and perilous baptism bronzed,  
Thou art his priest, his home."\*

Amongst the subjects of meditation which may occupy our minds at such times, the following interesting remarks of that great Christian philosopher, Arnold, may well find a place.

In the Appendix to his edition of Thucydides he thus speaks of the utility of the sea.

"The boundless and unmanageable mass of earth presented by the continents of Asia and Africa, has caused those parts of the world, which started the earliest in the race of civilization, to remain almost at the point from whence they set out; while Europe and America, penetrated by so many seas, and communicated with by so many rivers, have been subdued to the uses of civilization, and have ministered with an ever-growing power to their children's greatness. Well indeed might the policy of the old priest-nobles of Egypt and India, endeavour to divert their people from becoming familiar with the sea, and represent the occupation of a seaman as incompatible with the purity of the highest castes. \* \* \* The sea deserved to be hated by the old aristocracies, inasmuch as it has been the mightiest instrument in the civilization of mankind. In the depth of winter, when the sky is covered with clouds, and the land presents one cold, blank, and lifeless surface of snow, how refreshing

\* Sigourney.

is it to the spirit, to walk upon the shore, and to enjoy the eternal freshness and liveliness of the ocean! Even so in the deepest winter of the human race, when the earth was but one chilling expanse of inactivity, life was stirring in the waters. There began that spirit whose genial influence has now reached to the land, has broken the chains of winter, and covered the face of the earth with beauty."

Sentiments worthy of him whose whole soul was centred in the moral and religious progress of his species.

The enthusiastic attachment of a Greek to the element which washes his native shores, is touchingly embodied in Mrs. Hemans' beautiful little song of a Greek Islander in exile.

"WHERE is the Sea?—I languish here—

Where is my own blue sea,  
With all its barks in fleet career,  
Its flags and breezes free?

I miss that voice of waves which first  
Awoke my childhood's glee;  
The measured chime, the thundering burst—  
Where is my own blue sea?

"Oh! rich your myrtle's breath may rise,

Soft, soft your wind may be,  
But my sick soul within me dies—  
Where is my own blue sea?

I hear the shepherd's mountain flute,  
I hear the whispering tree;  
The echoes of my soul are mute—  
Where is my own blue sea?"



Those lines "The measured chime, the thundering burst," often recur to us as vividly descriptive. "The harmonious chime" of the waves, is again mentioned in the following sweet lines of the poet of "The Christian Year:"—

"WHEN up some woodland dale we catch  
The many twinkling smile of Ocean,  
Or with pleased ear bewilder'd watch  
His chime of restless motion ;  
Still as the surging waves retire,  
They seem to gasp with strong desire ;  
Such signs of love old Ocean gives,  
We cannot choose but think he lives."

The pious and gifted Mary Jane Graham has expressions somewhat similar, in a beautiful passage in her "Letters to a young Piano-Forte Player."

"Who can sit by the sea-side when every wave lies hushed in adoration, or falls upon the shore in subdued and awful cadence, without drinking in unutterable thoughts of the majesty of God? The loud hosannas of ocean in the storm, and the praises of God on the whirlwind, awaken us to the same lesson; and every peal of thunder is an hallelujah to the Lord of Hosts. Oh! there is a harmony in nature! The voice of every creature tells us of the glory of God!"

Cold indeed must be the heart, which, looking on "this great and wide sea also, wherein are things creeping innumerable, both small and great beasts; where go the ships, and where is that leviathan which he hath made to play therein," withholds from the infinitely wise and good God

the glory of his works, and refrains to cry out, "O Lord, how manifold are thy works! in wisdom hast thou made them all!"

"WHAT ebbs, flows, swells and sinks, who firm doth keep?  
 Whilst floods from th' earth burst in abundance out,  
 As she her brood did wash, or for them weepe:  
 Who (having life), what dead things prove, dare doubt?  
 Who first did found the dungeons of the deepe,  
 But one in all, ere all, above, about?  
 The floods for our delight first calme were set,  
 But storme and roare since men did God forget.

"Who parts the swelling spouts that sift the raine?  
 Who reines the winds, the waters doth empale?  
 Who frownes in stormes, then smiles in calmes againe,  
 And dothe dispense the treasures of the haile?  
 Whose bow doth bended in the clouds remaine?  
 Whose darts (dread thunderbolts) make men look pale?  
 Even thus these things to show his power aspire,  
 As shadows doe the sunne,—as smoke doth fire.

"God visible, invisible who raignes,  
 Soule of all soules, whose light each light directes,  
 All first did freely make, and still maintaines;  
 The greatest rules, the meanest not neglects;  
 Fore-knowes the end of all that he ordaines,  
 His will each cause, each cause breeds fit effects;  
 Who did make all, all thus could onely leade,  
 None could make all, but who was never made."\*

\* Alexander, Earl of Stirling, 1600.

There is in this poem a beautiful intimation of one aspect of the sea,—that of terror, which may be the one chiefly intended in the Scripture, when it is promised as an ingredient in heavenly happiness, that there shall be “no more sea.” It has been said, he who has never seen a storm at sea, has never learned to pray. Happy they who in such an hour can feel with Richard Howitt—

“UPON the ocean God is near—  
The wing of the most High,  
In calm and storm, a gracious form  
Broods over sea and sky.  
His love is breathed in every wind,  
His voice in every wave ;  
His life, his light, in the stormy night  
Of ocean’s billowy grave.

“ His bow of promise we behold,  
As gorgeously array’d  
As when, amid a world destroy’d,  
’Twas first to man display’d.  
His gentlest creatures, dove-like birds,  
Rest on our wandering barque ;  
They seek our vessel, as the dove  
The life-preserving ark.

“ The banner of his love, the sun,  
Shines on us day by day ;  
His presence nightly in the moon  
Illumes our watery way.

We cannot go where God is not  
 In goodness ever nigh ;  
 Thus when we sleep upon the deep,  
 We move before his eye."

Other thoughts will also be suggested in such hours, perhaps such as the following.\*

"HE who has laid him down at close of day,  
 Within some goodly ship that o'er the waves  
 Of ocean makes her solitary way,  
 And from his pillow hears the tide that laves  
 Incessantly the vessel's side, may tell  
 How slight betwixt him and the billows' swell  
 Appears the timber barrier, that rejects  
 The beating surge, and from its might protects.

"There is another ocean :—'tis around  
 The soul's frail bark that floats upon the tide.  
 But vainly do we listen :—not a sound  
 Comes from the depths profound as on we glide ;  
 By day, by night, for ever all is still,  
 As the fair moon above the lonely hill ;  
 The viewless angels silent pass us by,  
 Nor stir the ocean of eternity.

"What marvels else would wake us ! Oh ! how slight  
 All that divides from wondrous things would seem !  
 How frailer than the plank which in the night  
 Is wash'd by ocean where the seamen dream !

\* From "Songs of the Parsonage."

Yea, than the shell circling the tender bird  
 Where all around with vernal life is stirr'd.  
 Fear passing thought might thrill us, and amaze,  
 Lest the vast world conceal'd should burst upon our gaze.

“Yet it *will* burst ere long :—a scene untold  
 And unconceived, will open on our view.  
 These slender frames will fail us—and behold,  
 The God that form'd them ; with a retinue  
 Of holy seraphim, and holy men,  
 In form resplendent as the Saviour, when  
 Upon the mount, from out the o'ershadowing cloud,  
 “This is my Son beloved,” a voice proclaim'd aloud !

There is a line in Barry Cornwall's well-known song of  
 “The Sea,”—

“And silence wheresoe'er I go,”

which one is at a loss to understand. It may, however,  
 receive some illustration from the following remark made  
 by Mr. Monk Mason, in his narrative of his æronautic trip  
 in the year 1836 :—

“The sea, unless perhaps under circumstances of the most  
 extraordinary agitation, does not in itself appear to be the  
 parent of the slightest sound : unopposed by any material  
 obstacle, an awful stillness seems to reign over its motions.”  
 Yet the sounds of the sea have been often celebrated—never  
 perhaps more beautifully, than in the following exquisite  
 lines, from Taylor's “Edwin the Fair :”—Leolf is pacing the  
 sea-shore near his castle at Hastings :—

“HERE again I stand;  
 Again, and on the solitary shore  
 Old ocean plays as on an instrument,  
 Making that ancient music when not known?  
 That ancient music, only not so old  
 As He, who parted ocean from dry land,  
 And saw that it was good.”

They are dwelt upon also in the second stanza of the following poem by Brainard:—

“THERE’S beauty in the deep:—  
 The wave is bluer than the sky;  
 And though the light shines bright on high,  
 More softly do the sea-gems glow,  
 That sparkle in the depths below.  
 The rainbow’s tints are only made  
 When on the waters they are laid,  
 And sun and moon most sweetly shine  
 Upon the ocean’s level brine.

There’s beauty in the deep.

There’s music in the deep:—  
 It is not in the surf’s rough roar,  
 Nor in the whispering shelly shore;  
 They are but earthly sounds, that tell  
 How little of the sea-nymph’s shell,  
 That sends its loud clear note abroad,  
 Or winds its softness through the flood,  
 Echoes through groves with corals gay,  
 And dies on spongy banks away.

There’s music in the deep.

There's quiet in the deep :—  
 Above let tides and tempests rave,  
 And earthborn whirlwinds wake the wave ;  
 Above let care and fear contend  
 With sin and sorrow to the end:  
 Here, far beneath the tainted foam,  
 That frets above our peaceful home,  
 We dream in joy, and wake in love,  
 Nor know the rage that yells above.

There's quiet in the deep."

The sounds of the sea—those murmurs so much "welcomer," as Campbell thinks, than the murmurs of the world—have a powerful influence over the mind; an influence indeed varied in kind, and alternating with different states of feeling—different states also of the ocean itself.

"THE tones of the majestic sea  
 Have meanings too sublime for me,  
 When billows lift their voice on high,  
 And clouds are thundering their reply.  
 I love to hear its soften'd tones,  
 Its hush'd complaints, its under moans,  
 When waves subsiding, sink to rest—  
 And sunbeams sleep upon its breast."\*

"The works of man inherit, as 'tis just,  
 Their maker's frailty, and return to dust ;"

But in the works of God, even the works which relate to this changing and material world, destined one day to be "as a vesture to be folded up," there is yet a character of *permanence*,

\* (M.S.) Ellen Roberts.

a faint reflection of the changeless glories of their Maker. As Lord Byron beautifully says, in a passage already quoted, "Time writes no wrinkle on thy azure brow," nor does "it take a tone from its majestic voice."

"THOU art sounding on, thou mighty sea,  
For ever; and the same  
The ancient rocks yet ringing to thee,  
Whose thunder nought can tame.

"Oh! many a glorious voice is gone  
From the rich bowers of earth,  
And hush'd is many a lovely tone  
Of mournfulness or mirth.  
The Dorian flute that sigh'd of yore  
Along that wave is still;  
The harp of Judah peals no more  
On Zion's awful hill.

"And Memnon's lyre hath lost the chord  
That breathed the mystic tone;  
And the songs at Rome's high triumphs pour'd  
Are with her eagles flown;  
And mute the Moorish horn, that rang  
O'er stream and mountain free;  
And the hymn the leagued crusaders sang,  
Hath died in Galilee.

"But thou art swelling on, thou deep,  
Through many an olden clime  
Thy billowy anthem, ne'er to sleep  
Until the close of time.



Thou liftest up thy solemn voice,  
 To every wind and sky,  
 And all our earth's green shores rejoice  
 In that one harmony.

“ It fills the noontide's calm profound,  
 The sunset's heaven of gold ;  
 And the still midnight hears the sound,  
 Ev'n, as when first it roll'd.  
 Let there be silence, deep and strange,  
 Where sceptred cities rose !  
*Thou* speak'st of one who doth not change—  
 So may our hearts repose.”\*

Campbell has called the ocean “beatific sea.” Pollok has bestowed upon it epithets even more expressive of admiration:

“ GREAT Ocean ! strongest of creation's sons,  
 Unconquerable, unreposed, untired,  
 That roll'd the wild, profound, eternal bass  
 In nature's anthem, and made music such  
 As pleased the ear of God ! Original,  
 Unmarr'd, unfaded work of Deity,  
 And unburlusqued by mortal's puny skill,  
 From age to age enduring and unchanged,  
 Majestical, inimitable, vast ;  
 Loud uttering satire, day and night, on each  
 Succeeding race, and little pompous work  
 Of Man ! *Unfallen, religious, holy sea,*  
 Thou bow'd'st thy glorious head to none,  
 Heard'st none, to none didst honour but to God.

\* Mrs. Hemans.

Thy Maker only worthy to receive  
 Thy great obeisance ! Undiscover'd sea,  
 Into thy dark unknown mysterious caves,  
 And secret haunts, unfathomable deep,  
 Beneath all visible retired, none went,  
 And came again to tell the wonders there."\*

We may perhaps fitly close our collection of "sea pieces," with the following lines, which, irregular as they are, contain a thought we would wish to leave with our readers, and tell of a blessing we earnestly desire they may share.

"WERE it not joy, upon the wild waves straying,  
 Careless and fearless, still to float at ease ?  
 Now with their angry crests, storm-whiten'd, playing ;  
 Now sweetly slumbering on the sunny seas ;  
 Now with like grace, their graceful swell obeying,  
 Like some gay creature of the element,  
 Never thy course, thy might, thy danger weighing,  
 But in their arms reposing, well content ;  
 No thought, no wish, thyself thy way to measure,  
 But trusting all to them, in calm deep trance of pleasure.

"Were it not joy—the joy of conflict glorious !—  
 Still to do battle with the raging tide,  
 Tasking thy strength, but evermore victorious,  
 Undaunted by the billows of its pride ;  
 Breasting them boldly, all their terrors braving,  
 Conscious of pow'r, increasing still as tried—

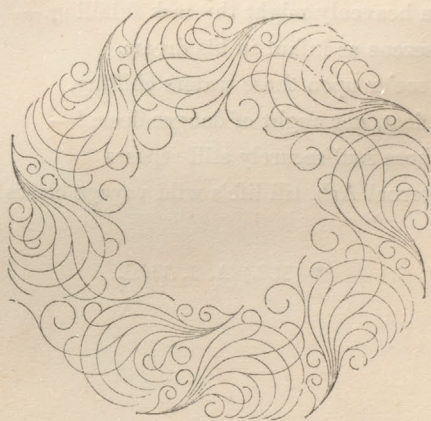
\* Pollok's "Course of Time."

For them no jot of thy firm purpose waiving,  
But pressing on thro' all—and steady-eyed,  
Far off, but clear, thy noble mark descrying,  
In faith and hope to strive, their utmost force defying—

“ Yea, both are joys—high joys, and spirit-thrilling !—  
To thee but vain fond fancies do they seem ?  
Yet both are thine, if only thou art willing !  
'Tis thine to battle with the world's rough stream,  
Dauntless in heavenly might thy task fulfilling.—  
'Tis thine, serene as infant in his dream,  
How toss'd soe'er upon those waters chilling,  
Sublime to float, nor aught of danger deem !—  
Blest he, whose soul securely still reposes  
In Love's eternal Ark, till life's wild voyage closes ! ”\*

\* (M.S.) A. J. Vidal.





## SEA-WEEDS.

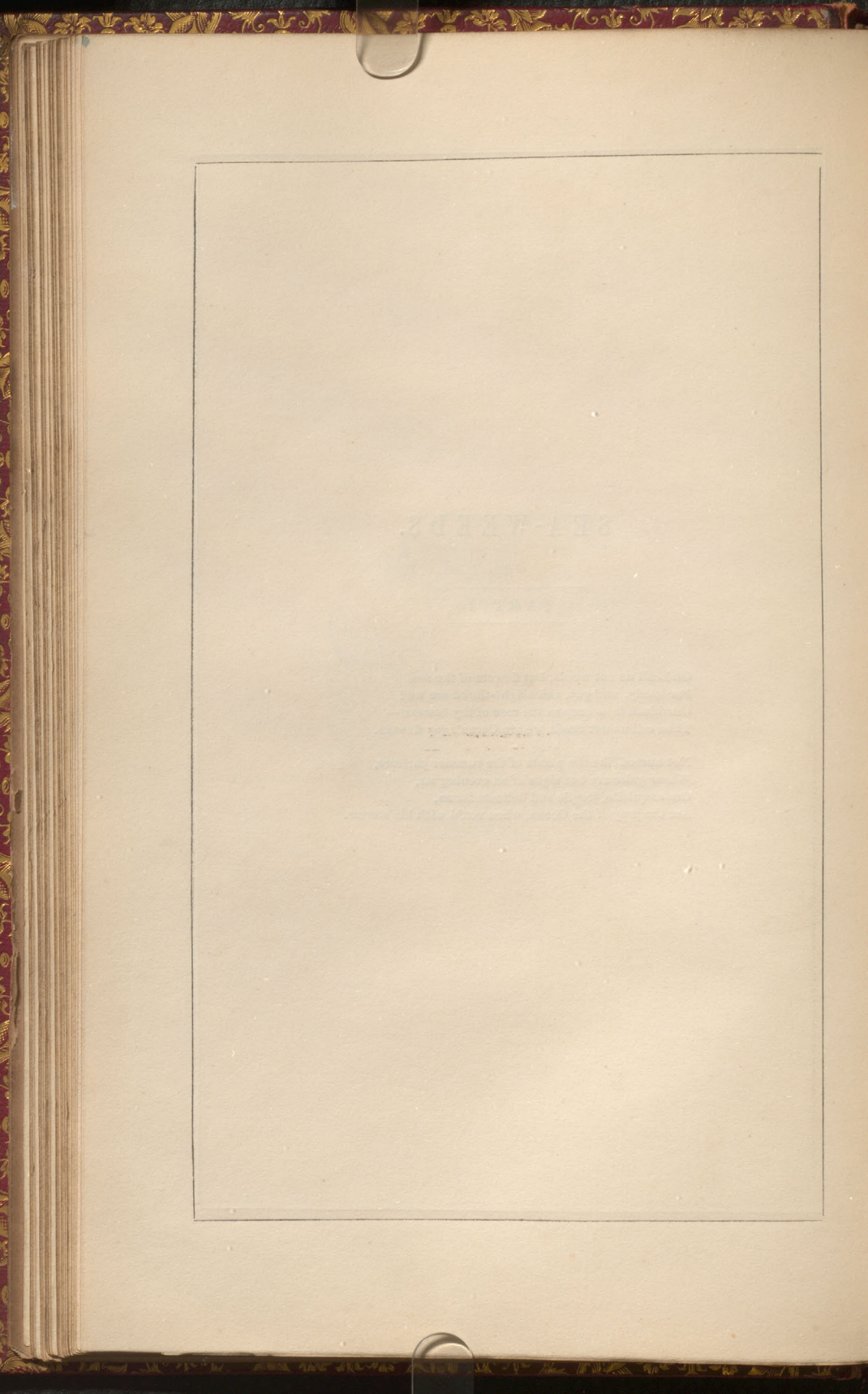
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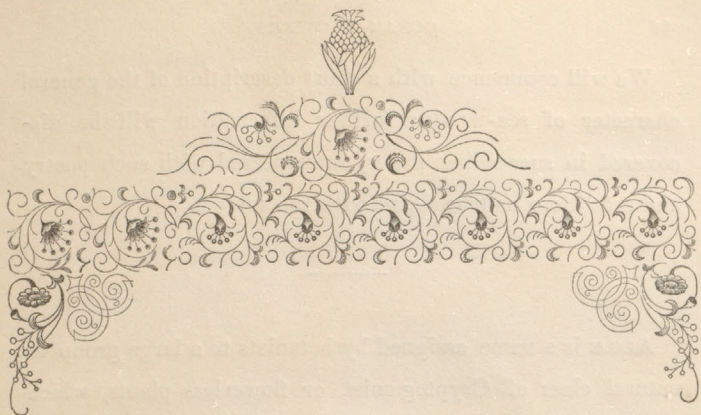
### PART I.

---

Oh! call us not weeds, but flowers of the sea,  
For lovely, and gay, and bright-tinted are we!  
Our blush is as deep as the rose of thy bowers,—  
Then call us not *weeds*, we are Ocean's gay flowers.

Not nursed like the plants of the summer parterre,  
Whose gales are but sighs of an evening air,  
Our exquisite, fragile and delicate forms,  
Are the prey of the Ocean, when vex'd with his storms.





## SEA-WEEDS.

---

“THE least proclaims, and loudly too,  
The forming finger of a God.”

---

THAT our readers may become better acquainted with some of the more interesting and beautiful of these “Ocean Flowers,” the following pages will be devoted to real specimens of the plants, with such information as may be acceptable to the general reader; but no attempt at a scientific arrangement will be made, the intention of the work being rather to awaken in the mind a desire to know more of beautiful objects capable of teaching so much.

“How sweet to muse upon the skill display'd,  
Infinite skill, in all that he has made!  
To see, in nature's most minute design,  
The signature and stamp of power Divine.”

COWPER.

We will commence with a short description of the general character of sea-weeds; further information will be discovered in succeeding pages, interspersed with such poetry and reflections as harmonize with the subject.

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ALGÆ is a name assigned by botanists to a large group or natural class of Cryptogamiæ, or flowerless plants, which form the principal or characteristic vegetation of the waters. The sea in no climate, from the poles to the equator, is altogether free from them, though they abound on some shores much more than on others.

Thus extensively scattered through all climates, and existing under so many varieties of situation, the species are, as one would naturally suppose, exceedingly numerous; and present a greater variety in form and size, than is observable in any other tribe of plants whose structure is so similar. Some are so exceedingly minute, as to be wholly invisible (except in masses) to the naked eye, and require the highest powers of our microscopes to ascertain their form or structure. Others, growing in the depths of the great Pacific Ocean, have stems which exceed in length the trunks of the tallest forest-trees, and others have leaves that rival in expansion those of the palm. Some are simple globules or spheres, consisting of a single cellule, or little bag of tissue filled with a colouring matter; some are mere strings of such cellules cohering by the ends; others, a little more



perfect, exhibit the appearance of branched threads; in others again the branches and stems are compound, consisting of several such threads joined together; and in others the tissue expands into broad flat fronds.

HON. W. H. HARVEY'S "MANUAL OF THE BRITISH ALGÆ."

AFTER having been kept dry for a great length of time, they will revive by immersion in water; but only that portion of the plant which is immersed imbibes the fluid. The *seeds*, or *sporules*, consist of minute granules, internal, clustered, or scattered, or imbedded in tubercles or peculiar processes arising from the frond. Often two or three different kinds, or rather forms, of fructification exist in the same species; but each apparently in itself is capable of becoming a new plant. There is nothing that can be compared to the stamens in phænogamous plants. Low as this order of plants is in the scale of vegetable beings, it is yet the one which approaches the nearest to certain animals. Indeed, the ablest naturalists have been unable to draw the line of distinction between the least perfect of these, and the less highly organized of animals.

SIR W. HOOKER'S "BRITISH FLORA."



SERRATED FUCUS.

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THIS contains far less salt than the Bladdered Fucus, and is consequently much less esteemed for kelp. In Norway it is the food of cattle, sprinkled with a little meal, according to Gunner. The Dutch cover their crabs and lobsters with it, and say that it is preferable to the Bladdered Fucus because the mucus from the vesicles of the latter, ferments and soon becomes putrid.

SIR W. HOOKER.

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THIS Fucus is employed as manure, and with much benefit, though its value endures but for a single season. It is found peculiarly well adapted to potatoe culture; and when spread on the ground in winter, yields an abundant crop of the very best hay. But if its application be deferred till the time of planting, the former produce, though equally abundant, is watery, ill-tasted and unfit for the table, though it answers well enough for seed. This remark equally applies to all the Algæ, which, under the general name of *cart-wracks*, are rolled ashore by the gales.

CAPTAIN CARMICHAEL.

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IN ancient times, when a person wished to express utter contempt of a thing, seemingly unfit for any purpose, he



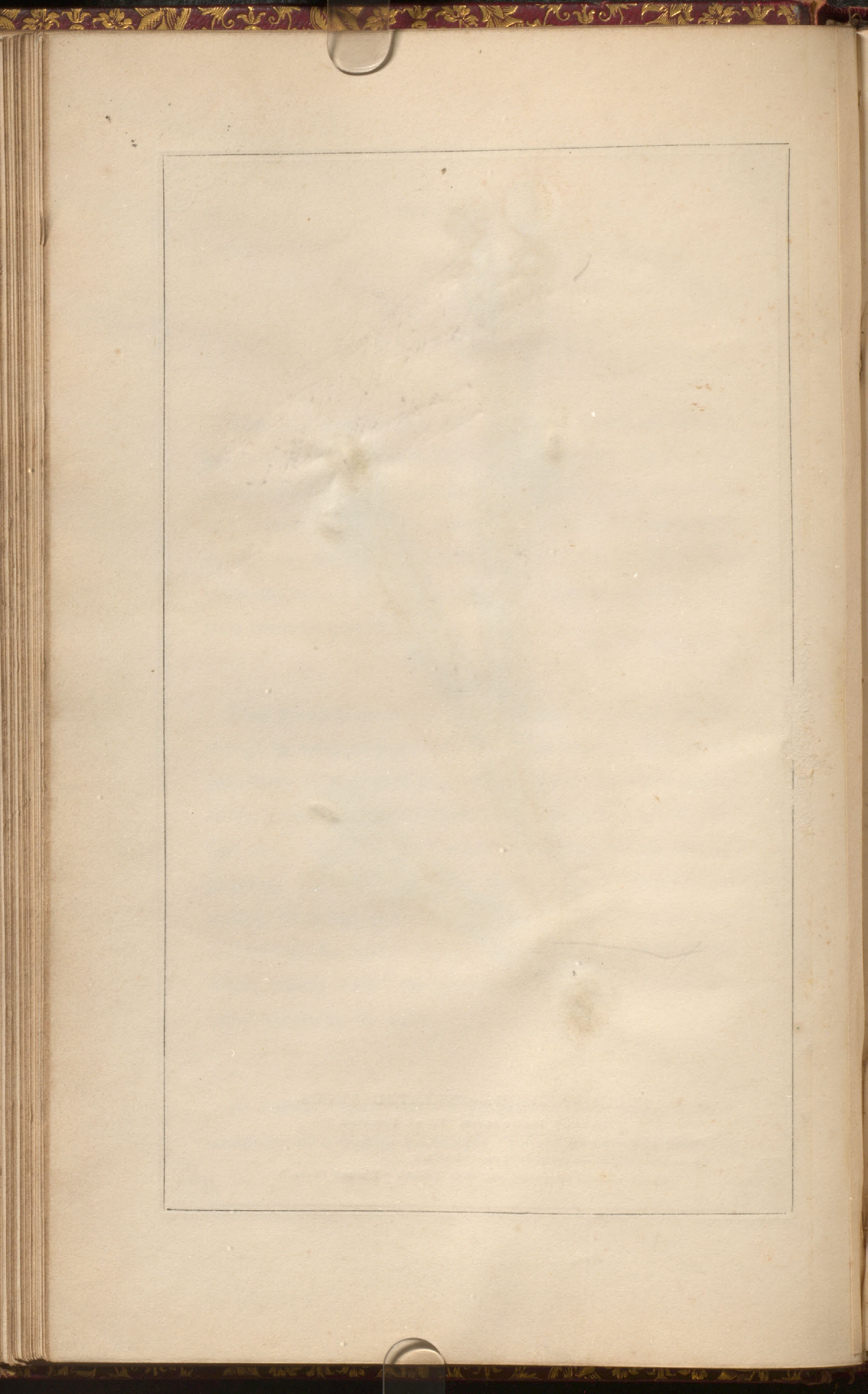
FUCUS SERRATUS.—SERRATED FUCUS.

Division I. INARTICULATE. Tribe I. FUCOIDEÆ.

Name signifies a SEA WOOD.

Found on rocky shores everywhere most abundant.

(All the Seaweeds are named, &c., from Hooker's "BRITISH FLORA.")



would say, "as worthless as sea-weed." (*Algâ projectâ vilior.*) Before we presume to join in this very harsh opinion, we ought to descend to the bottom of the ocean, and wander through the groves and meadows of the submarine world, to watch the habits, food, and growth of the countless inhabitants of the deep; and then perhaps we might form a conclusion more in accordance with the great truth, that the all-wise Creator has made nothing in vain. But this being impossible, we must rest content with merely inferring from analogy, that the depths of the sea may possibly produce weeds to be the food of marine animals, as the face of the earth brings forth green herbs to be the food of land animals. But the Roman poet, who uses the expression given above, alluded probably to the uselessness of these algæ to *man*.

Yonder countrymen, with their mules and panniers, are seemingly of a very different opinion. They have been at the pains of cutting a winding path along the face of the rocky cliff, solely for the purpose of carrying off the great heaps of sea-weed, cast on shore whenever a storm occurs. You will ask of course, "To what use do they apply it after they have devoted so much time and trouble to its removal?" It is deposited in large heaps on the arable lands, where it is suffered to remain until decomposition has taken place, and at the proper season is spread on the ground, and forms a valuable manure.

C. A. JOHNS' "BOTANICAL RAMBLES."

BLADDERED FUCUS.

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THIS seaweed is abundantly employed in the manufacture of kelp, if it be not the very best for that purpose. But this, important as it is in a commercial point of view, is not the only end it serves. In the isles of Jura and Skye it is frequently a winter food for cattle, which regularly come down to the shores at the receding of the tide, to seek for it; and sometimes even the deer have been known to descend from the mountains to the seaside and feed upon this plant.

Linnæus informs us that the inhabitants of Gothland in Sweden, boil this *Fucus* with water, and mixing with it a little coarse meal, or flour, feed their hogs upon it; for which reason, they call the plant *Swintang*: and in Scania he says, the poor people cover their cottages with it, and use it for fuel. In Jura, and some other Hebrides, the inhabitants dry their cheeses without salt, by covering them with the ashes of this plant; which abounds so much in that substance, that from five ounces of the ashes, may be procured two ounces and a-half of fixed alkaline salts, or half their own weight.

SIR W. HOOKER.

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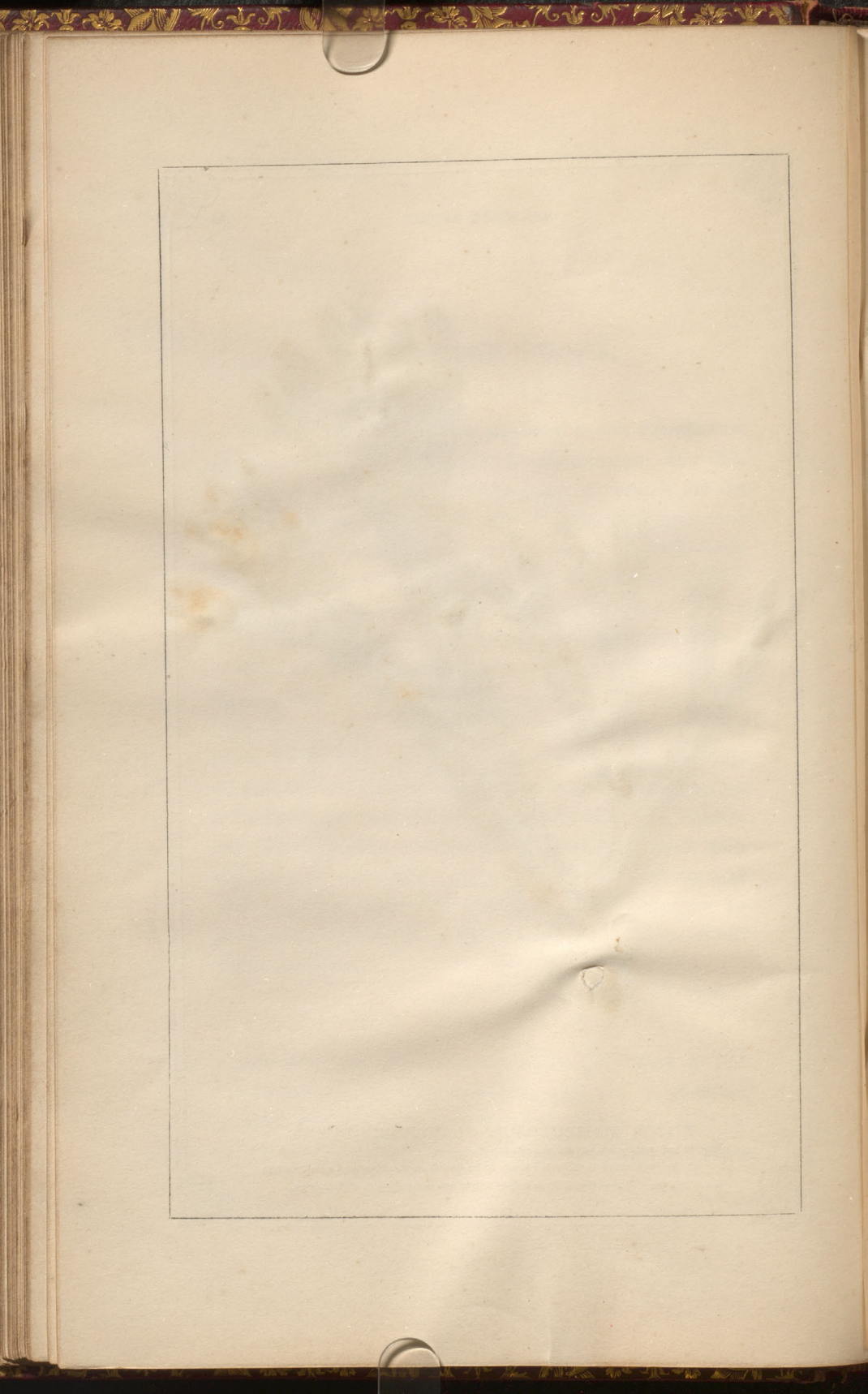
ANOTHER and yet more important application of this "worthless alga," is to the manufacture of kelp, a substance extensively used in glass-making and soap-boiling. Kelp is an impure carbonate of soda, and is procured from the ashes



FUCUS VESICULOSUS.—BLADDERED FUCUS.

Found on rocky sea shores abundant.

All the Seaweeds in this book are to be found on the Hastings coast, except ODONTHALIA. Those dated from other shores are not common at Hastings.





of various kinds of sea-weed. "The plants are cut from the rocks, or collected from the rejectamenta of the sea, and dried in the open air. An excavation, like a grave, is made in the ground, and lined with large stones; and in this, which is named a kelp-kiln, the dried weeds are burned. The melted alkali, mixed with many impurities, accumulates in the bottom of the kiln; and when cold, forms a hard, bluish mass, which is named kelp, and is a substance of great importance in bleaching, and, as before stated, in the manufacture of soap and glass.

Almost the entire rent of the island of Rathlin, on the northern coast of Ireland, is thus paid from the produce of its seaweeds; and from this source alone, the rents of one Highland chief have, of late years, it is said, increased two thousand pounds per annum.

C. A. JOHNS' BOTANICAL RAMBLES.

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SEAWEEDES expand with amazing rapidity. Mr. Stephenson, the Scottish engineer, found that a rock, uncovered only at spring-tides, which had been chiselled smooth in November, was thickly clothed on the following May with fucoids from two to six feet in length, notwithstanding the winter had been unusually severe. Many species, as the disjointed algæ, have a fissiparous reproduction; that is, separate into numerous fragments, each of which, though having a common origin, has an individual life, and is capable in turn of increasing its kind.

CHAMBERS' EDINBURGH JOURNAL.

## PALMATED RHODOMENIA, OR DULSE.

THIS plant grows from four to six inches or a foot high, and is of a livid purplish color. This is the Saccarine Fucus, or *Sol* of the Icelanders, the efflorescence of which has a sweetish and not disagreeable taste. It is dried by the natives, packed down in casks, and used as occasion requires, frequently cooked with butter.

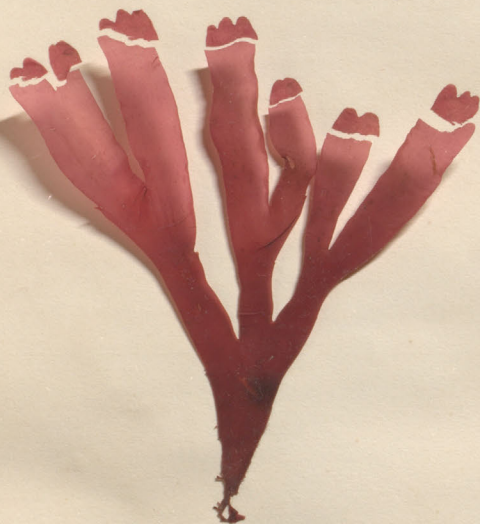
SIR W. HOOKER.

CALLED by Highlanders, *duillig* (leaf of the water).—The Scotch and Irish wash the plant in fresh water, dry it in the sun, roll it up, and chew it like tobacco; but it is usually eaten fresh from the sea. The Icelanders, after drying it, pack it down in casks for occasional consumption; and it is then ready to be eaten, either raw with fish and butter, or boiled with milk, to which is sometimes added a little rye-flour. In Norway it is called *sou-söll*, or *sheep's weed*, sheep being exceedingly fond of it. It is used medicinally in fevers, in the Isle of Skye; and in the islands of the Archipelago, is a favourite ingredient in ragouts, to which it imparts a red color. The dried frond, like many other marine algæ, when infused in water, exhales an odour resembling that of violets, and is said to communicate that flavour to vegetables with which it is mixed.

LITTLE MARINE BOTANIST.

SEAWEED is driven in here in considerable quantities; and at the spring tides, at the full moon and change, a few women may be seen, scattered over the rocks, collecting a particular species called Dillisk or Dulse (*Rhodomenia palmata*), which they dry in the sun, and then carry about the country and sell to the peasantry, who eat it as a delicacy.

M. M. (White Park, Antrim.)

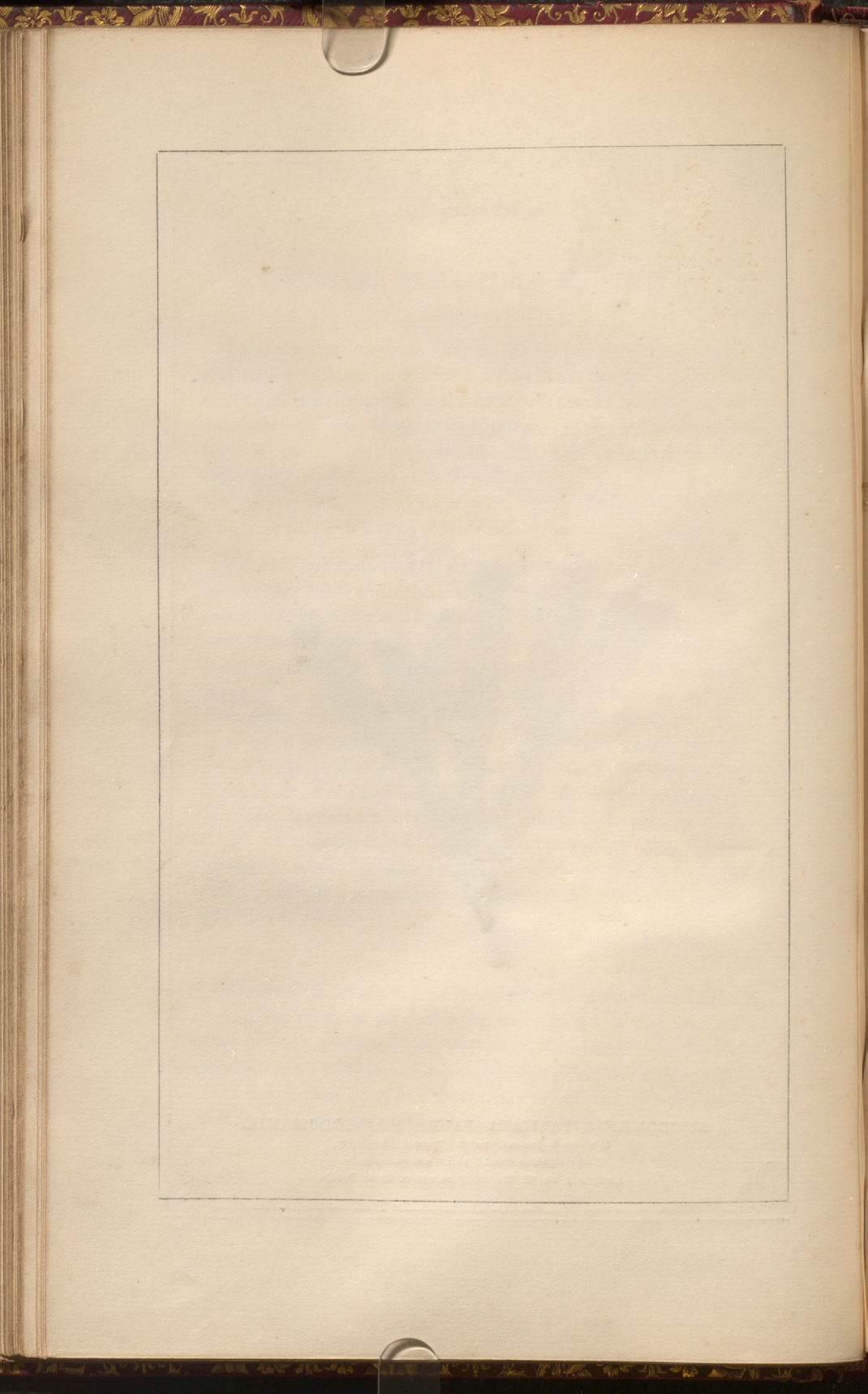


RHODOMENIA PALMATA—PALMATED RHODOMENIA.

Division I. INARTICULATE. Tribe 9. FLORIDEE.

Name signifies "red" and "a membrane."

Abundant on all the rocky shores of Great Britain.



THIS species, with another (Orkneys Red-ware, *Laminaria digitata*), was, until recently, so much esteemed by our northern countrymen, that it was publicly sold in the cities, as an article of regular consumption. The cry of "Buy dulse and tangles," resounded at no very distant period, even through the streets of Edinburgh.

Many of the algæ are rather extensively used as food; and though, to one unused to such diet, they would in general seem to offer little temptation to the appetite, the poorer natives, not only of our own, but of other shores, eat them with much relish. Let us not despise their taste, though differing from our own; but rather adore the beneficence of God, who has supplied in much abundance, an additional source of nutriment, and has conferred upon the recipients of his bounty, the taste requisite for its enjoyment.

THE OCEAN.

DEEP in the wave is a coral-grove,  
 Where the purple mullet and gold-fish rove;  
 Where the sea-flower spreads its leaves of blue,  
 That never are wet with falling dew,  
 But in bright and changeful beauty shine,  
 Far down in the deep and glassy brine.  
 The floor is of sand like the mountain drift,  
 And the pearl-shells spangle the flinty snow;  
 From coral-rocks the sea-plants lift  
 Their boughs, where the tides and billows flow;  
 The water is calm and still below,  
 For the winds and waves are absent there;  
 And the sands are bright as the stars that glow  
 In the motionless fields of upper air;  
 There with its waving blade of green,  
 The sea-flag streams through the silent water;  
 And the crimson leaf of the dulse is seen  
 To blush, like a banner bathed in slaughter.

J. G. PERCIVAL.

CURLED CHONDRUS.

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THIS is called the Proteus of marine algæ, the varieties being innumerable, and passing so insensibly one into the other that it is almost impossible to define them. When fully ripe, the capsules fall away, leaving the frond full of holes. It is used in Ireland, as size, by house-painters.

MARINE BOTANIST.

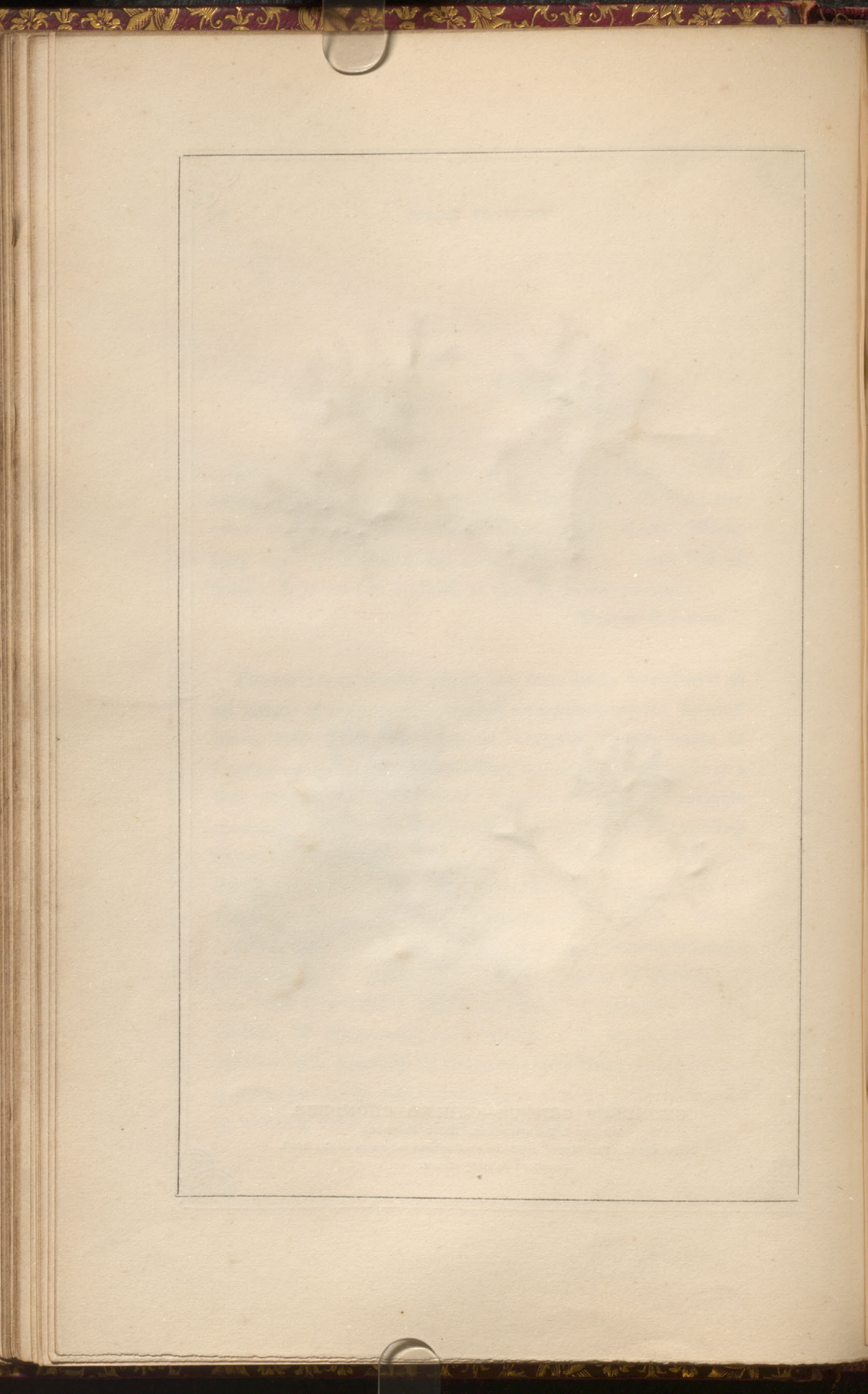
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THERE is a substance which has been lately introduced as an article of commerce, intended as a substitute for Iceland Moss, and sold by the London druggists by the name of Carrageen Moss; notwithstanding its name, however, it is a true *alga*, *Chondrus crispus*. It is an exceedingly variable species; but its most usual form is that of a flat leaf spreading somewhat triangularly, or rather so as to give to its outline the figure of one fourth of a circle; the edge is branched into numerous flat segments, overlapping one another. When viewed under water, in a growing state, it gives out beautiful prismatic hues. Containing a large quantity of gelatine, it has been successfully applied, instead of isinglass, in the making of blancmange and jellies. A fucus, probably allied to this, found at the Cape of Good Hope, is boiled into a jelly, and being mixed with sugar and the juice of lemons or oranges, makes a very agreeable dish.

THE OCEAN.



CHONDRUS CRISPUS.—CURLLED CHONDRUS.  
Division I. INARTICULATE. Tribe, FLORIDEE.  
Name signifies "cartilage," from the cartilaginous substance of the frond.  
Abundant on rocky shores.





THERE is another genus, called *Gelidium* (from the frond being easily reduced to a jelly), much used by the inhabitants of many countries bordering the Indian Ocean, to render more palatable their hot and biting condiments; and from some undetermined species the celebrated edible swallow's nests are constructed.

Three species of swallows form edible nests; two of which building at a distance from the sea-coast, use the sea-weed only as a cement for other materials; the nests of the third species, are consequently most esteemed, and are sold for nearly their weight in gold.

MARINE BOTANIST.

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THERE with a slight and easy motion,  
The fan-coral sweeps thro' the clear deep sea;  
And the yellow and scarlet tufts of ocean  
Are bending like corn on the upland lea :  
And life, in rare and beautiful forms,  
Is sporting amid those bowers of stone;  
And is safe, when the wrathful spirit of storms  
Has made the top of the waves his own.  
And when the ship from his fury flies,  
Where the myriad voices of ocean roar,  
When the wind-god frowns in the murky skies,  
And demons are waiting the wreck on shore;  
There far below in the peaceful sea,  
The purple mullet and gold-fish rove;  
Where the waters murmur tranquilly,  
Through the bending twigs of the coral-grove.

J. G. PERCIVAL.

## LACINIATED PURPLE-LAVER.

THIS, under the name of *Laver*, is much eaten in many places, especially the south of England, pickled with salt, and preserved in jars, and when brought to table, served up with lemon-juice. According to Lightfoot, the inhabitants of the Western Isles gather it in the month of March, and after pounding and macerating it with a little water, eat it with pepper, vinegar, and butter. Others stew it with leeks, and onions.

SIR W. HOOKER.

THE Purple Laver is called Stoke in Scotland. All the plants of this genus form beautiful specimens for the herbarium; and when carefully dried, the surface is delightfully smooth and glossy.

LITTLE MARINE BOTANIST.

RESPECTING the reproduction of Algæ, it is evident that the modes of flowering and fruiting which we perceive in land plants, would have been wholly inappropriate. Not exposed to sunshine, there was no use for reflecting petals; continually submersed in water, a sheltering calyx would have been superfluous; and seeds, in the ordinary structure of that organ, could not have endured. Nature, however, is never in lack of means to an end; and the vegetation of the ocean is propagated with as unerring certainty and with as great rapidity as the most prolific family on land. For this purpose, certain species have their surface studded with blistery expansions, or part of their substance is filled with little cells, which expansions and cells contain many minute germs, floating in

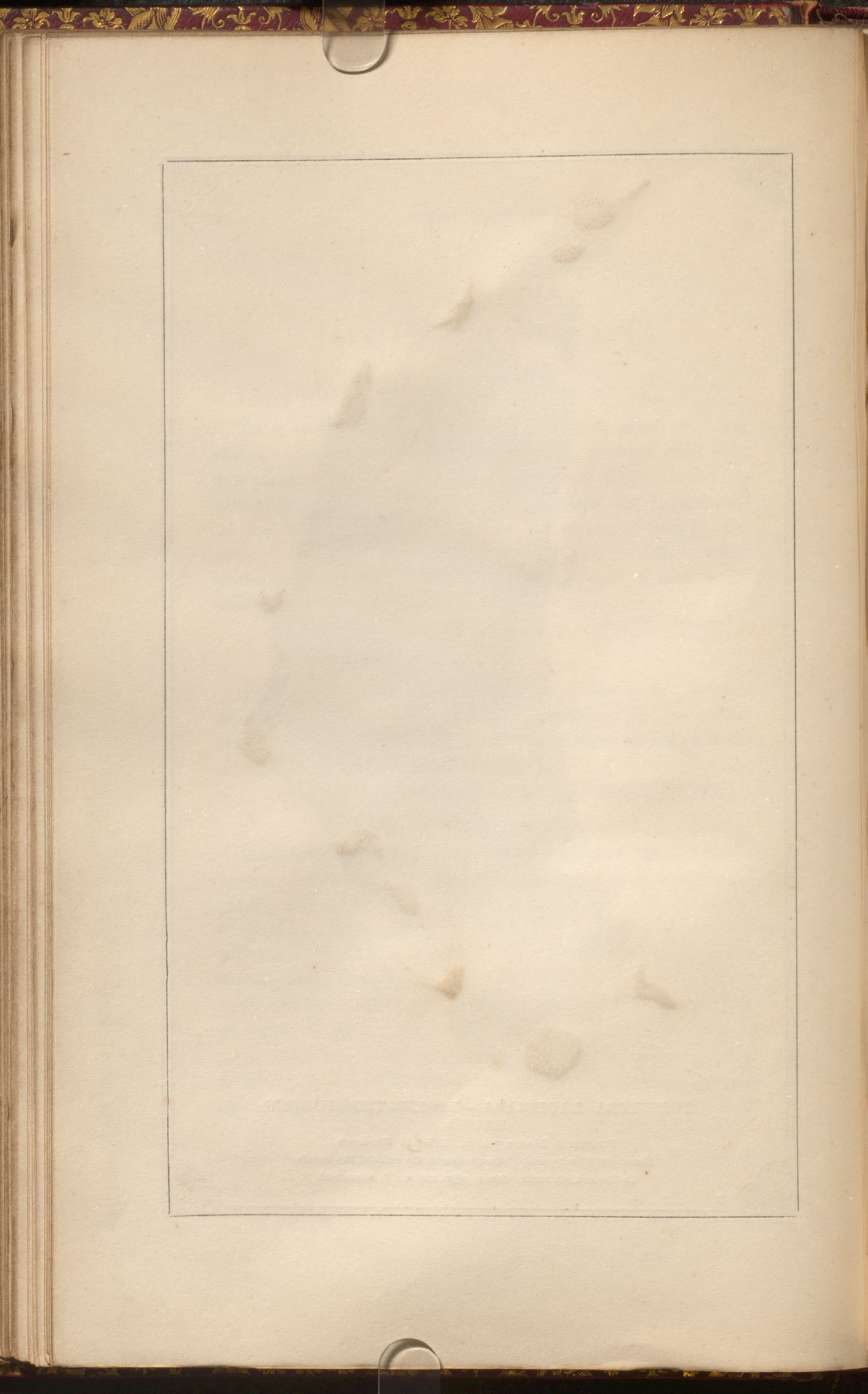


PORPHYRA LACINIATA—LACINIATED PURPLE-  
LAVER.

Division I. INARTICULATE. Tribe II. ULVACEÆ.

Name signifies "purple;" in allusion to the color of the fronds.

In the sea, on rocks, stones, algae and wood, abundant



mucilaginous matter. As these germs arrive at maturity, the enclosing pustules burst open, and the germs are consigned to the ocean, where they float about coated with their glutenous mucilage, and are sure to adhere to the first surface upon which they impinge. In a few weeks they spring up into new plants, and in their turn give birth to thousands. Thus we have seen half-a-dozen different weeds attached to the same oyster-shell; and a pebble of twenty pounds' weight, buoyed up by one plant of bladder-wrack, the primary germ of which had glued itself to the surface.

CHAMBERS' EDINBURGH JOURNAL.

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THOUGHTS ON THE SEA-SHORE.

"In every object here, I see  
 Something, O Lord, that leads to thee;—  
 Firm as the rocks thy promise stands;  
 Thy mercies countless as the sands;  
 Thy love a sea immensely wide;  
 Thy grace an ever-flowing tide.

In every object here, I see  
 Something, my heart, that points at thee;—  
 Hard as the rocks that bound the strand;  
 Unfruitful as the barren sand;  
 Deep and deceitful as the ocean;  
 And, like the tides, in constant motion.

J. NEWTON.—"OLNEY HYMNS."

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ON the sea-shore, when day's last purple smile  
 Slept on the waters, and their hollow swell  
 And dying cadence lent a deeper spell  
 Unto thine ocean pictures.

MRS. HEMANS.

## RIBBAND GREEN-LAVER.

THIS species is very similar to *Ulva Latissima*, and *Ulva Lactuca*, both eaten under the name of Green Laver or Oyster Green; being served at table with lemon-juice, in the same way as Purple Laver. Lightfoot says, that the islanders ascribe to it an inodyne virtue, and bind it about the forehead and temples to assuage headache in fevers, and to procure sleep. The Ribband Green-Laver delights to grow in those gravelly spots, where the fresh water oozes up during the ebb-tide. In such situations it is not uncommon to find specimens four feet in length, with a diameter not exceeding two inches.

SIR W. HOOKER.

IN their distributions the algæ obey laws equally imperative as those which regulate the habitats of land vegetation. Thus the bladder-wrack luxuriates most where alternately exposed and covered by the tide; the dulse, on the very confines of the lowest ebb; and the tangle and sea-catgut in a zone where the lowest ebb never reaches. We know little of the bottom of the ocean over extensive spaces; but this we are warranted in affirming, that seaweeds flourish most abundantly on rocky patches of moderate depth, that they never spring from sandy or muddy sites, and that they are altogether unknown in the greater depths of the sea. Many of them seem to float about quite unattached; and though these may have been torn from some

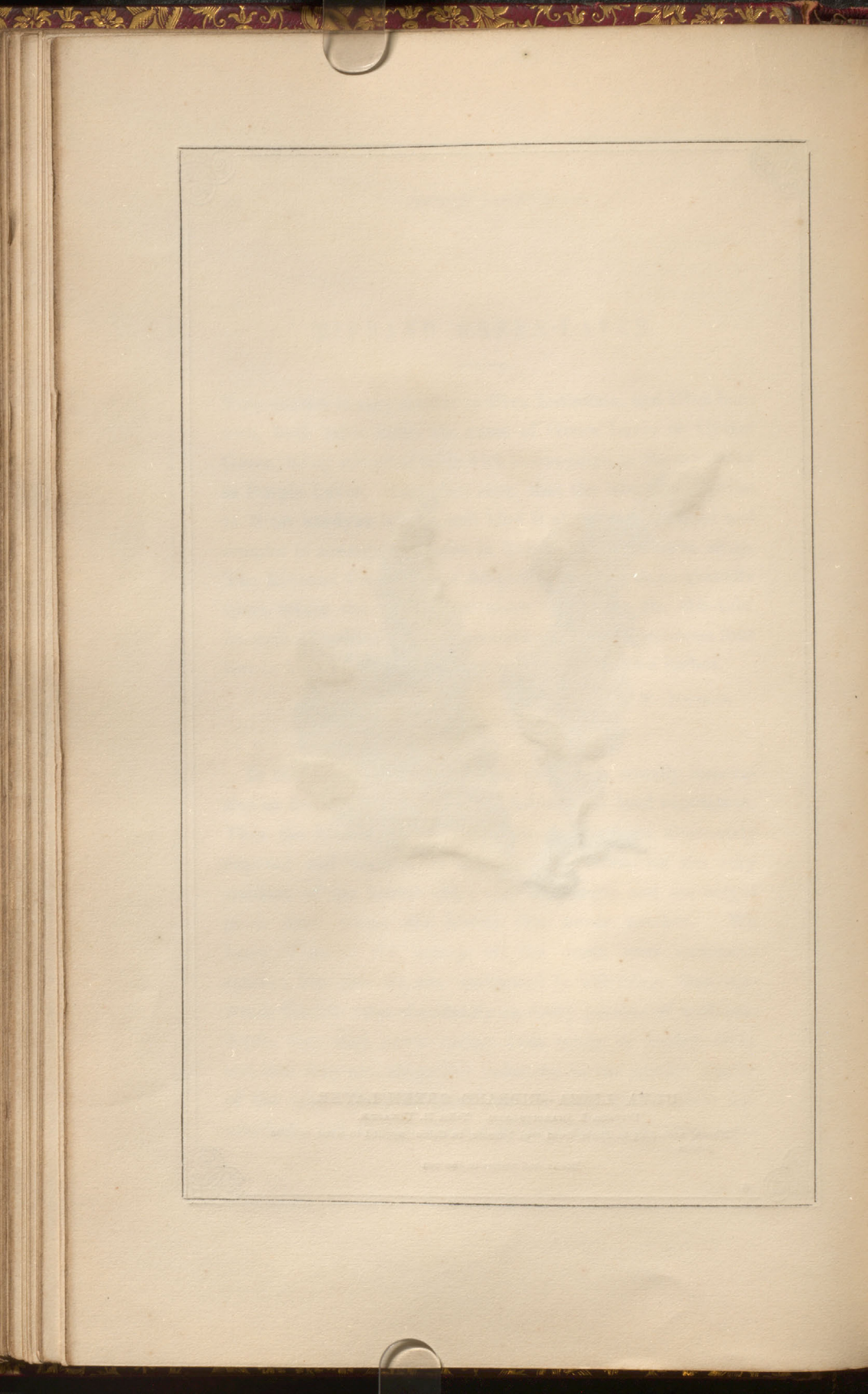


ULVA LINZA.—RIBBAND GREEN LAVER.

Division I. INARTICULATE. Tribe II. ULVACEÆ.

Name, according to Theis, from "ul," water, in Celtic; applied to some aquatic plants.

Rocks and stones in the sea





rocky shore, yet continually in water, they absorb their proper nutriment, and increase in size almost as much as their fixed congeners. Being less subject to fluctuations of temperature, the algæ are more regular in their growth than land plants; and with the exception of a few within the tidal influence, the majority seem to experience no cessation of growth or propagation. It must be borne in mind also, that the algæ are inhabitants of fresh as well as salt-water, and that some of the most curious and beautiful genera are found in our streams and pools, or spread in the form of the most delicate slime on stones and gravel. Nay, what is more wonderful still, some, like the *Ulva Thermatis*, flourish even in hot springs, at a temperature not less than 117 degrees of Fahrenheit!

CHAMBERS' EDINBURGH JOURNAL.

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I LOVED to walk where none had walk'd before,  
About the rocks that ran along the shore;  
Or far beyond the sight of men to stray,  
And take my pleasure when I lost my way.  
For then 'twas mine to trace the hilly heath,  
And all the mossy moor that lies beneath.  
Here had I favorite stations, where I stood,  
And heard the murmurs of the ocean-flood,  
With not a sound beside, except when flew  
Aloft the lapwing, or the grey curlew,  
Who with wild notes my fancied power defied,  
And mock'd the dreams of solitary pride.  
I loved to stop at every creek and bay  
Made by the river in its winding way;  
And call to memory—not by marks they bare,  
But by the thoughts that were created there.

CRAEBE.

## OAK-LEAVED DELESSERIA.

PERHAPS the most lovely of all the Fuci is the *Delesseria Sanguinea*—Oak-leaved *Delesseria*. It consists of several oblong-oval or pointed leaves of extreme delicacy, with the edges very much waved or plaited, furnished with a mid-rib and side veins, which materially increase their leaf-like appearance; the color is an exceedingly rich rose-color. The mid-rib often throws out smaller leaves, which, if the main frond be destroyed, soon attain its usual size; an interesting provision against the accidents to which these apparently frail plants are necessarily exposed. The fructification of this genus is curious, as being of a twofold character: both forms are found in the winter, affixed to the midrib, which alone survives that season, the foliaceous part having all decayed away. The one mode is by means of nearly globular capsules, attached to the rib by short foot-stalks, and enclosing many irregularly shaped seeds; the other is by small membranaceous leaf-like processes, likewise containing seeds. These two kinds of fructification occur on distinct individuals. This charming fucus, of which no adequate idea can be formed by a verbal description, retains much of its beauty when dried, and is very easily preserved. It is a pity that I am obliged to confess, that its odour is very unpleasant, being rank and pungent.

THE OCEAN.

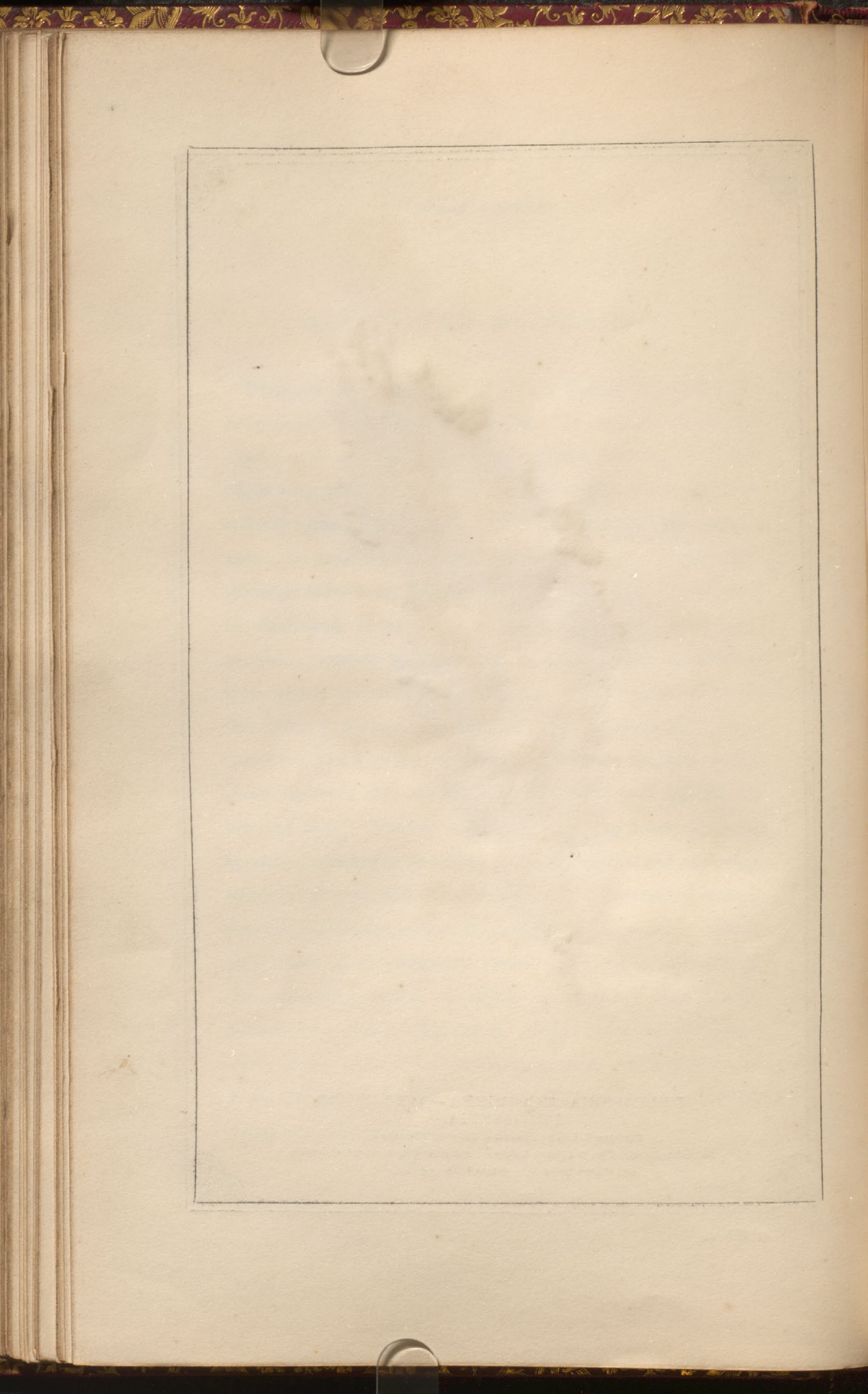


DELESSERIA SANGUINEA.—OAK-LEAVED  
DELESSERIA.

Division I. INARTICULATE. Tribe 9. FLORIDEE

Named in honor of M. Benjamin Delessert, a distinguished patron of Botany.

Sea shores frequent. White Park, Antrim.



## TO THE OAK-LEAVED DELESERIA.

“TELL me, thou child of ocean,  
With thy ensanguined fronds,  
Nursed by the wave's commotion,  
And fixed by rooted bonds:

Why is such beauty lavish'd  
In caves of ocean dark,  
From human vision banish'd,  
Such texture fair to mark?

Say, do the sea-nymphs find thee,  
Thy roseate leaves unfold,  
And round their tresses bind thee,  
As oaken wreaths of old?

Like roses here on earth  
Do they thy beauty prize,  
As flowers of heavenly birth,  
Emblems of brighter skies?

Short-sighted mortal, shame thee!  
Dost think that beauty gleams  
Where man alone must see it,  
Or where he useful deems?

No brilliant hues are needed  
To deck the sea-nymphs' hair,  
But beauty springs unheeded  
Throughout creation fair.

Our God in love abounding  
Has thus his mind display'd;  
With beauty all surrounding  
The creatures he has made.

J. MACKNESS, M.D. (Hastings.)

## WINGED DELESSERIA.

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THIS plant, like most of the specimens in this book, requires the aid of a lens, to discover half its beauties. It has perceptible veins, the fronds are transparent, and vary in color from a deep rose-red to a bright pink; and in decay it is beautifully variegated with palest pink and white.

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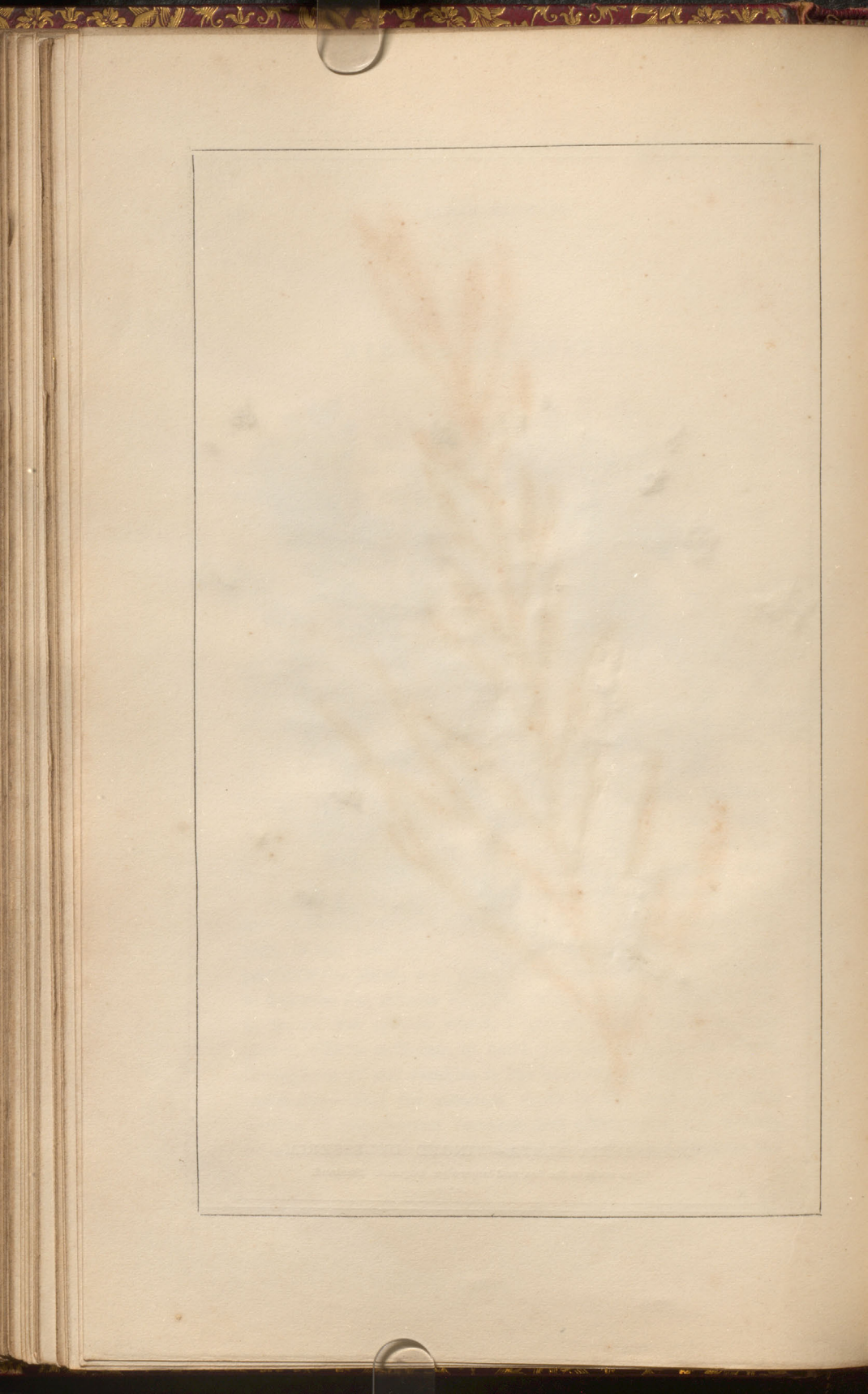
A CLOSE examination of a small extent of sea-shore, where sea-weed is plentiful, will prove to you that the "great deep" abounds in vegetables as various in forms and color as in size; and the microscope will reveal to you wonders as great as the land can afford. Simple thread-like tubes, jointed filaments, the particles of which cohere by inconceivably minute points, tangled tufts consisting of countless feathery stems, exquisitely veined leaves, all abounding with fructification as various as the plants themselves, wave to and fro, in the little pools left among the rocks by the receding tide.

And as to color, you can scarcely name a tint which is not here to be met with, as brilliant and delicate as in the opening rose, or the full-blown cactus. Time will not serve me to particularize them; and indeed I should find it very difficult to describe the minute kinds in such a way as to enable you to fix on the species which I had in view: but a cursory glance will be sufficient to teach you the same lesson which throughout all our rambles it has been my principal object to inculcate:—that the meanest work in the creation is well worthy of our deepest research and admiration, not merely because it may lead to some useful discovery, but because the



DELESSERIA ALATA—WINGED DELESSERIA.

Upon rocks in the Sea, and larger algae, frequent. Scotland.





actual inquiry, while it compels us to engage in exercise healthful to the body, is equally beneficial to the mind, making us wiser, better, and happier.

C. A. JOHNS' BOTANICAL RAMBLES.

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As in form, so in size, sea-weeds vary exceedingly; presenting fibres, the delicacy of which requires the aid of the microscope to examine, floating leaves to which those of the fan-palm are mere pigmies, or tangling cables extending from three to four hundred feet in length.

"The *Macrocystis Pyrifera*," says Darwin, in speaking of Terra del Fuego, "grows on every rock from low-water mark to a great depth, both on the outer coast, and within the channels. I believe that, during the voyages of the Adventurer and Beagle, not one rock near the surface was discovered which was not buoyed by this floating weed. The good service it thus affords to vessels navigating near this stormy land is evident; and it has certainly saved many from being wrecked.

"I know few things more surprising than to see this plant growing and flourishing amidst those great breakers of the western ocean, which no mass of rock, let it be ever so hard, can long resist. The stem is round, slimy, and smooth, and seldom has a diameter of so much as one inch. A few taken together are sufficiently strong to support the weight of the large loose stones; and yet some of these stones were so heavy, that when drawn to the surface, they could scarcely be lifted into a boat by one person. I do not suppose the stem of any other plant attains so great a length as 360 feet, as stated by Captain Cook. Captain Fitzroy, moreover, found it growing up from the greater depth of forty-five fathoms!"

CHAMBERS' EDINBURGH JOURNAL.

PODDED HALIDRYS; OR, TREE IN THE SEA.

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THIS beautiful and graceful plant is thrown upon the sands in great abundance during the summer months; when young and fresh, it is of a bright olive-green, but it soon becomes black when exposed to the sun and air.

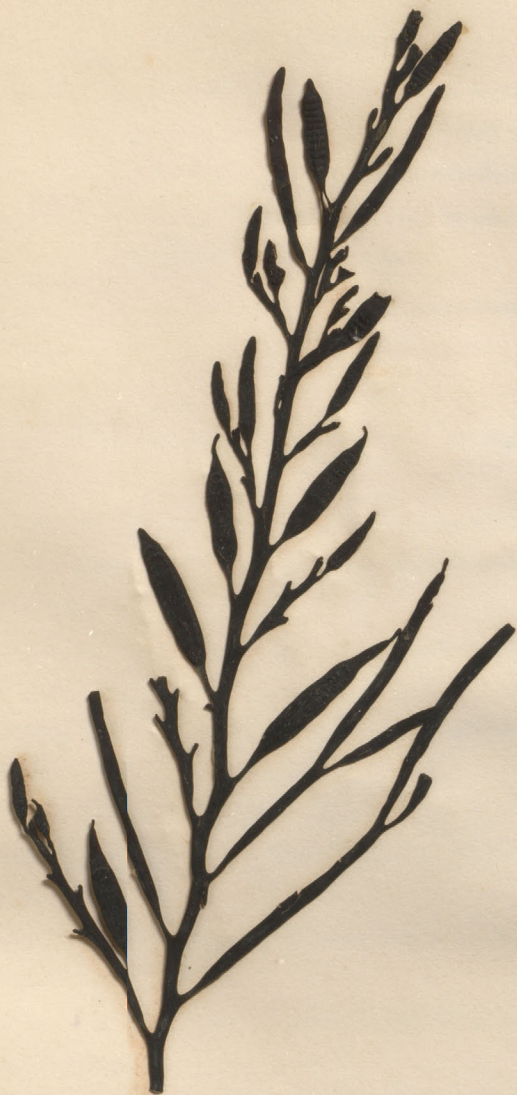
LITTLE MARINE BOTANIST.

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THOUGH the extensive natural order of Algæ is reckoned among the lowest of vegetable creation, we shall find that it is scarcely exceeded by any in the form, and color, and texture of its species; so that no cryptogamic plants have been more general objects of admiration and research; and if their value is to be estimated by the service mankind derives from them, they will hold a high rank in the scale. From the marine algæ, Iodine, a new principle, and possessed of very remarkable properties, is derived.\* It has been successfully employed in the cure of goitres, a disease which Dr. Gillies informs us had yielded, in South America, to the application of the stem of a certain fucus, long before iodine was employed in civilized Europe.

SIR W. HOOKER.

\* Iodine is procured principally from *Fucus Nodosus*.

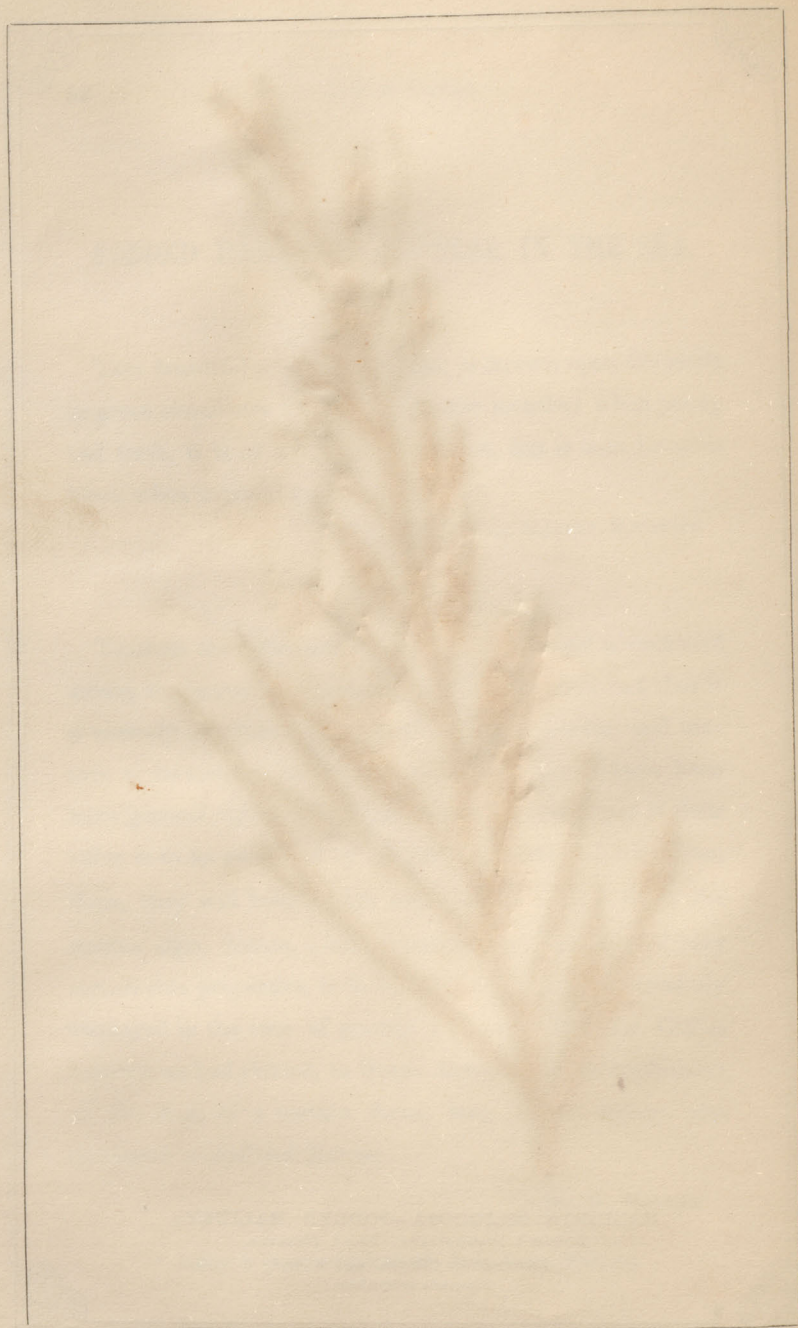


HALIDRYS SILIQUOSA—PODDED HALIDRYS.

Division I. INARTICULATE. Tribes I. PUCOIDES.

Name signifies, "the sea," and "a tree."

Sea-coasts everywhere.



IODINE derives its name from a Greek word signifying a *violet*, from the peculiar hue of the vapour which it emits when heated. Polished plates of silver held over these fumes are peculiarly sensitive of light, and are used in taking likenesses by the process called Daguerreotype.

C. A. JOHNS' "BOTANICAL RAMBLES."

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THE sea-wort floating on the waves, or rolled up high along  
the shore,  
Ye counted useless and vile, heaping on it names of contempt,  
Yet hath it gloriously triumphed, and man been humbled in  
his ignorance ;  
For health is in the freshness of its savour, and it cumbereth  
the beach with wealth ;  
Comforting the tossings of pain with its violet-tinctured  
essence,  
And, by its humbler ashes, enriching many proud.  
Be this, then, a lesson to thy soul, that thou reckon nothing  
worthless,  
Because thou heedest not its use, nor knowest the virtues  
thereof.  
And herein, as thou walkest by the sea, shall weeds be a type  
and an earnest  
Of the stored and uncounted riches lying hid in all creatures  
of God !

M. F. TUPPER'S "PROVERBIAL PHILOSOPHY."

FIBROUS CYSTOSEIRA.

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THE vesicles of this fine species are three or four times wider than the part in which they appear, and about the size of a vetch-seed, with a bushy and somewhat harsh appearance of frond.

DR. GREVILLE.

---

ONLY the higher tribes of sea-weeds show any distinction into stems and leaves; and even in these, what appears a stem in the old plant, has already served, at an earlier period of growth, either as a leaf, as in *Cystoseira*, &c., or the midrib of a leaf, as in *Delesseria*. A few exhibit leaves or flat fronds, formed of a delicate perforated net-work resembling fine lace, or the skeletons of leaves, a structure which is also found among Zoophytes.

HON. W. H. HARVEY.

---

THOSE who have resided inland all their lives, where only shallow rivers flow, where clear fountains rise, or muddy currents roll along, view with deep admiration the first appearance of the sea, as they regard from the shore the pure and sparkling green complexion of its waters—a color which seems indeed peculiar to itself. Admiration is changed to

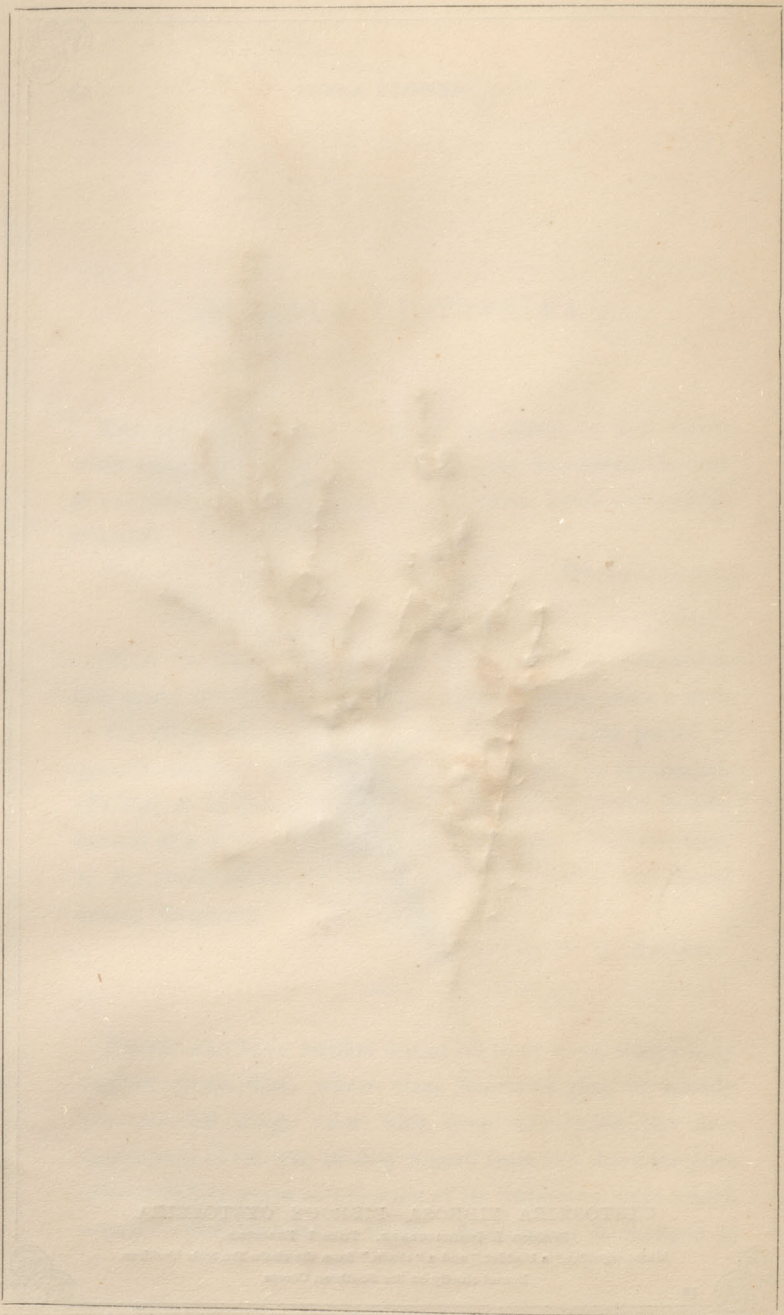


CYTOSEIRA FIBROSA.—FIBROUS CYTOSEIRA.

Division I. INARTICULATE. Tribe I. FUCOIDEÆ.

Name signifies "a bladder," and a "chain," from the chain-like little bladders.

Found chiefly on the Southern Coasts.





wonder when we find, on placing a portion of that water into a vessel, no trace of that peculiar color is to be seen ; it is now perfectly clear and colourless. Marine plants, especially the corallines, beam in the sea with the greatest splendour ; but, as soon as they are taken out, much of their beauty vanishes. Certain *Cystoseiræ* (or *Irideæ*), which in their fostering element shine in the colors of the rainbow, or in the finest tints of orange and purple, lose their attractions by exposure to the atmospheric air. When on a cloudless day we enjoy an excursion on its surface, the waves appear colored in such a manner around us, we are inclined to believe, as we admire the deepness of its green, that we are upon a liquid meadow ; as the vessel becomes distant from the shore, and we reach the high latitudes, the green tint changes into a blue tint ; and in the open sea the water becomes (at 50 or 60 fathoms) of the finest azure color. But this blue, which is ordinarily regarded as one of the characteristics of the ocean, and which is commonly attributed to the manner in which the rays of the sun become decomposed, as they penetrate into the waters, is not, however, exclusively peculiar to it ; every large and deep bed of water has a cast of a similar nature.\*

COL. BORY DE ST. VINCENT.

\* It is generally supposed that this green appearance of the sea in shallow water is owing to the weeds growing on the bottom. The deep blue tint "out of soundings" seems to arise from some peculiarity in the constitution of the fluid itself in respect to its action on light. Perhaps the similarity of color between the sky-deep above, and the ocean-deep below, may indicate some analogy of constitution between the waters of the one and the æther of the other.

A. V.

## LACINIATED RHODOMENIA.

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THIS beautiful species of *Rhodomenia* is common on many parts of the coasts of Great Britain. It varies much in appearance, the segments being often fringed with marginal laciniae, but more frequently quite plain. The smaller and more delicate specimens have much resemblance to *Rhodomenia bifida*.

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THE following pleasing description of the romantic shore whence these beautiful specimens of the plants were obtained, adds yet greater interest to this page :—

“The hills of White Park are thickly covered with bent ; and among them are scattered large masses of grey rocks, almost overgrown with the bright green glossy-leaved ivy, and bearing a strong resemblance to the ruins of castellated buildings ; these add greatly to the romantic beauty of the scene. In front roll the foam-crested waves of the broad Atlantic, sounding in solemn music on the shore, and bearing on their stony bosoms these ‘flowers of the deep,’ which bear testimony to the truth of the poet’s words :

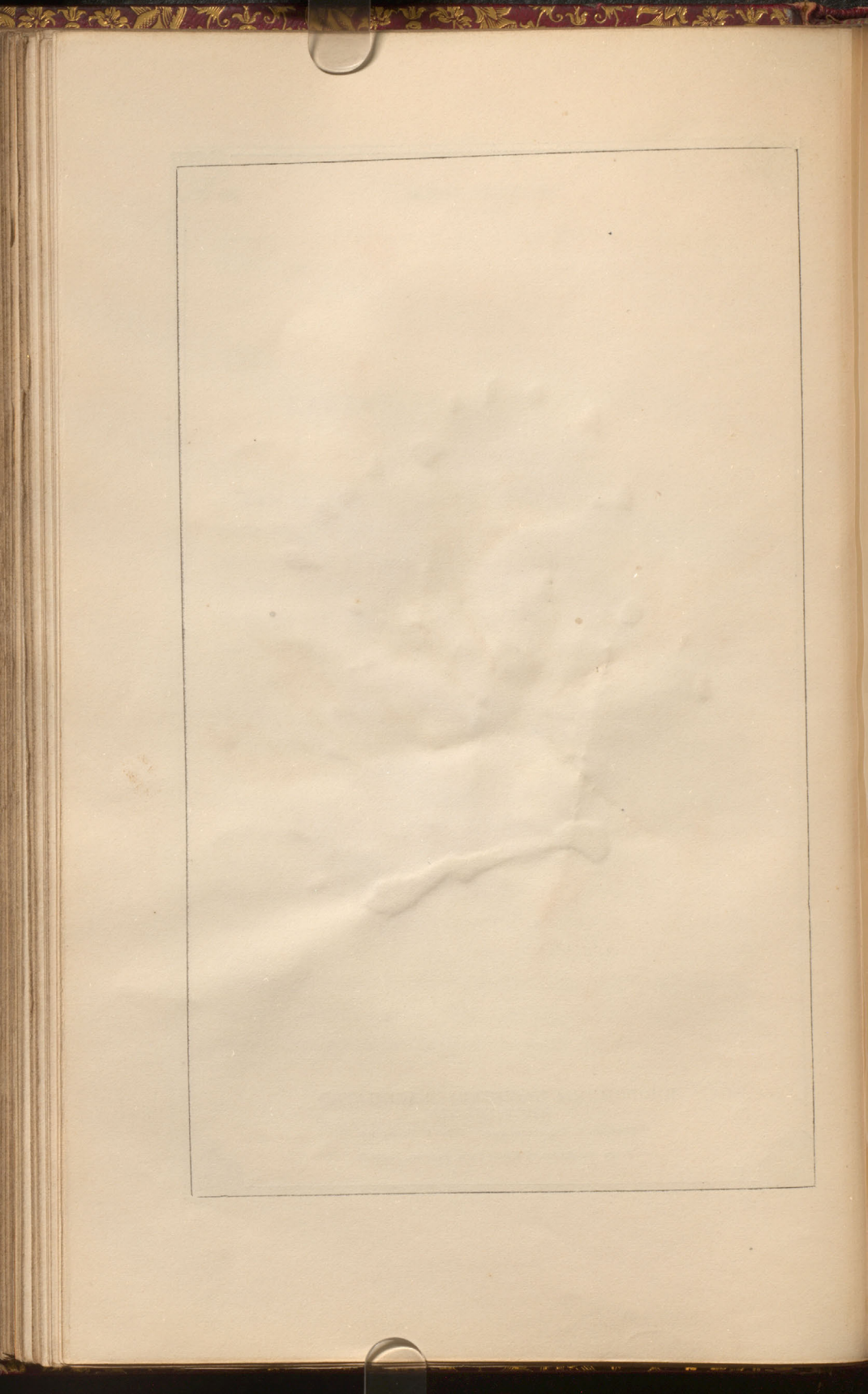
‘Far in the sunless retreats of the ocean,  
Fair flowers are springing no mortal may see.’



RHODOMENIA LACINIATA. LACINIATED  
RHODOMENIA.

Division 1 INARTICULATE. Tribe 9, FLORIDEÆ

From the shores of White Park, Antrirn, Ireland.



“To the lover of solitary meditative rambles, a more attractive spot than this lovely strand could scarcely be discovered; the sand is hard and firm beneath the foot, and the long unbroken line—unbroken save by the foaming breakers as they

‘Roar, and dash, and sink, and cease to be,’

forms a most agreeable noontide walk. When the broad sun is pouring his fiery rays on the languid earth, here all is fresh and cool; and the mind, alike unoppressed by the fever of society, or the weight of excessive stillness, can ask itself with Brainard,

‘Deep calleth unto deep; and what are we  
That hear the question of that voice sublime?  
O! what are all the notes that ever rung  
From war’s vain trumpet, by thy thund’ring side!  
Yea, what is all the riot man can make  
In his short life, to thy unceasing roar!  
And yet, bold babbler!—what art thou, to Him,  
Who drown’d a world, and heap’d the waters far  
Above its loftiest mountains?—a light wave,  
That breaks, and whispers of its Maker’s might.’”

(M.S.) MARGARET. (Knockmore.)

FROM the sea are exhaled those vapours which form the clouds; these clouds descend in showers, which penetrating into the crevices of the hills, supply springs; which springs flow in little streams into the valleys, and there uniting, become rivers; which rivers in return feed the ocean. So there is an incessant circulation of the same fluid; and not one drop probably, more or less now, than there was at the creation. A particle of water takes its departure from the surface of the sea, in order to fulfil certain important offices to the earth; and having executed the service which was assigned to it, returns to the bosom which it left.

PALEY’S “NATURAL PHILOSOPHY.”

## THE PINASTER-LIKE RHODOMELA.

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THIS sea-weed is covered during the winter months with shortly stalked yellow bodies, probably of an animal nature.

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As to the direct uses of the algæ in the general economy of nature.—On land, it is only necessary to glance around us, to perceive that the animal kingdom could not exist without the vegetable. Beasts of the forest, and fowls of the air, and countless myriads of the insect tribe—man himself—all depend, more or less, on vegetables for their food and clothing. The sea, too, has its hordes at least as numerous as those of the land, to which the algæ afford food and shelter, and on whose existence, contemptible as many of them seem, depends, in a greater or less degree, the preservation of every scale of life in the sea. Many of these little animals are so minute, that at first sight it would seem a matter of very little consequence to *us* (for when we speak of “uses,” the words “to man” are too generally to be understood) whether they should starve or not. But when it is remembered that the principal food of the whale consists of a minute jelly-fish, which is scarcely more than an animal sack, moving by contraction; and that by far the greater part of the fishes important as articles of food to man depend upon minute marine animals for support; a different estimate will be formed of the importance of the lower links in the chain of creation to the whole, and we shall come to the conclusion that there is such

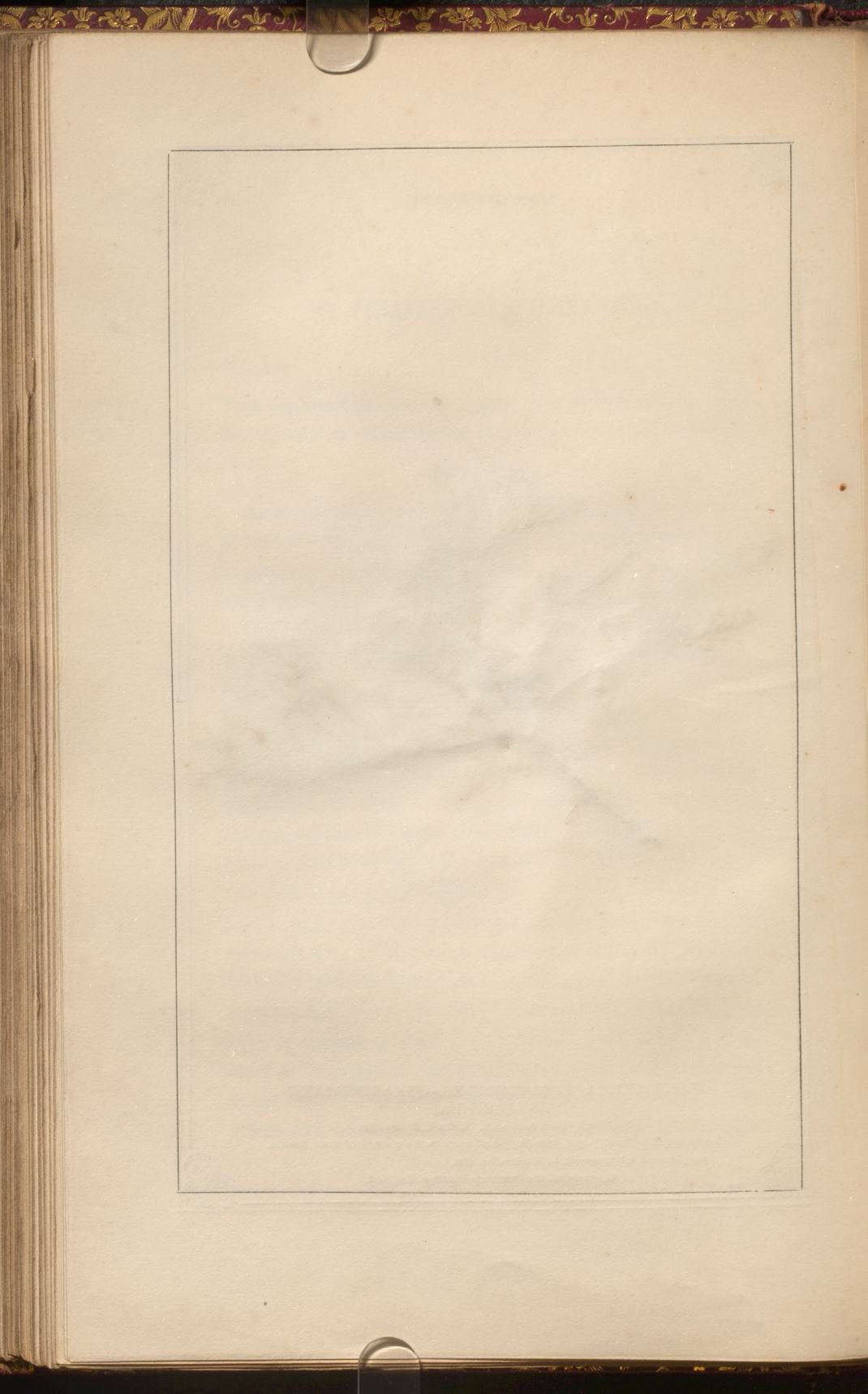


RHODOMELA PINASTROIDES.—PINASTERLIKE  
RHODOMELA.

Division 1. INARTICULATE. Tribe 9. FLORIDÆ.

Name signifies "red," and "black," in allusion to the change of color from a purplish red when recent, to black when dry.

On rocks on the Southern Coasts of England.





a mutual dependance between one living creature and another, that none but the All-wise can dare to determine whether one, the most minute, can be spared without endangering the destruction of all. The algæ, therefore, by supporting the base, support the structure.

HON. W. H. HARVEY.

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“How wondrous is the scene ! where all is form’d  
 With number, weight, and measure !—all design’d  
 For some great end!—where not alone the plant  
 Of stately growth, the herb of glorious hue,  
 Or food-full substance; not the laboring steed;  
 The herd and flock that feed us; not the mine,  
 That yields us stores for elegance and use;  
 The sea that loads our table, and conveys  
 The wanderer man from clime to clime; with all  
 Those rolling spheres, that from on high, shed down  
 Their kindly influence;—not these alone,  
 Which strike e’en eyes incurious, but each moss,  
 Each shell, each crawling insect, holds a rank  
 Important in the plan of Him, who framed  
 This scale of beings; holds a rank, which lost,  
 Would break the chain, and leave behind a gap  
 Which Nature’s self would rue. Almighty Being!  
 Cause and support of all things! can I view  
 These objects of my wonder; can I feel  
 These fine sensations, and not think of Thee?  
 Thou who dost through th’ eternal round of time,  
 Dost through the immensity of space exist  
 Alone, shalt Thou alone excluded be  
 From this Thy universe?—shall feeble man  
 Think it beneath his proud philosophy  
 To call for thy assistance, and pretend  
 To frame a world, who cannot frame a clod?”

BENJAMIN STILLINGFLEET.

PINNATIFID LAURENCIA.

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THIS is a beautiful, but very variable plant, growing from one to many inches in length. It is a summer weed, and often dries a dark green, or nearly black; in pressing it exudes a bright yellow fluid.

This plant is eaten in Scotland, where it is called Pepper Dulse, on account of its pungent flavor.

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AMONG algae, the classes of color are, to a great extent, indicative of structure, and consequently of natural affinity. Thus the green species are of the simplest structure, and differ remarkably in their mode of propagation from either of the other tribes, their seeds being endowed at the period of germination with a sort of motion which some have called voluntary, but which does not really possess that animal property. The *olivaceous* are the most perfect and compound, and reach the largest size; and the red form a group distinguished not less by the beauty and delicacy of their tissue, than by producing seeds under two forms, thus possessing what is called a double fructification.

But the young student must be careful not to place too absolute dependance on this character, in referring plants which he may gather to their place in the system; for some species which in their healthy state are red, or of that class of color, become, when growing under unfavourable circumstances, of an orange-yellowish, whitish, or greenish shade. *Laurencia Pinnatifida* is particularly variable in this respect.



LAURENCIA PINNATIFIDA—PINNATIFID  
LAURENCIA

Division 1. INARTICULATE. Tribe 9. FLORIDEÆ.

Named in compliment to a French Naturalist, M. de la Laurencie.

On rocks in the Sea everywhere.



When this species grows near low-water mark, it is of a fine deep purple red; a little higher up, it is dull purple brown; higher still, a pale brownish red, and, at last, near high-water mark, it is often yellowish or greenish.

The other species of *Laurencia* vary in similar, but less striking degrees. *Chondrus Crispus* too, when found in shallow water, is often of a bright herbaceous green; and *Ceramium Rubrum* passes through every shade of red and yellow, and at last degenerates into a dirty white, before it ceases to grow.

HON. W. H. HARVEY.

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Oh children of ocean, how strange is your growing!  
 How strange in mine eyes is the place of your birth!  
 No breezes to fan you are tenderly blowing,  
 No soft dews ye share with your kindred of earth.  
 But while far above you the tempest is sweeping,  
 The billows are rolling, all crested and white,  
 Those fathomless depths, that have you in their keeping,  
 Untroubled abide, and are *still* in their might!  
 The seasons may change—but for you come no changes;  
 Nor fading of autumn, nor spring-bloom ye know.  
 Time dwells in mid-air;—his light wing never ranges  
 The sky-deep above, or the sea-deep below.

(M.S.) A. J. VIDAL.

SCARLET PLOCAMIUM.

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THIS is one of the most charming and symmetrical algæ in the world; extremely common every where, and an universal favorite. Although liable to vary very considerably in size, and in the proportion of its parts, a single glance at the beautifully regular and peculiar division of the ultimate branches is at all times sufficient to distinguish it. Some specimens are not above an inch in length, with the frond almost as fine as a hair; while others, from New Holland, are a line in width, and above a foot long; but the admirable character above mentioned is universally preserved.

LITTLE MARINE BOTANIST.

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SOME of those species whose fronds are very delicately and numerously ramified, have been used to form mimic pictures. By skilful arrangement, very pretty landscapes are thus made, the forms and foliage of trees being beautifully imitated. The kinds most commonly appropriated for this purpose are, *Plocamium Coccineum* and *Gelidium Cartilagineum*, which have a very beautiful effect if simply expanded on smooth white paper, or on the pearly inner surface of large shells. The whole order *Florideæ*, to which these belong, is remarkable for brilliant hues and often elegant forms.

(P. H. GOSSE.) THE OCEAN.

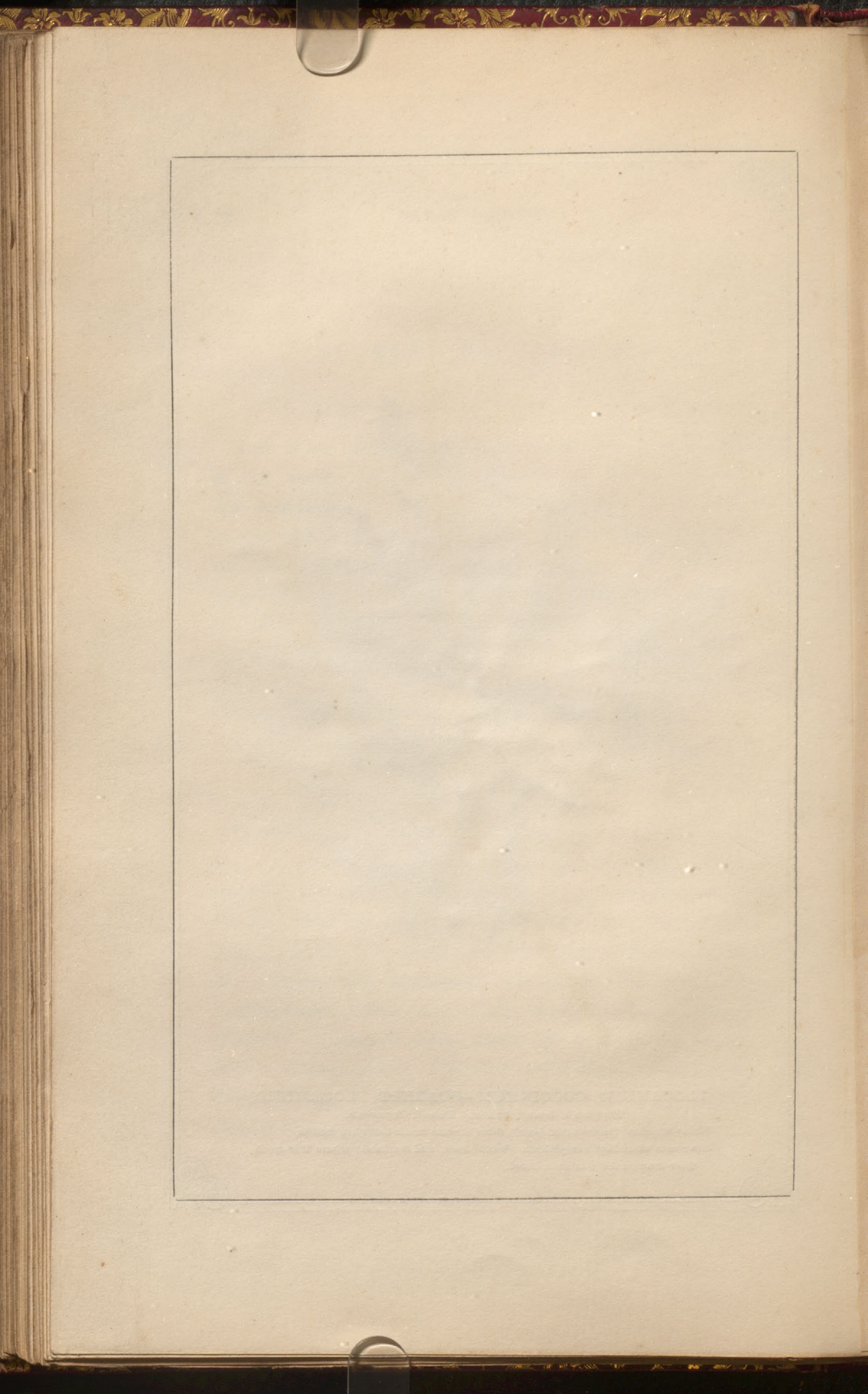


PLOCAMIUM COCCINEUM.—SCARLET PLOCAMIUM.

Division 1. INARTICULATE. Tribe 9. FLORIDÆ.

Name signifies "intertwined hair," from the fine much-branched fronds.

Sea-coasts abundant everywhere. White Park, and Scotland; where it is much finer than on the Southern Coast.





## THE ATLANTIC OCEAN.

COME down, come down, from the tall ship's side ;  
 What a marvellous sight is here !  
 Look ! purple rocks, and crimson trees,  
 Down in the deep so clear.

See ! where those shoals of dolphins go,  
 A glad and glorious band ;  
 Sporting amidst the day-bright woods  
 Of a coral fairy land.

See ! on the violet sands beneath,  
 How the gorgeous shells do glide !  
 O sea ! old sea ! who yet knows half  
 Of thy wonders and thy pride ?

Look how the sea-plants trembling float  
 All like a mermaid's locks,  
 Waving in thread, of ruby red,  
 Over those nether rocks.

Heaving and sinking, soft and fair,  
 Here hyacinth—there green,—  
 With many a stem of golden growth,  
 And starry flowers between.

But away ! away ! to upper day !  
 For monstrous shapes are here :  
 Monsters of dark and wallowing bulk,  
 And horny eyeballs drear :

\* \* \* \*

Away ! away ! to upper day ;  
 To glance o'er the breezy brine,  
 And see the nautilus gladly sail,  
 The flying-fish leap and shine.

MARY HOWITT.

## TOOTHED ODONTHALIA.

THIS very beautiful seaweed is frequently found on old stems of *Laminariæ*. The urceolate capsules on the frond (which is one species of fructification) appear very curious, when viewed with the microscope.

In color the algæ present three principal varieties, with, of course, numerous intermediate shades; namely, grass-green, olivaceous, red. The grass-green is characteristic of those found in fresh water, or in very shallow parts of the sea, along the shores, and generally above half-tide level, and is rarely seen in those which grow at any great depth. But to this rule there are exceptions sufficiently numerous, to forbid our assigning the prevalence of this color altogether to shallowness of water. Several of the more perfect *Confervæ* and *Siphonææ* grow beyond the reach of ordinary tides; and others, as the beautiful *Anadyomene*, are sometimes dredged from very considerable depths. The great mass, however, of the green-colored species are inconsiderably submerged. The olivaceous brown, or olive-green, is almost entirely confined to marine species; and is in the main, characteristic of those that grow at half-tide level, becoming less frequent towards low-water mark; but it frequently occurs also at greater depths, in which case it is very dark, and passes into brown, or almost black. The red also is almost exclusively marine, and reaches its maximum in deep water. When it occurs above half-tide level, it assumes either purple, or orange, or yellow tints, and sometimes even a cast of green; but in these cases it is sometimes brightened, by placing the specimens for a short time in fresh water.

HON. W. H. HARVEY.



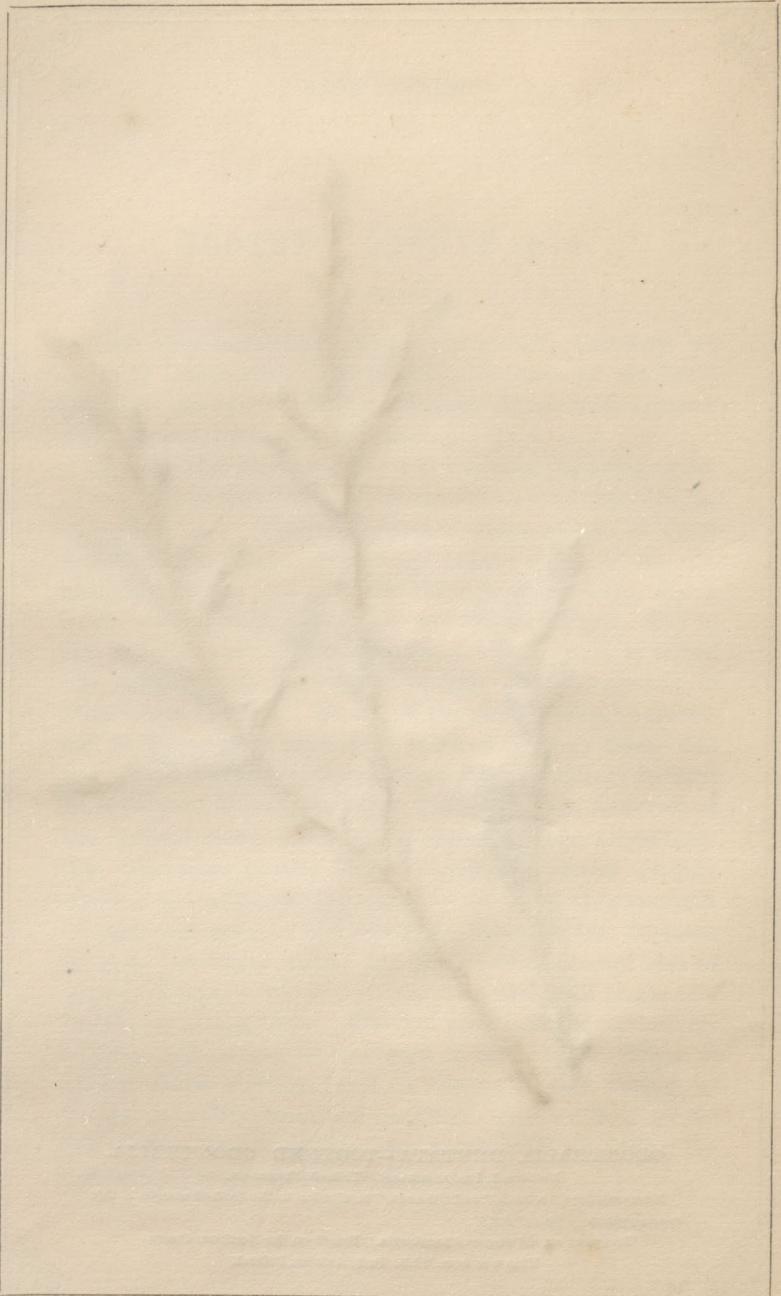
ODONTHALIA DENTATA.—TOOTHED ODONTHALIA.

Division I. INARTICULATE. Tribe 9. FLORIDEE.

Name signifies "a tooth," and "the sea," in allusion to the toothed margin of this marine plant.

Frequent on old stems of Laminaria. Found on the Northern Coasts

This was from White Park, Antrim, Ireland.



THE pearl  
 Shines in the concave of its purple bed,  
 And painted shells along some winding shore  
 Catch with indented folds the glancing sun.

AKENSIDE.

PERHAPS no scene or situation is so intensely gratifying to the naturalist, as the shore of the ocean. The productions of the latter element are innumerable, and the majesty of the mighty waters lends an interest unknown to an inland landscape. The loneliness, too, of the sea-shore is much cheered by the constant changes arising from the ebb and flow of the tide, and the undulations of the water's surface, sometimes rolling like mountains, and again, scarcely murmuring on the beach. As you gather there,

“ Each flower of the rock, and each gem of the billow ; ”

you may feel with the poet, that there are joys in solitude, and that there are pleasures to be found in the investigation of nature, of the most powerful and pleasing influence.

“ There is a pleasure in the pathless woods;  
 There is a rapture on the lonely shore;  
 There is society where none intrudes,  
 By the deep sea, and music in its roar.

But nothing can be more beautiful than a view of the bottom of the ocean, during a calm, even round our own shores, but particularly in tropical climates, especially when it consists alternately of beds of sand and masses of rock. The water is frequently so clear and undisturbed, that at great depths, the minutest objects are visible; groves of coral are seen expanding their variously coloured clumps, some rigid and immoveable, and others waving gracefully their flexile branches.

DRUMMOND'S "FIRST STEPS TO BOTANY."

## FEATHERED PTILOTA.

THIS is one of the most beautiful of the marine algæ. A jointed appearance is visible in the young and tender parts of this plant.

LIKE their kindred, the plants of the earth and air, the seaweeds have their parasites. As the *Tillandsia* grows on the giants of the tropical forests, and as the misseltoe grows upon the apple-tree of our own orchards, so do some of these draw their nourishment, or at least derive their support, from the fronds or stalks of others. *Ptilota Plumosa*, for example, a delicately feathered species, of a pink or purplish hue, is found to be parasitical on the common tangle. It is justly considered one of the ornaments of our southern shores, but becomes still finer as we approach a more northern latitude.

THE OCEAN.

LINES ON THE FEATHERED PTILOTA: ADDRESSED TO——.

I FOUND, while I wander'd alone on the strand,  
By the cliff that o'erhangs the dark sea,  
A flower of the ocean embedded in sand;  
And the thoughts it awoke, were of thee.

I saw it removed from the parent that nurst  
Its frail leaves as it oped to the deep;  
And I thought of the sorrow, the deepest, the first  
That had taught thy young eye-lids to weep.

I saw it uprooted and torn by the storm,  
From its kindred and home 'neath the wave;  
And I felt it might envy the earth's meanest worm  
That could make of its cradle a grave.

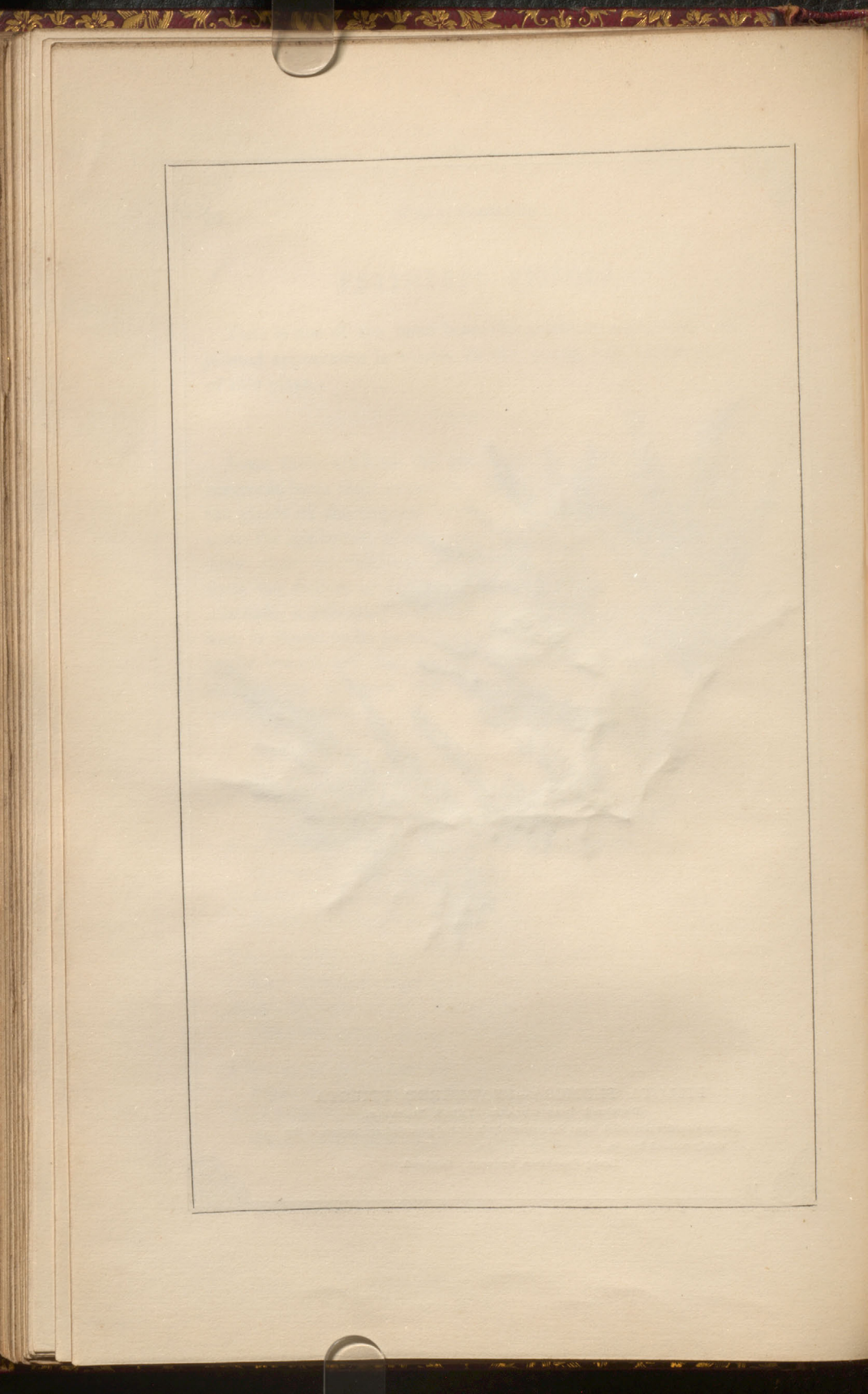


PTILOTA PLUMOSA.—FEATHERED PTILOTA

Division I. INARTICULATE. Tribe 9. FLORIDEE.

Name signifies pinnated, from the extremely beautiful pinnated appearance of the richly-colored fronds.

Rocky Sea-shores, frequent. Scotland.





I thought of thee leaving the home of thy love,  
And the friends that rejoiced in thy smile,  
To be toss'd on the waves of the world, but to prove  
How its fairy-wrought visions beguile.

And now 'mid the calm it was borne to its rest,  
Ere the evening-tide murmurs had come ;—  
Thou too, by the burthen and day-heat opprest,  
Hast welcomed the rest of the tomb.

And far from the rocks where thy footsteps have stray'd,  
Where the friends of thy youth for thee weep ;  
On the shores of the stranger thy grave thou hast made,  
And there gentle ones watch o'er thy sleep.

Meet emblem, again see it raised from the sand,  
No sea-storm to feel or to fear ;—  
Thy spirit unfetter'd has soar'd to a land  
Where thy joy is undimm'd by a tear.

(M.S.) ISABELLA. (Knockmore.)

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A REFLECTION AT SEA.

SEE how beneath the moon-beams' smile,  
Yon little billow heaves its breast,  
And foams and sparkles for a while,  
And murmuring then subsides to rest.

Thus man, the sport of bliss and care,  
Rises on time's eventful sea ;  
And having swell'd a moment there,  
Thus melts into eternity !

T. MOORE.

## RED CERAMIUM.

THIS elegant, jointed plant should be examined through a lens, to discover the beauty of its formation;—it is very variable in its ramification and coloring.

THOUGH possessing no floral attractions, the algæ are often very beautiful in their forms and colors, as may be seen by studying any preserved collection. They branch, radiate, and interlace like the most delicate network; float in long silken tresses, or spread along the rocky bottom, in forms that surpass the most intricate tracery of human invention. Nor are their colors often less attractive; for though the prevailing hue be a sober chocolate, there are patches of the brightest green, yellow and vermilion, not surpassed by the grandest shells that lurk below. It is true that

“The rainbow hues of the sea-tree’s bloom,”

is a mere fanciful absurdity, only fit to be classed with the “coral bowers,” and “sparkling caves,” of the versifier; yet the reader has only to pick up a few of the mosses drifted by the latest tide, and to float them in pure water, to be convinced that both in form and color many of the algæ would lose nothing by a comparison with the gayest products of the flower-garden.

CHAMBERS’ JOURNAL.

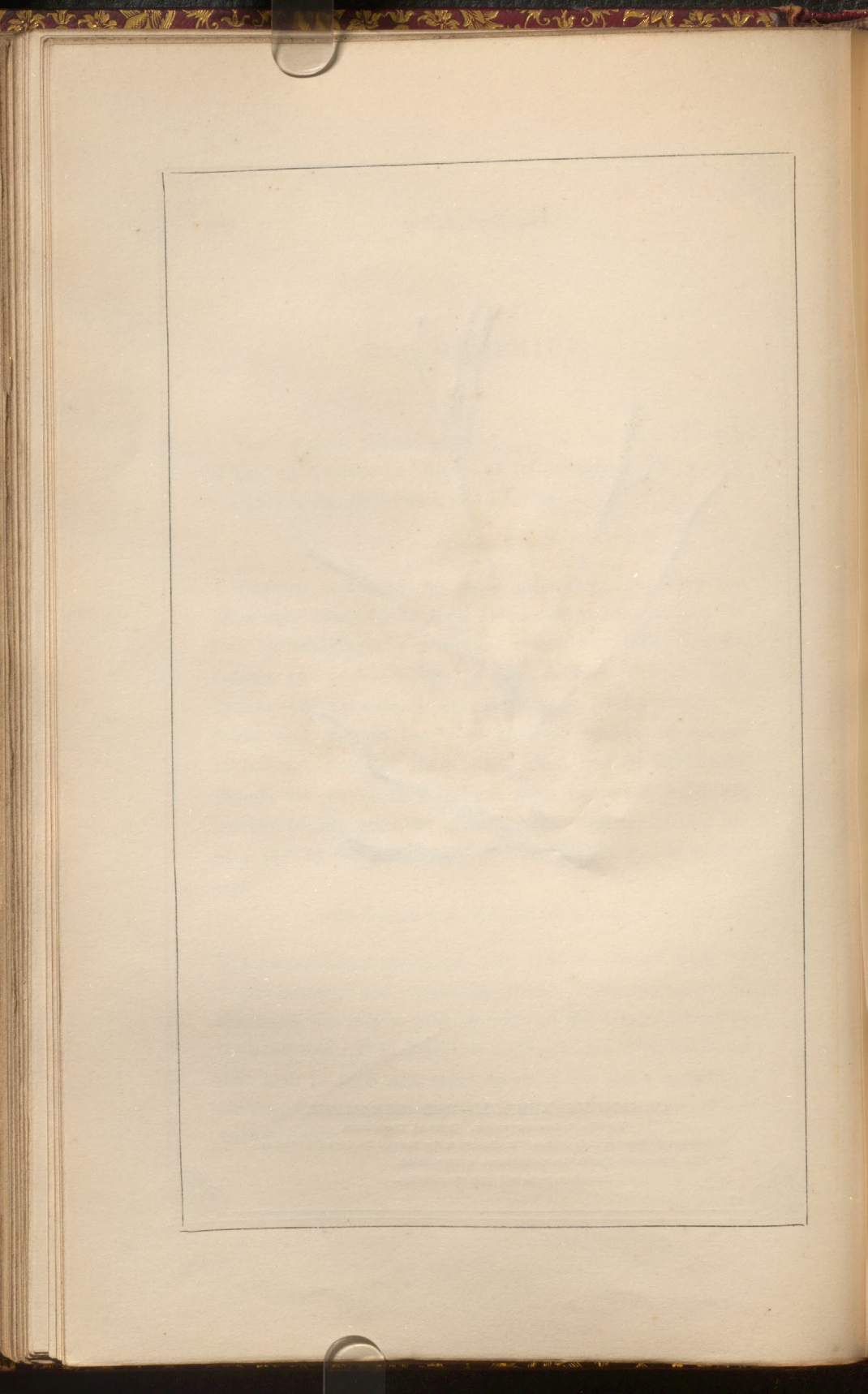


CERAMIUM RUBRUM—RED CERAMIUM.

Division 3. CONFEROIDEÆ. Tribe 15. CERAMIEÆ.

Name signifies "a little pitcher," in allusion to the form of the Capsules; but as the genus now stands the resemblance is not striking.

Found on rocks and algae abundantly.



## AN EVENING WALK BY THE SEA-SIDE

'Tis pleasant to wander along on the sand  
 Beneath the high cliff that is hollow'd in caves ;  
 When the fisher has put off his boat from the land,  
 And the prawn-catcher wades thro' the shore-rippling waves.

While fast run before us the sandling and plover,  
 Intent on the crabs and the sand-eels to feed ;  
 And here on a rock which the tide will soon cover,  
 We'll find us a seat that is tapestried with weeds.

Bright gleam the white sails in the slant rays of even,  
 And stud as with silver the broad level main,  
 While glowing clouds float on the fair face of heaven,  
 And the mirror-like water reflects them again.

How various the shades of marine vegetation,  
 Thrown here, the rough flints and the pebbles among,—  
 The feather'd conferva of deepest carnation,  
 The dark purple slake, and the olive sea-thong.

\* \* \* \* \*

Ah ! whether as now the mild summer sea flowing,  
 Scarce wrinkles the sands as it murmurs on shore ;  
 Or fierce wintry whirlwinds impetuously blowing,  
 Bid high maddening surges resistlessly roar ;

That power which can put the wide waters in motion,  
 Then bid the vast billows repose at his word,  
 Fills the mind with deep rev'rence, while earth, air, and ocean,  
 Alike of the universe speak Him the Lord.

MRS. C. SMITH.

## ENTANGLED GIGARTINA.

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THIS is a remarkably entangled, wiry species, resembling horsehair: the branches vary much in length.

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WERE the algæ not really serviceable either in supplying the wants, or administering to the comforts of mankind in any other respect, their character would be redeemed by their usefulness in the arts; and it is highly probable that we shall find ourselves eventually infinitely more indebted to them. One species—the *Gigartina Tenex*—is invaluable to the Chinese as a glue and varnish. Though a small plant, the quantity annually imported at Canton, is stated by Mr. Turner to be about 27,000 pounds. It is sold at Canton for sixpence or eightpence a pound, and is used for the purposes to which we apply gum-arabic, or glue. The Chinese employ it chiefly in the manufacture of lanterns, to strengthen or varnish the paper, and sometimes to thicken or give gloss to silks or gauze. They also employ it as a substitute for glass, smearing with it the interstices of bamboo work, which, when dry, presents lozenge-shaped spaces of transparent gluten.

CHAMBERS' EDINBURGH JOURNAL.

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### WHAT IS LIFE?

WHAT is life?—'tis a delicate shell  
 Thrown up by eternity's flow,  
 On time's bank of quicksand to dwell,  
 And a moment its loveliness show.  
 Gone back to its element grand,  
 To the billow that brought it on shore,  
 See, another is washing the land,  
 And the beautiful shell is no more!

MONTGOMERY.

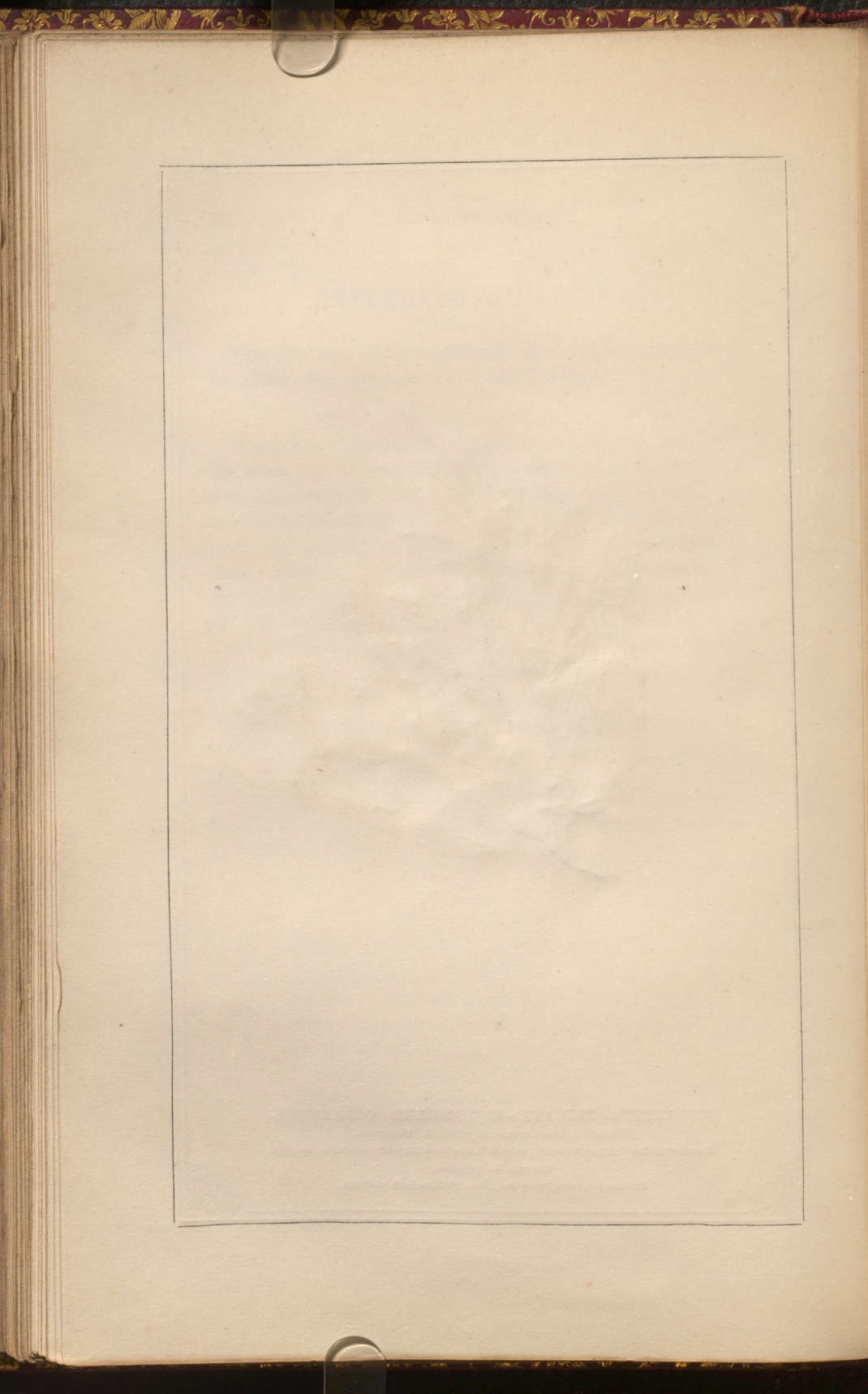


GIGARTINA PLICATA.—ENTANGLED GIGARTINA.

Division 1. INARTICULATE. Tribe 9. FLORIDEÆ.

Name signifies "a grape stone," which the seeds somewhat resemble, as seen through the capsules.

Submarine rocks, very frequent. White Park, Antrim.





## A SEASIDE COMPARISON.

THE mist hangs grey and pale  
 Over th' horizon's sea-swept verge,  
 Shrouding its distance in an awful veil;  
     While every tiny surge,  
 O'er shining pebbles rolling bright,  
 Breaks at our feet in clearest light;  
 And the blue heavens, outspread above us,  
 Smile, like the cloudless eyes of those who love us.

Like Life! Oh, how like Life!  
 So dim, so hid, its onward way,  
 With unknown pleasures, pains, and perils rife,  
     While every fresh To-day  
 In open view before us shows  
 Its duties, trials, joys, and woes,  
 And far, but in unveil'd expansion,  
 Faith's upward eye beholds her heavenly mansion.

(M.S.) A. J. VIDAL.

## LIFE THROUGH DEATH.

A DEW-DROP falling on the wild sea-wave,  
 Exclaim'd in fear, "I perish in this grave;"  
 But in a shell received, that drop of dew  
 Unto a pearl of marvellous beauty grew;  
 And happy now, the grace did magnify,  
 Which thrust it forth—as it had fear'd, to die.  
 Until again, "I perish quite," it said,  
 Torn by rude diver from its ocean bed;  
 O unbelieving!—so it came to gleam  
 Chief jewel in a monarch's diadem.

(Translated from the Persian by R. C. FRENCH.)

## FASTIGIATED POLYSIPHONIA.

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THIS plant is a parasite upon *Fucus Nodosus*, and is by some called Black-tufted *Conferva*. It should be examined with the microscope to see its distinctive character. It is very pretty when shaken out, and dried with the *fucus* without pressure.

SEA-WEED COLLECTOR.

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MOST algæ are at some period of their growth found attached to other substances by means of a root, or at least a hold-fast. Some species, which under ordinary circumstances are attached by roots, occasionally dispense with them, and continue to flourish independently of them. Of these the most remarkable are *Sargassum Bacciferum* and *Vulgare*, which, under the Spanish name *Sargasso*, or the English "Gulf-Weed," have forced themselves on the notice of all voyagers who have crossed the Atlantic since the time of Columbus. The vast fields of sea-weed which were met by the adventurous Genoese and his early followers, which made the ocean appear like a meadow, and sensibly impeded the course of their small vessels, consisted of these species.

HON. W. H. HARVEY.

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## FROM A POEM

"ON THE SOLDIERS OF ZENOPEON ARRIVED IN SIGHT OF THE SEA."

THOU mighty ocean, though with ceaseless course,  
Thousands of years in turn have roll'd away,  
Since the Almighty with his word of force,  
Form'd thy vast bulk, no symptom of decay  
Tells that this morn is not thy natal day.—  
Such as thou wast, when first at God's command,  
Thy gather'd depths in endless volume lay,

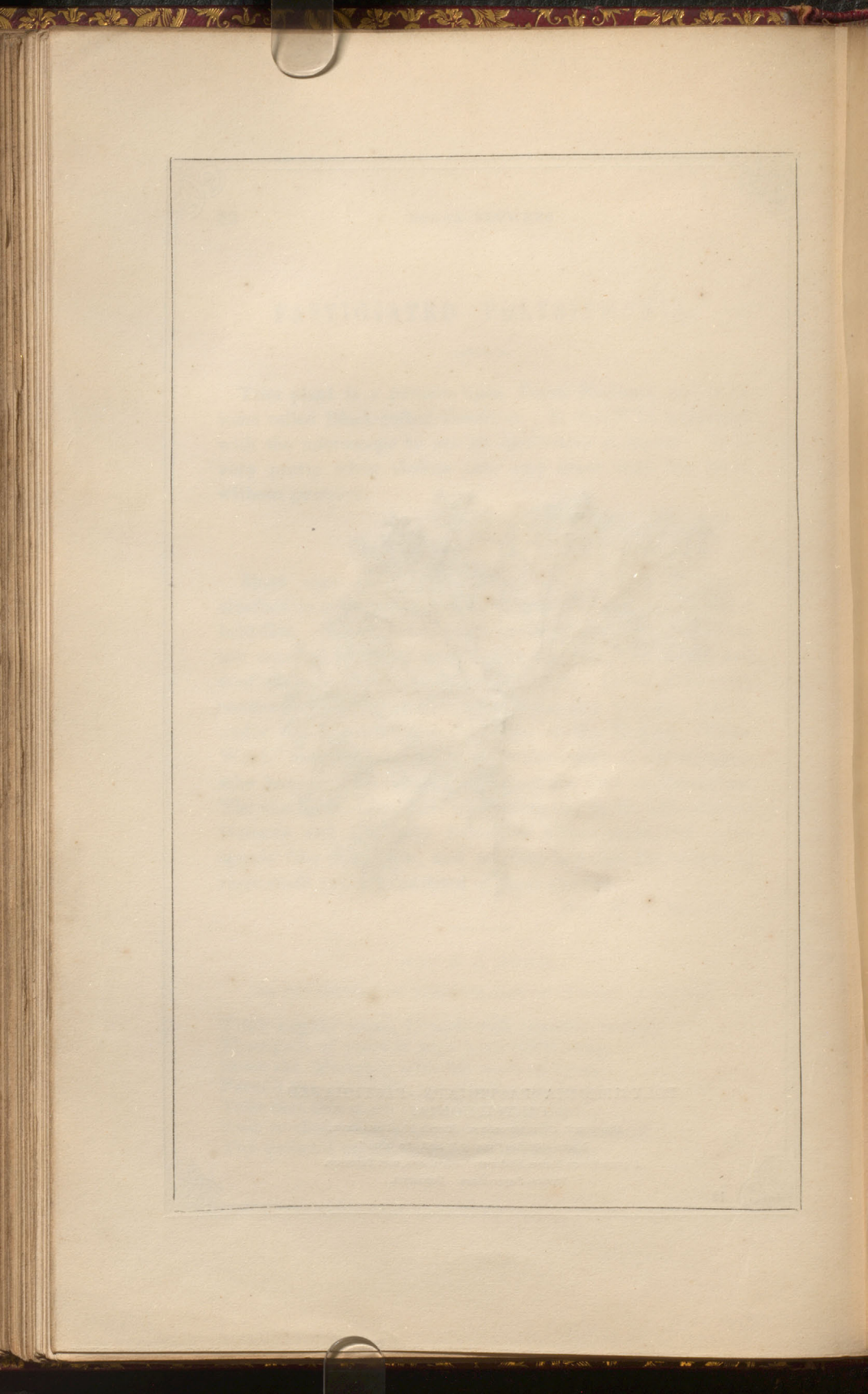


POLYSIPHONIA FASTIGIATA.—FASTIGIATED  
POLYSIPHONIA.

Division 2. CONFEROIDEAE TRIBE 15. CERAMIEE.

Name signifies "many," and "a tribe."

A parasite on *Fucus Nodosus*, *Vesiculosus*, and *Serratus*.  
Weston-Super-Mare. Somerset.



Such art thou now, and round each wave-beat strand,  
Thou gird'st the changing shore with an eternal band.

Deserts have sprung where towering cities stood—  
What track of earth may long the same remain ?  
But changeless ever rolls the dark blue flood ;  
No track of ruin, and no age-worn stain,  
Mark time's rude path across the watery plain,  
That boundless "image of eternity."  
Tyrants may claim earth through its wide domain ;  
But Ocean's stores to all alike are free,  
And all alike may share the riches of the sea.

Earth yields to man her ever-teeming breast,  
And owns herself subjected to his will ;  
But who can tame the billows' foaming crest,  
When, lash'd by stormy gusts, they threaten ill  
To the proud fabrics of man's vaunted skill ?  
Though once from human voice the waves have heard,  
Amid their maddening fury, "Peace, be still ;"—  
The troubled waters knew their sovereign Lord,  
And bow'd in awe their wrath, *obedient* to his word.

Years have roll'd by, and Athens reigns no more ;  
The brightness of her splendour long has set :  
But 'mid the ruins of her ancient power,  
The memory of her glories lingers yet ;  
Her fallen sons relate with fond regret,  
Their country's fame of old for deeds like this ;  
And tell when oft in grateful evening met,  
Where up the shore the blue waves steal to kiss,  
Of the proud fight their fathers fought at rugged Salamis.

Not they alone, while gazing on the sea,  
Find pleasure in the memory of the past ;  
A mightier nation has its destiny,  
Like ancient Athens, on the waters cast.  
But O, my country ! may thy glories last,  
Till time itself is sinking to decay ;  
Still may thy navies, borne before the blast,  
Sweep o'er the ocean in resistless way,  
Till every distant land owns England's righteous sway.

GEORGE GILBERT. (Bury School.)

## DARK POLYSIPHONIA.

THIS plant may be readily distinguished from other species, by its bushy habit, and woody stems, rough with broken branches.

SIR W. HOOKER.

ALGÆ, like land plants, reach maturity in different spaces of time, and endure for different periods. Many of the smaller and more delicate are annual; others, of the herbaceous kind, seem to be biennial, or, at least, frequently perish at the end of the second season; and many continue for several years, particularly those of a woody texture.

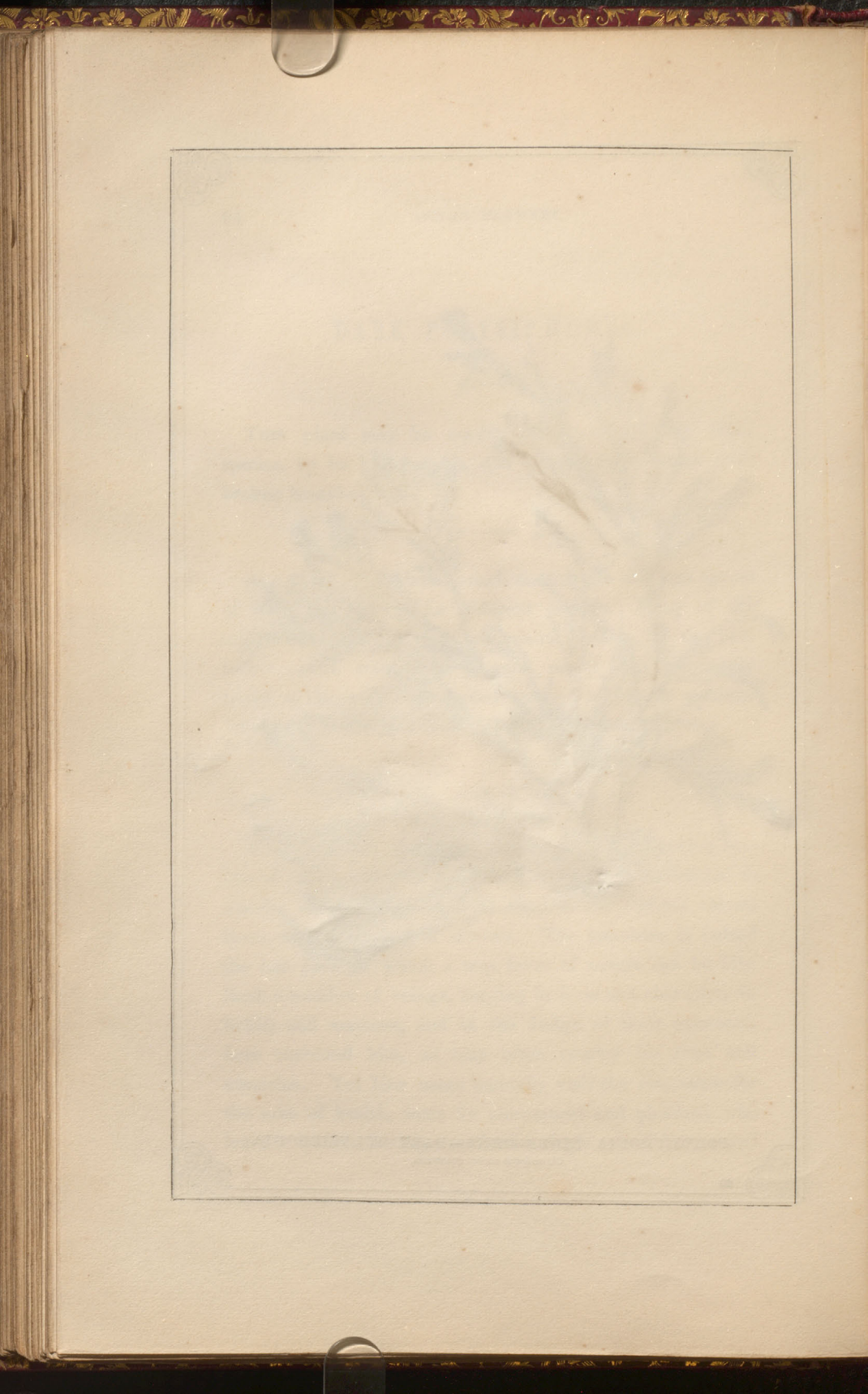
LITTLE MARINE BOTANIST.

WHEN the heat of mid-day is past, and the refreshing sea-breeze invigorates the exhausted frame, it is delightful to wander along the beach, and observe the various objects there, which are full of interest. The sea-shore is indeed the last place in which a true lover of nature can be idle. Such a number of beings, varying in form and character, in habits and manners, and in the design of their existence, here surround him, as may often employ his time and attention. Yet how many annually visit the sea, some for the sake of health, some for amusement and pleasure, who leave it without having examined a single one of the natural



POLYSIPHONIA NIGRESCENS.—DARK POLYSIPHONIA.

On marine rocks, common.





productions with which it teems—an investigation which would have made many an uneasy hour, one of gratification and instruction.

“SIGHTS IN ALL SEASONS.”

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A DAY IN AUTUMN.

THERE was not, on that day, a speck, to stain  
The azure heavens ; the blessed sun alone,  
In unapproachable divinity,  
Career'd, rejoicing in his fields of light.  
How beautiful beneath the bright blue sky,  
The billows heave !—one glowing green expanse,  
Save where along the bending line of shore  
Such hue is thrown, as when the peacock's neck  
Assumes its proudest tint of amethyst,  
Embathed in emerald glory. All the flocks  
Of ocean are abroad : like floating foam,  
The sea-gulls rise and fall upon the waves ;  
With long protruded necks, the cormorants  
Wing their far flight aloft, and round and round  
The plovers wheel, and give their note of joy.  
It was a day that sent into the heart  
A summer feeling : even the insect swarms  
From their dark nooks and coverts issued forth,  
To sport through one day of existence more ;  
The solitary primrose on the bank,  
Seem'd now as though it had no cause to mourn  
Its bleak autumnal birth ; the rocks and shores,  
The forest and the everlasting hills,  
Smiled in that joyful sunshine,—they partook  
The universal blessing.

SOUTHEY.

## RED PHYLLOPHORA.

A REMARKABLY beautiful plant when young. Its formation is peculiar to itself, and excepting when in a state of decay, will seldom be mistaken. It may then be confounded with *Nitophyllum Laceratum*; but a careful examination of its characteristics, being prolific from the midrib, as well as a much firmer and more compact plant, will readily distinguish it. It is perennial; and when young, the color is a beautiful transparent rose-pink, turning to green or a yellow brown in decay.

SEA-WEED COLLECTOR.

## WALK TO THE SEA

THE flowers upon the mountain's side  
Like lonely spirits dwell,  
Where beauty finds a place to hide  
In many a secret cell.

And now the wild variety  
Of sea-weeds on the shore,  
And shells of glorious ancestry,  
Old Ocean's beauteous floor.

There came in these a healing sense,  
To thoughts of my despair;  
A living and felt evidence  
Of sweet protecting care.

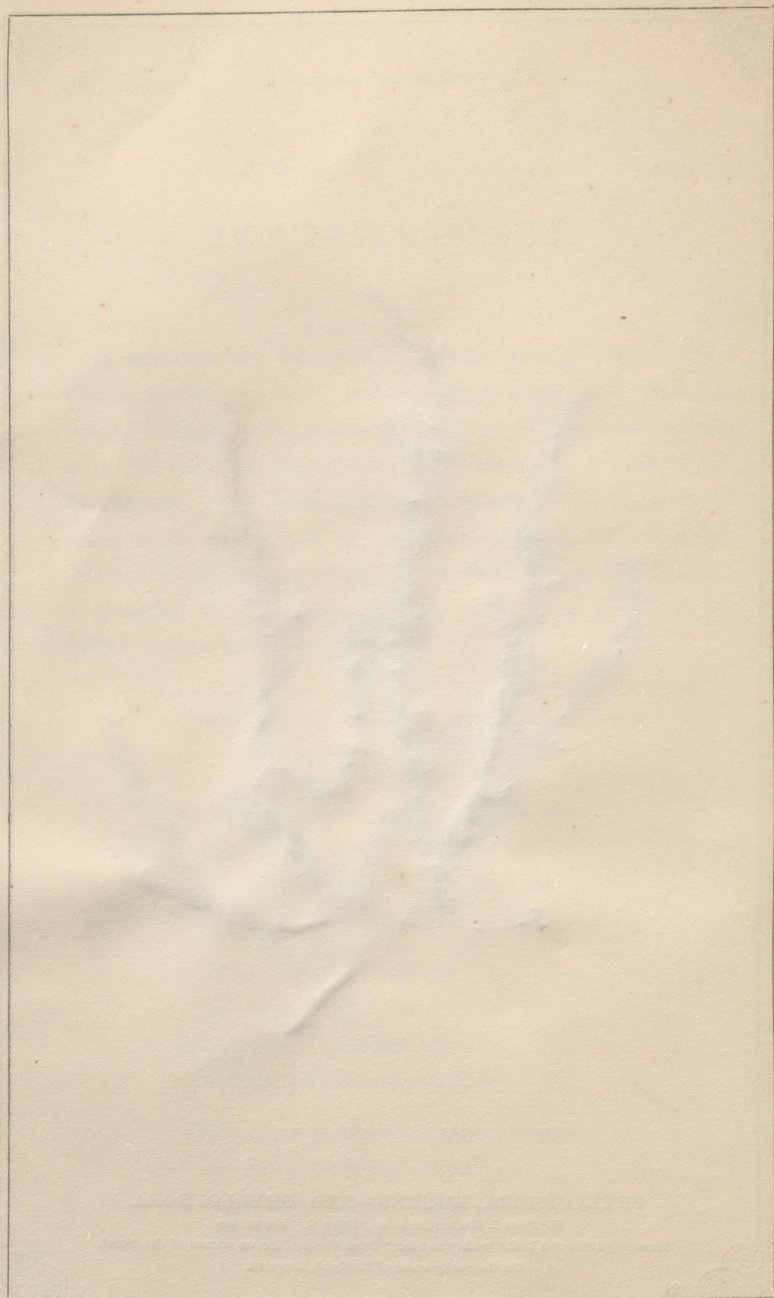


PHYLLOPHORA RUBENS—RED PHYLLOPHORA.

Division I. INARTICULATE. Tribe 9. FLORIDÆ.

Name signifies "a leaf," and "to bear," from the prolific nature of the frond.

On the rocky coast of England, frequent.



If thus his presence stands confest  
In shell, and flower, and stone,  
To Him each want within my breast,  
And every pain is known.

And now I feel me strong again  
To join your living songs ;  
All animate, thou vocal main,  
With never-resting tongues.

And ye that stand in gloom profound,  
Like sentries of the strand,  
Ye everlasting hills around,  
A bold fraternal band ;

And she that from her silver boat  
Leans o'er the summer sea,  
The moon, takes up the glorious note  
In quiet majesty.

The moon, the mountains, and the sea,  
Are in thy sheltering hand ;  
But they are all no more to Thee  
Than pebbles on the strand.

And though a sea of voices rise  
Throughout the boundless sky,  
Thou hearest the inexpressed cries  
Of one as mean as I.

BY THE AUTHOR OF "THE CATHEDRAL."

## GREEN ROCK CONFERVA.

THIS seaweed is very common, and but little noticed by persons generally;—but it is deserving of a careful examination. It is found in large tufts; and by some, is called Mermaid's Train.

E'EN through winter's barren hours,  
Ocean's garden has its flowers ;  
Summer suns may pass away,  
Still they smile and look as gay.

Fadeless through the changing year,  
Not a leaf among them sere.  
Ev'ry form and hue display'd,  
Varied as the "rainbow braid."

On the dry and sterile rocks,  
See, Conferva hangs her locks ;  
There she waves her tresses fair  
Soft as infant's silken hair;

Now in tufts of silv'ry green,  
Floating on the tide serene;  
Small sea-insects in its bow'r  
Sporting as in summer hour.

In the ocean's vast domain,  
Nothing has been made in vain;—  
Goodness, care, and love divine,  
Through the whole creation shine.

(M.S.) ELLEN ROBERTS.

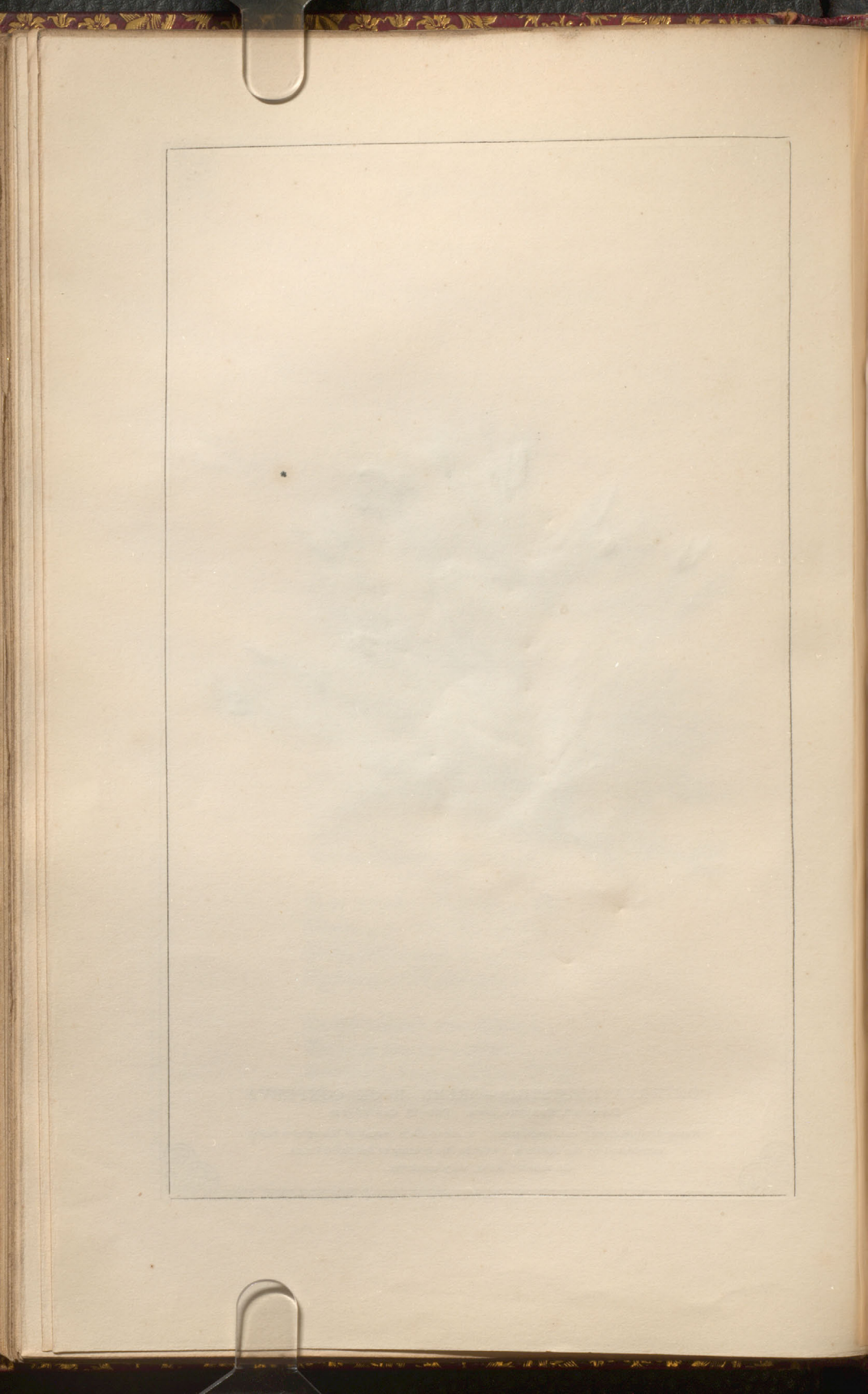


CONFERVA RUPESTRIS.—GREEN ROCK CONFERVA.

Division 2. CONFEROIDEÆ. Tribe 16. CONFERVÆ.

Name derived from "conferruminare," to consolidate; some of the species being considered by the ancients, useful in the healing of fractured limbs.

On marine rocks, very common.





M. LAMOUREUX has discovered that the groups of algæ, or marine plants, affect particular temperatures, or zones of latitude, though some few genera prevail throughout the ocean. The Polar Atlantic Ocean, to the 40th degree of north latitude, presents a well-defined vegetation. The West-Indian seas, including the Gulf of Mexico, the eastern coast of South America, the Indian Ocean and its gulfs, the shores of New Holland, and the neighbouring islands, have each their distinct species. The Mediterranean possesses a vegetation peculiar to itself, extending to the Black Sea; and the species of marine plants on the coast of Syria and in the port of Alexandria, differ almost entirely from those of Suez and the Red Sea, notwithstanding the proximity of their geographical situation.

It appears that in the dark and tranquil caves of the ocean, on the shores alternately covered and deserted by the restless waves, on the lofty mountain and extended plain, in the chilly regions of the north, and in the genial warmth of the south, specific diversity is a general law of the vegetable kingdom, which cannot be accounted for by diversity of climate; and yet the similarity, though not identity of species, is such, under the same isothermal lines, that, if the number of species belonging to one of the great families of plants be known in any part of the globe, the whole number of the phanerogamous, or more perfect plants, and also the number of species composing the other vegetable families, may be estimated with considerable accuracy.

MRS. SOMERVILLE.

## ACULEATED DESMARESTIA.

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It is hardly possible to conceive a more beautiful object than this plant, waving its young and delicate feathered branches in the water. When thus gathered, however, it possesses, in common with the following genus, the singular property of changing to a verdigris green, and decomposing most other algæ placed near it.

LITTLE MARINE BOTANIST.

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IN the youngplant the branches are soft and flaccid, and furnished along their whole length with tufts of light green conferva-like filaments, which drop off as soon as it has completed its growth. Old plants are rigid, destitute of these fibres, and the branches set with awl-shaped spines or ramuli; but whenever they shoot out new branches, these are constantly clothed with the green fibres, which seem to be an indispensable accompaniment to the process of growth, and perhaps perform the functions of leaves.

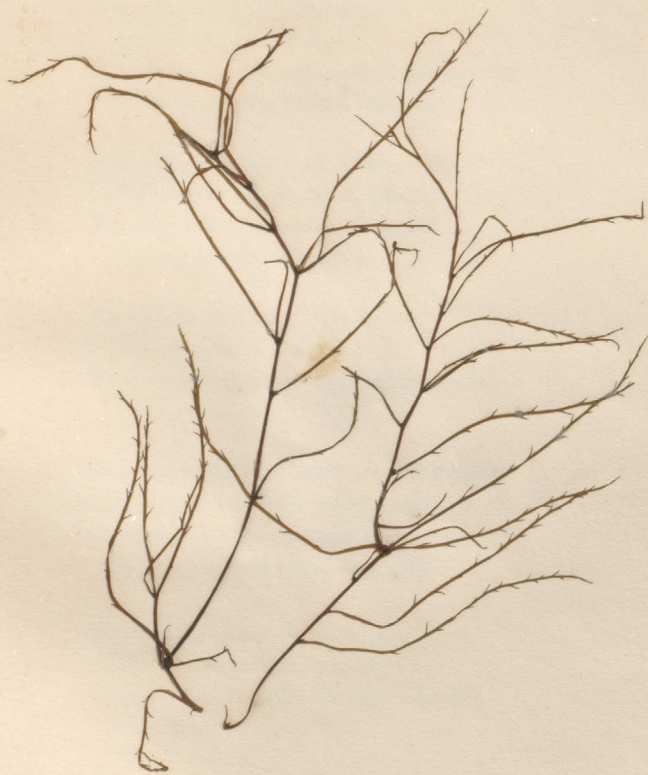
HON. W. H. HARVEY.

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### THE ACULEATED DESMARESTIA.

My birthplace is the ocean rocks,  
 My fragile form the deep sea laves;  
 The tempest's wild assaults it mocks,  
 And flourishes amidst the waves.

When young, fine tufts of grassy hue  
 My slender stems surround;  
 And beauteous, 'midst the wat'ry blue,  
 Those feathery whorls abound.

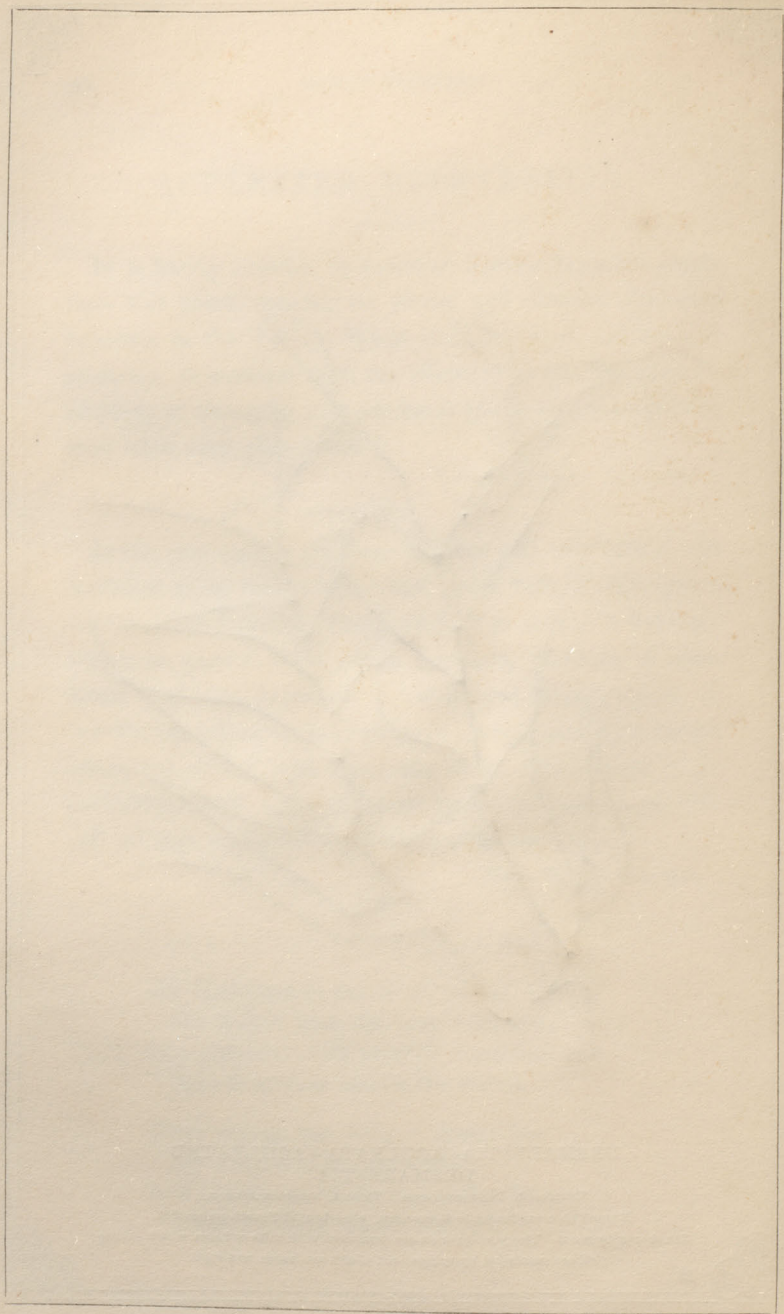


DESMARESTIA ACULEATA—ACULEATED  
DESMARESTIA.

Division 1. INARTICULATE Tribe 4. SPOROCHNOIDES

Named in compliment to Desmarest, a celebrated French naturalist.

Sea-shores frequent. The young plants are furnished with tufts of hairs, which falling off are succeeded by spines; old plants are harsh and rigid.



Lash'd by the waves, toss'd by the storm,  
My nature stubborn grows ;  
I lose at length my softer form,  
As hate from harshness flows.

The filaments of gossamer,  
In angry mood I shed,  
And clothe my lengthen'd branches o'er  
With stubborn thorns instead.

They shadow forth an emblem fit,  
To picture man's short life ;  
Tracing the changes as they flit  
Across his sea of strife.

An infant first in simple guise,  
All innocence and joy ;  
Love beaming from its laughing eyes,  
Pure as the azure sky.

But mark the man with troubled brow,  
Changed from the joyous child ;  
Dark angry passions vex him now,  
By wrong and fraud beguiled.

The plants to youth no more return,  
Their grassy tufts are shed ;  
Those coarser stalks we now discern,  
Proclaim its glory fled.

A happier lot on man attends ;  
For him bright hopes remain ;  
In peace with God oft passion ends,  
And youth revives again.

J. MACKNESS, M.D., HASTINGS.

## FEATHERED BRYOPSIS.

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THIS graceful plant, of a delicate green color, is liable to much variation in size and ramification. The Bryopsis is one of the most beautiful genera of the Marine Flora, and so perfectly natural, that it is most difficult to define the species.

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THE tribe of which the Bryopsis Plumosa is a member, is remarkable for its delicacy: in the one now mentioned, the main stem is very slender, set with horizontally-spreading branches, like a pine-tree, each of which is most elegantly feathered. Its color is a bright grass-green, and the whole surface shines as if it were varnished. It is so delicate, that in drying, the coloring matter contracts in the stem, leaving interrupted spaces destitute of color, and perfectly transparent.

THE OCEAN.

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THESE are but a very few of the multitudinous sea-weeds, which would come under the notice of an observant visitor to our own rocky shores; yet how manifold are the indications of infinite intelligence and goodness, even in these things, proverbial for their vileness; and, while we gratefully

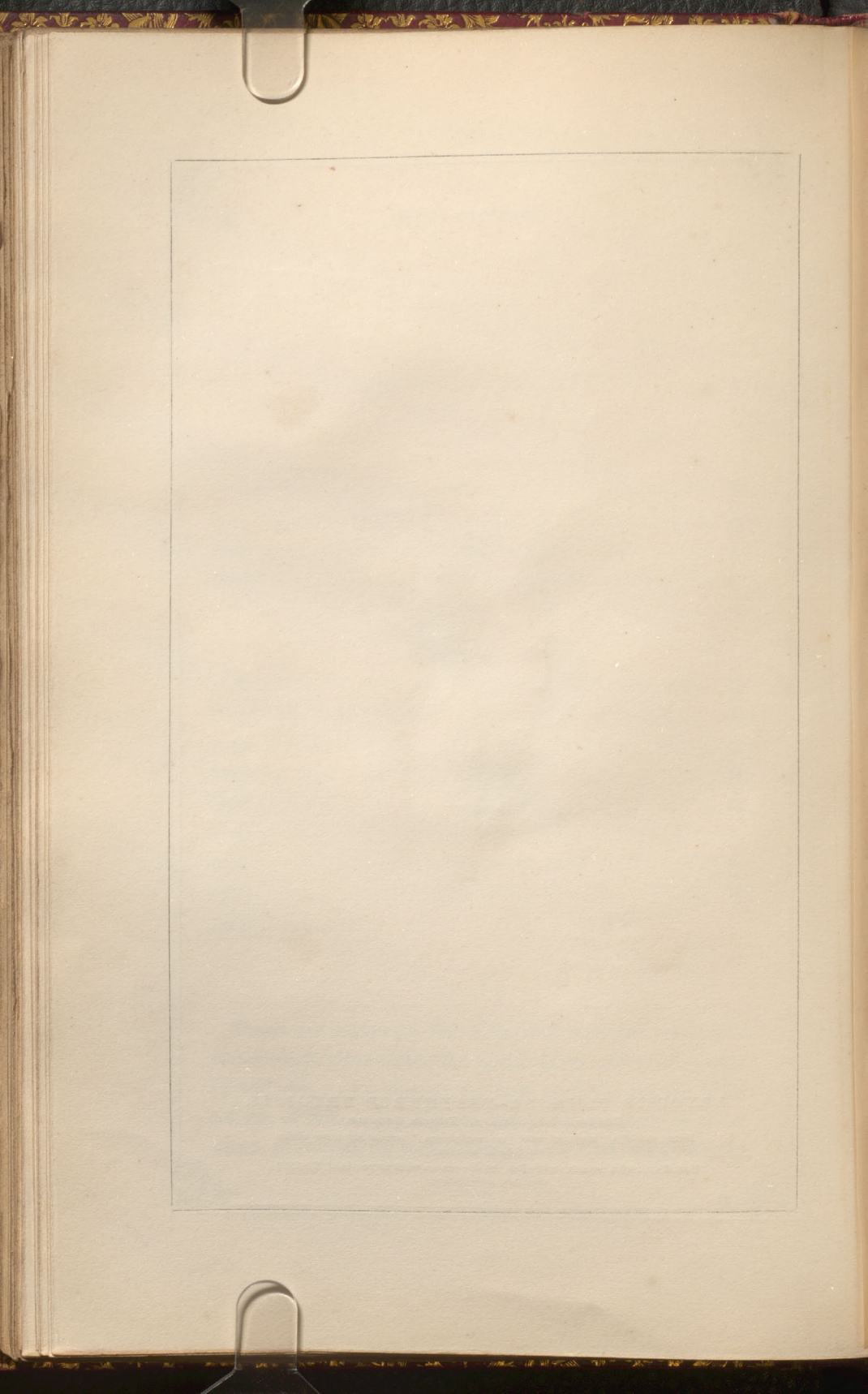


BRYOPSIS PLUMOSA.—FEATHERED BRYOPSIS.

Division I. INARTICULATE. Tribe 13. SIPHONIA.

Name signifies "a moss," and "an appearance," resembling some of the feathered mosses.

Found on rocks, stones, and algæ, in the sea on various coasts of England, Scotland and Ireland.





acknowledge the Divine hand in such species as conduce to man's sustenance or comfort, may we not, from the lavish beauty and elegance of such as are of no direct benefit to us, legitimately draw the same consolatory inference which the Saviour drew from the lovely lilies at his feet? If God so clothe these obscure caverns and submerged rocks, will He not *much more* care for those whom he has redeemed with the blood, and conformed to the image of His Son? Nor is the relation which He sustains to these frail and perishing weeds limited to an exertion of creative power. All are marshalled in order, each is provided incessantly with the requisite supplies for its welfare, and each is assigned to that particular locality which suits its habit of growth, and where alone it flourishes.

THE OCEAN.

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Full many a gem of purest ray serene,  
The dark, unfathom'd caves of ocean bear.

GRAY.

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AND senseless indeed must he be, who, after adding to his store of happiness by looking into the things of God's creation, fails to discover that the knowledge and love of God, his *own* and *their* Creator, should be to him the source and spring of all his happiness. Can it be that fallen man should feel his mind expand in the peaceful enjoyment of dissecting the puny herbs which Nature scatters every where in his way, and not rejoice in his moments of reflec-

tion, that the God of Nature has revealed himself also as the God of Peace? If, by searching into the laws by which He governs the universe, the mind attain a quiet and calm enjoyment, as unmixed with evil as any thing earthly can be, how much more conducive to his happiness must that knowledge be which "maketh wise unto salvation!"

He prayeth best, who loveth best  
All things both great and small;  
For the great God, who loveth us,  
He made and loveth all.

C. A. JOHNS' "BOTANICAL RAMBLES."

PART II.

CORALLINE AND SPONGE.

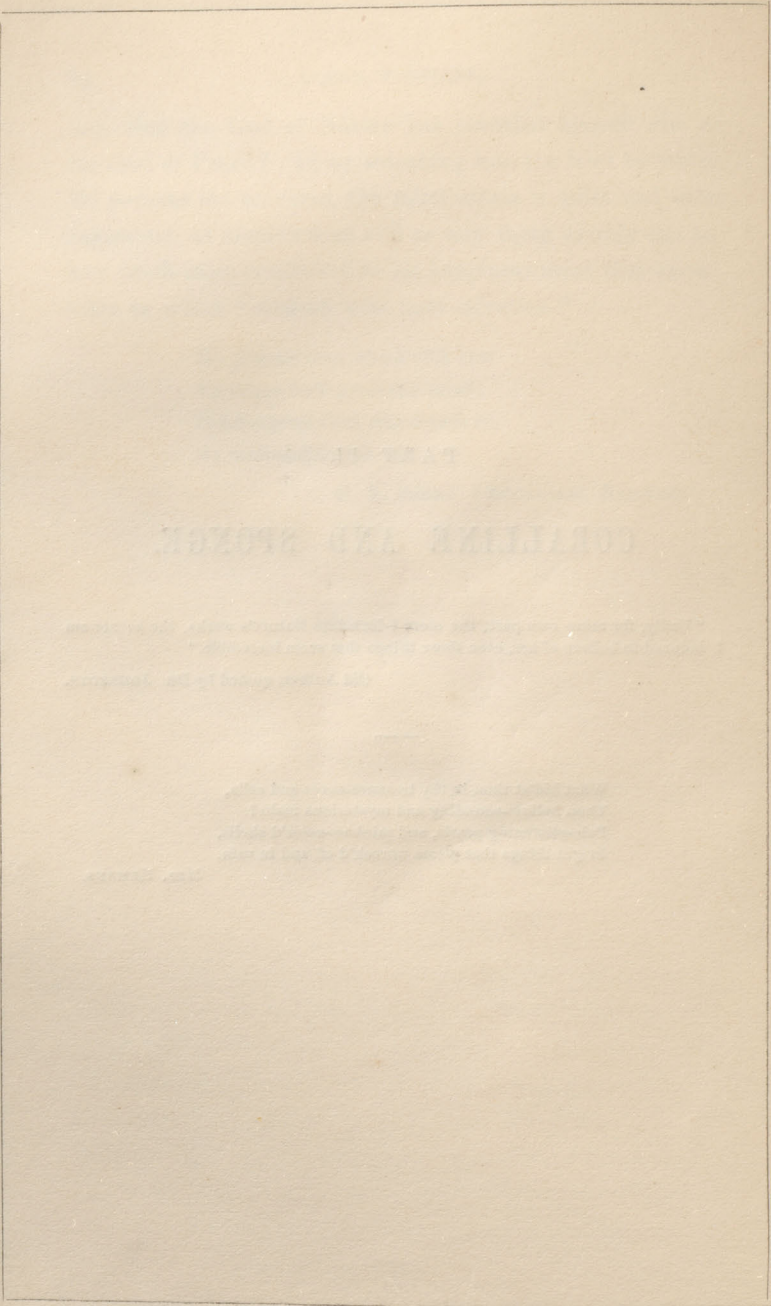
"Verily, for mine own part, the more I look into Nature's works, the sooner am I induced to belevé of her, even those things that seem incredible."

Old Author, quoted by DR. JOHNSTON.

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What hid'st thou in thy treasure-caves and cells,  
Thou hollow-sounding and mysterious main?  
Pâe-glistening pearls, and rainbow-color'd shells,  
Bight things that gleam unreck'd of, and in vain.

MRS. HEMANS.



## CORALLINE AND SPONGE.

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CORALLINE and Sponge not being admitted amongst either the Sea-weeds or Zoophytes, we will place them where so many naturalists have described them, as a link between the animal and vegetable kingdoms. From the earliest times when systematic views of nature were sought, clouds have overhung the marching confines of these two divisions of her great domain. We find Lamarck classing Corallina with animals, and Blainville deciding that it is a plant. Linnæus, and many other eminent men, were of opinion, judging from its shelly appearance, that it was of animal nature, maintaining that animals alone ever produced lime; but on removing the calcareous crust, we perceive that it is merely a deposit enveloping a structure wholly vegetable in its character.

Sponges are more generally classed as the lowest members of the animal kingdom—far beneath the other zoophytes. But amidst all the perplexing differences of opinion which prevail on the subject, this yet unsettled “boundary question” of Nature, which perhaps involves within it that deeper riddle yet, that mystery of mysteries, even the *principle of life*, one lesson we may learn, without fearing that eternity itself shall teach us to unlearn it—that we, whose span of thought cannot measure the meanest works of God’s creation, pretend not to judge, what our wisdom is to adore, the ways of His providence, the wonders of His grace!

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So He ordain'd whose way is in the sea,  
His path amidst great waters, and his steps  
Unknown; whose judgments are a mighty deep,  
Where plummet of archangel's intellect  
Could never yet find soundings; but from age  
To age, let down, drawn up, then thrown again  
With lengthen'd line and added weight, still fails,  
And still the cry in heaven is, “O the depth!”

MONTGOMERY.

## CORALLINE.

THE ordinary form of the Coralline is most pleasing, particularly when growing, as they delight to do, on the sides of the still, rocky pools, their bushy tufts gracefully hanging over each other, like weeping willows in miniature.

Beyond its beauty, I know not that this little creature has any obvious claim on our consideration, except that, in common with other sea-plants, it gives out oxygen, and thus maintains the element in which it grows in a state fit for the support of animal life. And here so wisely is the balance kept up between the animals which absorb oxygen, and the plants which evolve it, that, perhaps, the world could not afford to lose a single species of either, without derangement of the existing order, which would be followed by manifest inconvenience.

P. H. GOSSE.—"THE OCEAN."

## TO THE CORALLINA

FAIR gem of the ocean wild,  
 Why cast on the beach alone!  
 Seek'st thou, thou wandering child,  
 Some joy from thy bright halls flown?  
 Return to thy pearly bed,  
 To bloom with thy kindred flowers,  
 Where no early buds are shed,  
 None die in thy smiling bowers.

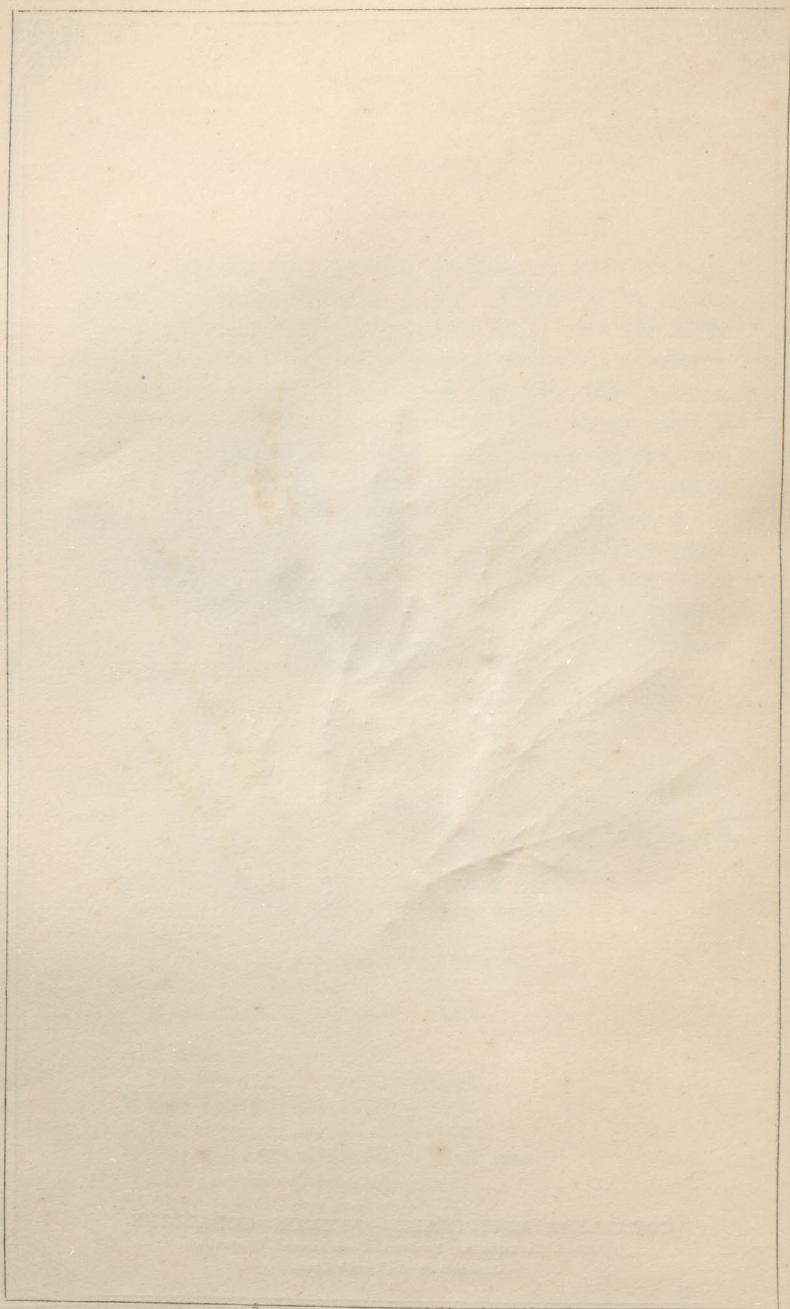
And bear me to the cave,  
 Far down in the deep, deep sea,  
 Where beneath the restless wave,  
 The mermaid dwells with thee;  
 Where she rests while the billows roar,  
 And the sounding surges swell,  
 As they bear to his native shore  
 The sea-boy's sad "farewell."



CORALLINA OFFICINALE — COMMON CORALLINE

Class I. CALCIPHYTA. Family I. CORALLINÆA. (Blainville)

Common on the British Coast.





There with her and thee I'll dwell,  
Where no earthborn cares can come;  
Nor long in thy fairy cell,  
For a brighter or fairer home;  
And I'll list to the dulcet song,  
And join in the sea-nymphs' ring,  
Nor ought 'mid that joyous throng  
A thought of the past shall bring.

And earth with its breaking hearts,  
With its fleeting hopes, shall be  
Like a dream when night departs,  
Or the moan of the distant sea.  
Then we'll form the fairy skiff,  
And we'll float o'er coral and sand,  
Till we rest beneath the cliff,  
Where a sound may come from the land.

Ah no! that sound would steal  
O'er my soul like the sigh of a friend,  
And the tone, and the look reveal,  
That could brightness to sorrow lend;  
That sigh would the past recall,  
And the sea-bed would yield no rest  
To the weary spirit's thrall,  
That yearns for a kindred breast.

And earth with its tears and grief,  
False hopes and true fears, would be mine;  
Nor again would I seek relief,  
Where the pearls and the sea-weed twine.  
Ah no! there's a surer rest,  
Where no grief nor fear can come,  
Where the earth-weary spirit is blest,  
And the pilgrim finds a home.

(M.S.) ISABELLA KNOCKMORE.

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## S P O N G E.

If we take a small portion of sponge, and place it under a magnifying lens, we shall see that it is composed of shining, horny, nearly transparent fibres, which, by uniting with each other at all angles and distances, form a loose and very irregular network. Now, when in a living state, every fibre was inclosed in a coating of thin, clear jelly, which formed the living animal, the horny fibres constituting only the skeleton. The animal nature of sponges is not easily to be detected: no indication of sensation has ever been perceived in them when living, even though violence in many modes has been offered to them; though beaten, pinched with hot irons, cut or torn, or subjected to the action of the strongest acids. The substance may be destroyed, but there is no contraction, nor the slightest evidence of feeling; to all appearance they are as passive as the rock on which they grow.

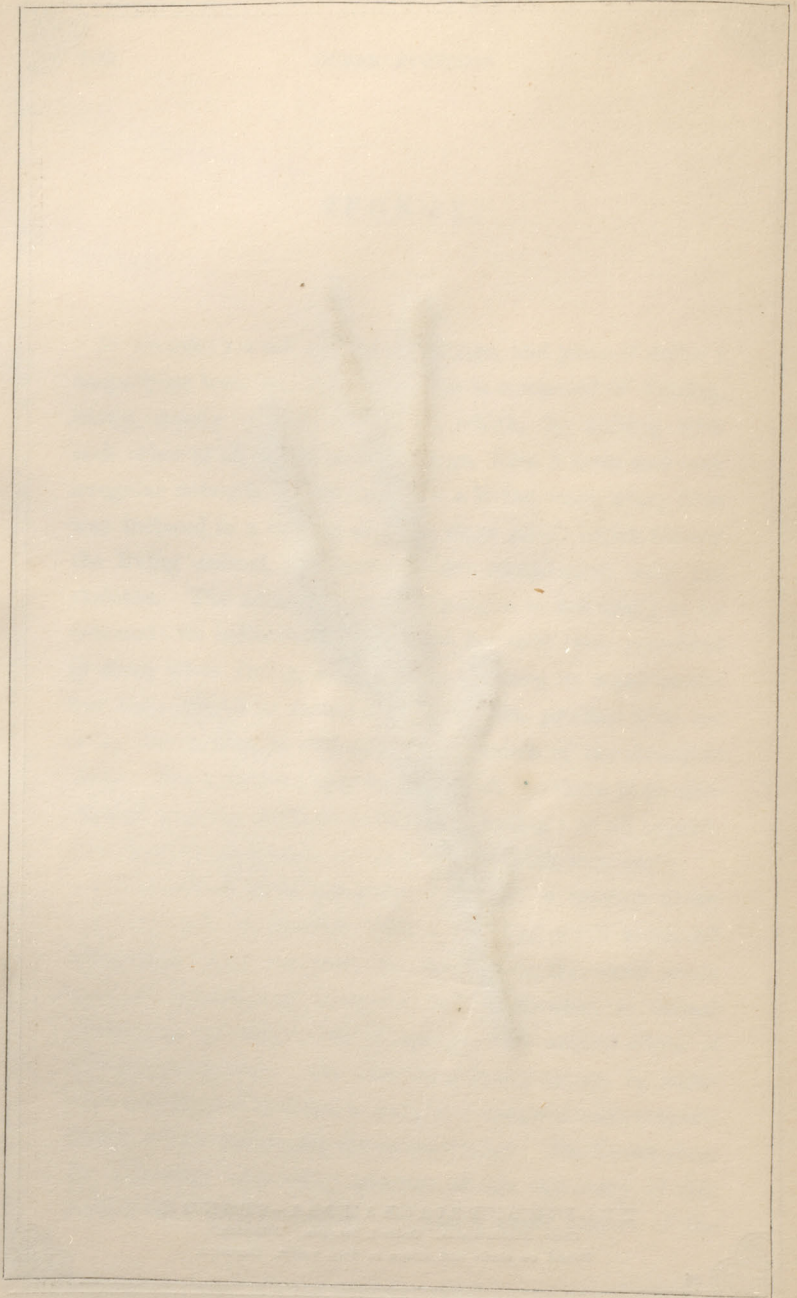
One proof of their animality, however, is open to every one; we are all familiar with a peculiar smell produced when horn, wool, feathers, &c., are burnt; this smell arises from the presence of ammonia, and is peculiar to animal matter; on burning a bit of sponge, this animal odour is strongly perceptible. On viewing a living sponge in water with attention, it is found to exhibit a constant and energetic action, which sufficiently shows its vitality. Dr. Grant gives the following interesting account of his discovery of this motion in a native species. "I put a small branch of the



HELICHONDRIA RAMOSA—SPONGE.

Class, AMORPHOGEA. Order I. SILICEA. (Johnston.)

Found on shells and stones in deep water. Common.



Spongia Coalita, with some sea-water, into a watch-glass, under the microscope; and on reflecting the light of a candle through the fluid, I soon perceived that there was some intestine motion in the opaque particles floating through the water. On moving the watch-glass, so as to bring one of the apertures on the side of the sponge fully into view, I beheld for the first time, the splendid spectacle of this living fountain, vomiting forth from a circular cavity an impetuous torrent of liquid matter, and hurling along, in rapid succession, opaque masses, which it strewed every where around. The beauty and novelty of such a scene in the animal kingdom long arrested my attention; but after twenty-five minutes of constant observation, I was obliged to withdraw my eye, from fatigue, without having seen the torrent for one instant change its direction, or diminish in the slightest degree the rapidity of its course. I continued to watch the same orifice, at short intervals, for five hours, sometimes observing it for a quarter of an hour at a time; but still the stream rolled on with a constant and equal velocity."

P. H. GOSSE.—"THE OCEAN."

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WHAT particular function or office has been devolved by the all-wise Creator upon these Zoophytes, which are produced so rapidly, and in such numbers, on the bed of the ocean and rocks, has not been ascertained. As in the case of a vast variety of other marine animals, they probably derive their nutriment from the contents of the water absorbed by their tubes; they may contribute their part to the depuration of the oceanic waters, and to the maintenance of

the equilibrium amongst their inhabitants, however minute, which is necessary to the general welfare. Doubtless, in their creation, He who inhabiteth eternity, to whose view all time, as all space is present, had in view the benefit of his creature man, to whom they form a very useful present, and which he has long applied to his purposes. Sponges were in use as early as Aristotle's time, when the people employed in collecting them observed, that when they attempted to pluck them up, they appeared to resist, whence they concluded they had some sensation. They now form a very considerable article of commerce. The fishery for them is chiefly carried on in the Mediterranean, particularly in the Grecian Archipelago. The collection of sponges is attended with danger, as they are fixed to the rocks at the depth of several fathoms, so that the sponge-fishers must be excellent divers. Tournefort says that no youth in these islands is allowed to marry, till he has given proofs of his capacity in this respect. Amongst plants, sponges present some analogy to puff-balls.

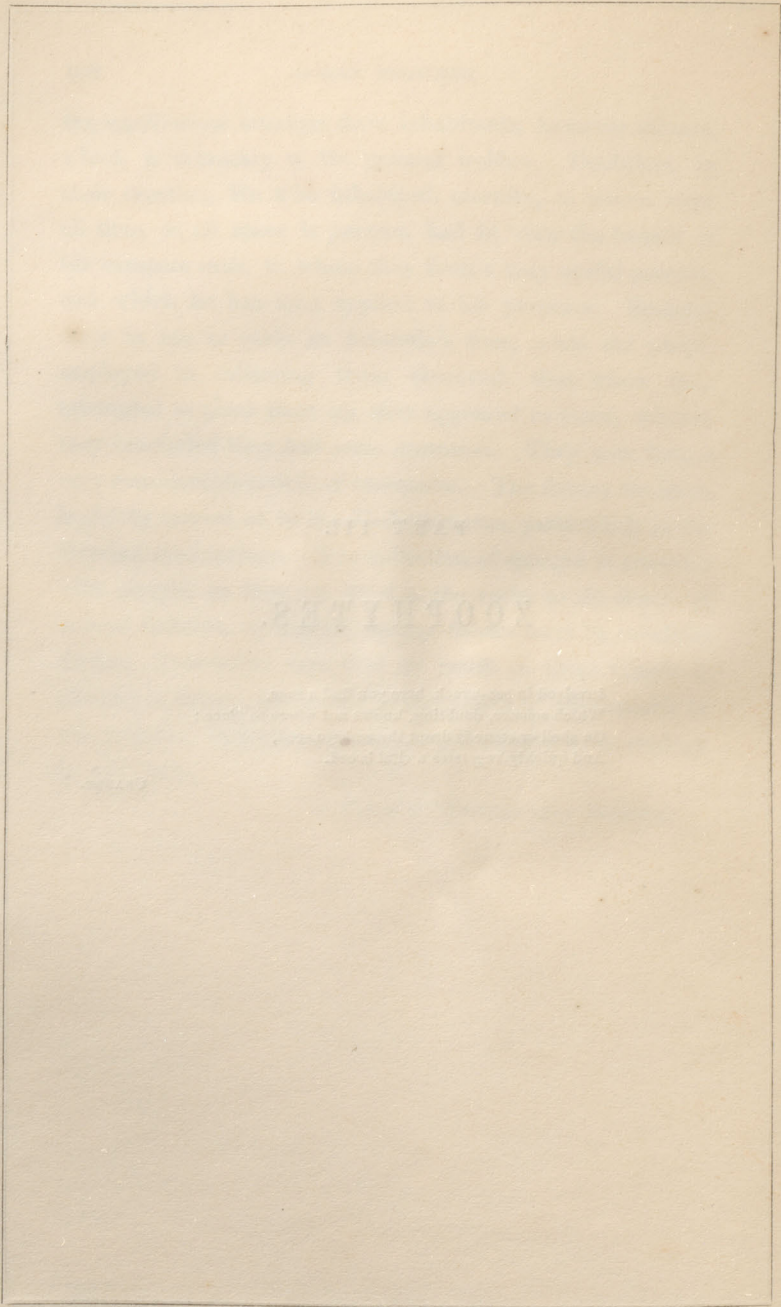
KIRBY'S "BRIDGEWATER TREATISE."

PART III.

ZOOPHYTES.

Involved in sea-wrack, here you find a race,  
Which science, doubting, knows not where to place ;  
On shell or stone is dropt the embryo seed,  
And quickly vegetates a vital breed.

CRABBE.





## ZOOPHYTES.

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THE collector of sea-weeds, whilst wandering on the beach, or pursuing his object amongst the rocks which the tide has left bare, will be sure to find, clinging to the Algæ, or waving gracefully on shells contiguous to them, certain pretty, delicate, light-brown specimens, which he will probably consider, if his attention have not been previously called to the subject, as so many varieties of sea-weed. And as such they were classed by naturalists till about a century ago, when their true nature was discovered; and they are now established as Zoophytes, or *animal plants*,—animals in their structure—plants in their appearance.

It was to Mr. Ellis,\* a merchant of London, that the discovery was actually due, although there had been some preparation for it in the works of a French naturalist, Peyssonnel.—“Ellis was fond of amusing himself with making imitations of landscapes, by the curious and skilful disposition of delicate sea-weeds and corallines on paper; and it was this amusement which directed his enquiries into the nature of the latter, for, attracted by their beauty and neatness, he was induced to examine them minutely with the microscope, by the aid of which, he immediately perceived

\* Mentioned in “White’s Natural History of Selborne,” as the  
‘Coralline Ellis.’

that they differed not less from each other in respect to their form, than they did in regard to their texture; and that in many of them, this texture was such as to indicate their being more of an animal than a vegetable nature.\*

Ellis published his discoveries in the form of an "Essay towards a Natural History of Corallines, and other marine productions of the same kind," which appeared in 1755. He classes these Zoophytes under the name of Corallines; but more recent naturalists give that designation to only one genus, which is considered by many as belonging to the vegetable kingdom. Ellis's English names, as being very expressive, are given in the following pages; the Latin names and classification are from Dr. Johnston's most entertaining work on British Zoophytes, from which we also extract the following description.

"A zoophyte consists of two parts; the polype, whose presence is essential; and the polypidom, which is the house or support of the polype; and which, though commonly present, is yet not necessary to the existence of a zoophyte. In the specimens here given, the form which meets the eye is, in fact, the polypidom, which may be considered as a sort of *family residence*, inhabited by various individuals, all occupying separate apartments. Some, when viewed under the microscope, will be seen to consist of a number of small cells, each of which is the habitation of a polype. In the larger specimens, the cells are distinctly visible to the naked eye; and even the polype may be thus seen, when the specimen is taken fresh out of the water. Most of the polypes have the power of withdrawing themselves within their cells, by the contraction of their bodies, and thus lying

\* Dr. Johnston.

concealed; whilst some, as the *Tubularia Indivisa*, are destitute of this power."

In making the selection of zoophytes which fills the following pages, we have endeavoured to give those which are best calculated to illustrate the varied characters of this interesting class, and which, at the same time, are sufficiently abundant to furnish the requisite number of specimens. Many kinds are so exceedingly minute, as to require the aid of a microscope to render their form apparent, and these are of course ineligible. Those who feel inclined to pursue the subject further, will find a mine of interest in Dr. Johnston's work,\* which is illustrated with plates of great accuracy and beauty.

M. M. H.

\* "A History of British Zoophytes, by George Johnston, M. D. Second Edition."

## HERRING-BONE CORALLINE.

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THIS is generally found on the larger univalves, often on oyster-shells. Young specimens are often partially colored a bright yellow, dependant, apparently, on the color of the interior pulp.

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THIS order of zoophytes is propagated by buds, or gemmules, and by eggs. By the former, the polype extends its individual life, while by the latter, the species is multiplied and continued. Every species begins its existence with a single polype, which by the evolution of a succession of buds, after an order peculiar to each, grows up to a polypidom, that may contain many hundreds of tenants. On the regulated production of these buds, the upward growth and character of the polypidom depends; and simultaneous with its growth, the fibres by which it is rooted extend and increase themselves, and at uncertain intervals, give existence to similar buds, whence new polypiferous shoots take their origin, for these root-fibres are full of the same living medullary substance with the rest of the body.

New buds and bulbs the living fibre shoots,  
 On length'ning branches, and protruding roots.  
 Or on the father's side, from bursting glands  
 Th' adhering young its nascent form expands;  
 In branching lines the parent trunk adorns,  
 And parts, ere long, like plumage, hairs, or horns.\*

DR. G. JOHNSTON.

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NICOSTRATUS, in Ælian, finding a curious piece of wood, and being wondered at by one, and asked what pleasure he could take to stand as he did, still gazing on the picture;

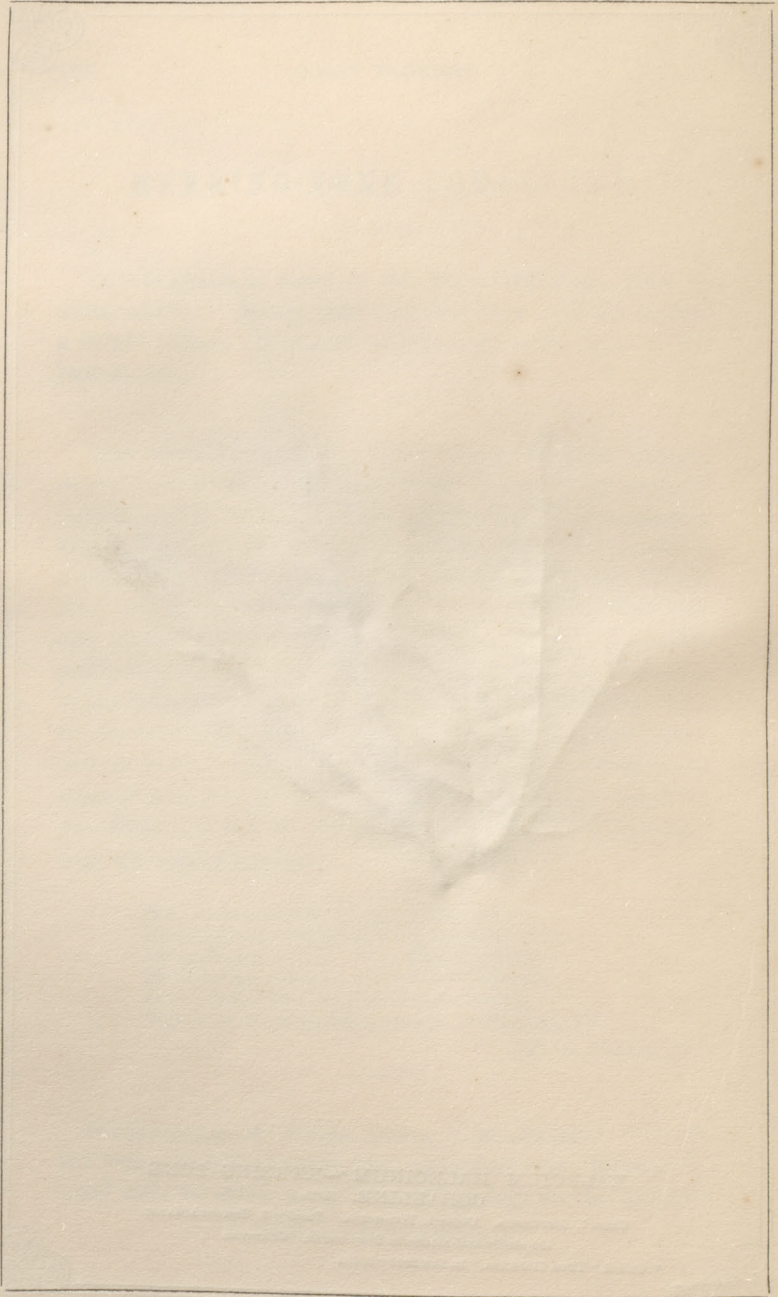
\* Darwin's "Temple of Nature."



HALECIUM HALECINUM\*—HERRING-BONE  
CORALLINE. (Ellis.)

Class 1. ANTHOZOA. Order 1. HYDROIDA. Family 3. SERTULARIADÆ.  
On shells and stones in deep water. Common.

\* Called "Thoa Halecina," in the first edition.



answered, "Hadst thou mine eyes, my friend, thou wouldst not wonder, but rather be ravished as I am, at the inimitable art of this rare and admirable piece." I am sure no picture can express so much wonder and excellency as the smallest insect, but we want Nicostratus his eyes to behold them.

And the praise of God's wisdom and power lies asleep and dead in every creature, until man actuate and enliven it. I cannot, therefore, altogether conceive it unworthy of the greatest mortals to contemplate the miracles of nature, and that as they are more visible in the smallest and almost contemptible creatures; for there, most lively do they express the infinite power and wisdom of the great Creator, and erect and draw the minds of the most intelligent, to the first and prime Cause of all things, teaching them, as the power, so the presence, of the Deity in the smallest insects.

SAMUEL PURCHASE.

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THE sounds and seas, each creek and bay  
 With fry innumerable swarm, and shoals  
 Of fish, that with their fins and shining scales,  
 Glide under the green wave in sculls that oft  
 Bank the mid-sea: part single, or with mate,  
 Graze the sea-weed, their pasture, and through groves  
 Of coral stray; or, sporting with quick glance,  
 Show to the sun their waved coats dropt with gold;  
 Or in their pearly shells at ease, attend  
 Moist nutriment, or under rocks their food  
 In jointed armour watch: on smooth the seal,  
 And bended dolphins play—part, huge of bulk,  
 Wallowing unwieldy, enormous in their gait,  
 Tempest the ocean: there Leviathan,  
 Hugest of living creatures, on the deep  
 Stretched like a promontory, sleeps or swims,  
 And seems a moving land, and at his gills  
 Draws in, and at his trunk spouts out, a flood.

MILTON.

## SEA-FIR CORALLINE.

THIS elegant Coralline is frequently found on our coast, adhering, by its vermicular tubes, to most kinds of shells. It grows very erect, and is frequently infested with little minute shells called Serpulas.

ELLIS.

THE specimens are from four to six inches high, of a yellowish horn color, sometimes tinged with red.

The *Sertula Abietina* is occasionally tinted of a pink or rose-red color, the cause of which appearance has not been ascertained. Many of the zoophytes of this order emit a luminous or phosphorescent fluid; the beautiful appearance they make in this state, is thus alluded to in the following lines:—

WAIT till they land, and you shall then behold  
The fiery sparks those tangled fronds unfold;  
Myriads of living points—the unaided eye  
Can but the fire, and not the form descry.

CRABBE'S "BOROUGH."

The following lines apply so equally well to the zoophyte and its rock, that we are happy to appropriate its beautiful lesson to these pages.

## THE LIMPET AND THE ROCK.

IN Nature's all-instructive book,  
Where can the eye of reason look,  
And not some gainful lesson find,  
To guide and mortify the mind?



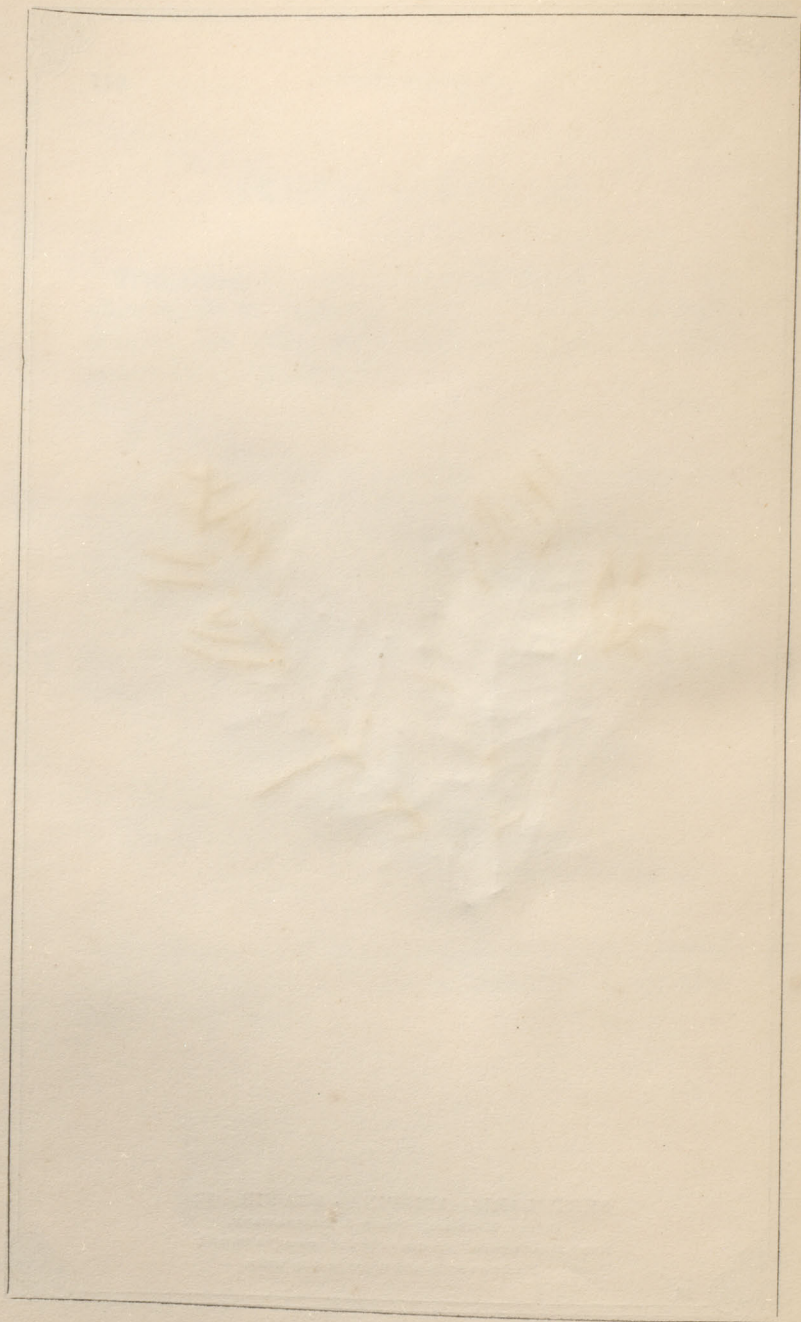


SERTULARIA ABIETINA—SEA-FIR. (Ellis.)

Order 1. HYDROIDA. Family 3. SERTULARIADÆ.

Name from "sertula," the diminutive of "serta," a garland.

Found on shells and stones in deep water.



The simple shell on yonder rock  
 May seem, perchance, this book to mock—  
 Approach it then, and learn its ways,  
 And read the lesson it conveys.  
 At distance view'd, it seems to lie  
 On its rough bed so carelessly,  
 That 'twould an infant's hand obey,  
 Stretch'd forth to seize it in its play ;  
 But let that infant's hand draw near,  
 It shrinks with quick instinctive fear,  
 And clings as close as though the stone  
 It rests upon and it were one.

\* \* \* \* \*

And is not this a lesson worth  
 The study of the sons of earth ?  
 Who need a Rock so much as we ?  
 Ah ! who to such a Rock can flee ?  
 A Rock to strengthen, comfort, aid,  
 To guard, to shelter, and to shade ;  
 A Rock whence fruits celestial grow,  
 And whence refreshing waters flow.—  
 No rock is like this Rock of ours !  
 Oh then, if you have learnt your powers  
 By a just rule to estimate ;  
 If justly you can calculate,  
 How great your need, your strength how frail,  
 How prone your best resolves to fail ;  
 When humble caution bids you fear  
 A moment of temptation near,  
 Let wakeful memory recur  
 To this your simple monitor,  
 And wisely shun the trial's shock  
 By clinging closely to your Rock.

MAYO.

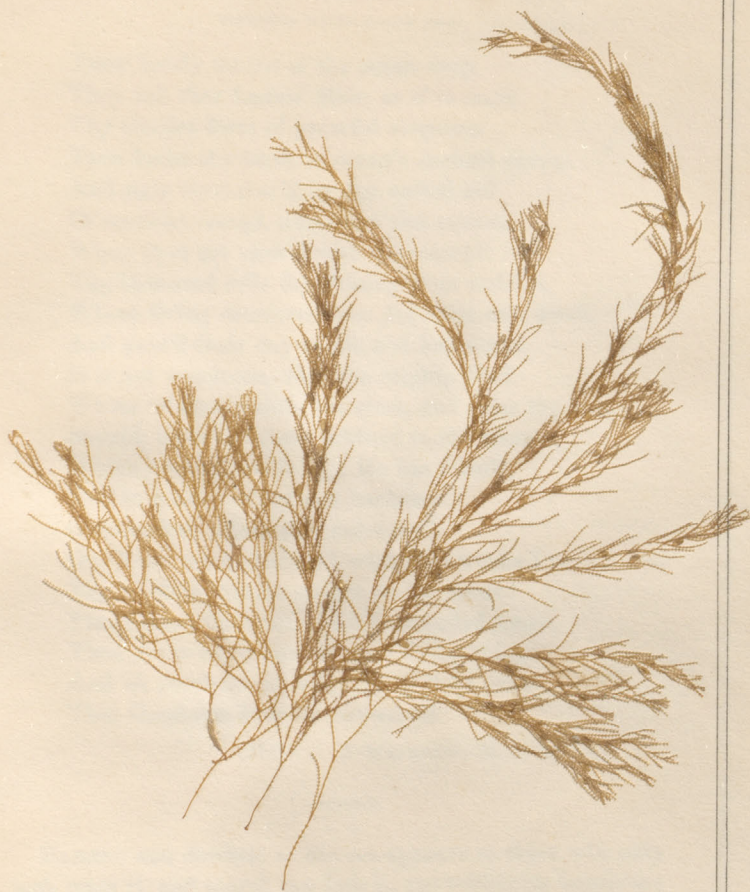
## SEA-HAIR CORALLINE.

THE branches are irregularly sprinkled with little vesicles, the tops of which are often covered with a sort of rounded operculum, from which one of its names is derived. The resemblance of these vesicles to the capsules of mosses, was one fact which led the early botanists to infer the vegetable nature of the Corallines. The vesicles appear most abundantly in winter and spring.

“As for your pretty little seed-cups or vases, they are a sweet confirmation of the pleasure Nature seems to take in superadding an elegance of form to most of her works, wherever you find them. How poor and bungling are all the imitations of art! When I have the pleasure of seeing you next, we will sit down—nay, kneel down, if you will—and admire these things.”

Thus did Hogarth—our great moral painter—write to Ellis, in evident reference to the zoophytes of the present order; and he must indeed be more than ordinarily dull and insensate, who can examine them without catching some of the enthusiasm of the artist. They excel all other zoophytical productions in delicacy and the graceful arrangement of their forms; some borrowing the character of the prettiest marine plants, others assuming the semblance of the ostrich-plume, while the variety and elegance exhibited in the figures and sculpture of their miniature cups and chalices is only limited by the number of their species.

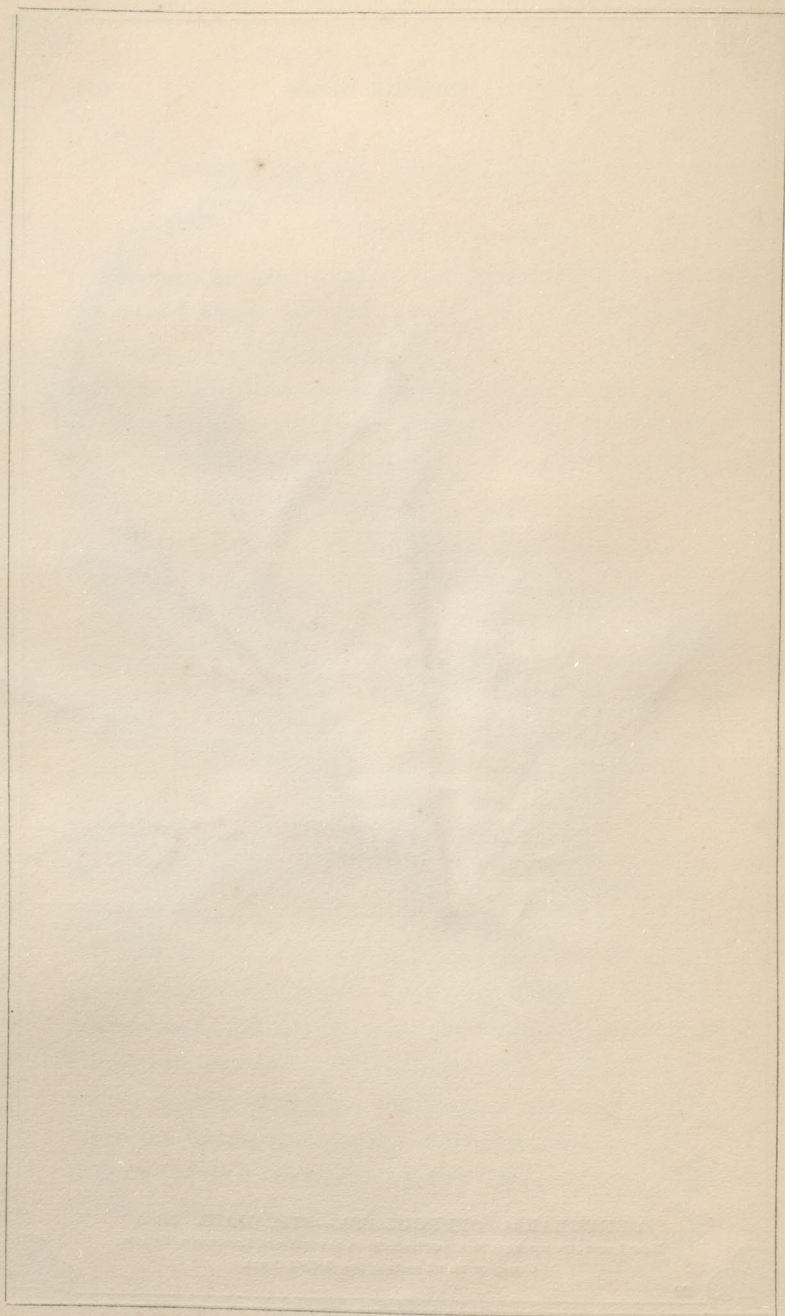
DR. G. JOHNSTON.



SERTULARIA OPERCULATA—SEA HAIR. Ellis.

Near low-water mark on fuci, particularly on the stalks of Laminaria Digitata.

Common on all parts of the British Coast.



## ON THE SEA-HAIR CORALLINE.

SOMETIMES CALLED LADIES' HAIR.

THOU lovely tenant of the ocean deep,  
 They call thee Ladies' Hair, as if to mark  
 Thy slender form of graceful elegance.  
 Thou hadst thy birth in ocean's darkest caves,  
 And thou wast rear'd by the united aid  
 Of sentient beings, numerous and minute.  
 When thou art view'd with microscopic eye,  
 Ten thousand cells thy shining stem unfolds,  
 Where living creatures once did move and dwell,  
 And pass'd their day of life and happiness.  
 Is it not wondrous, that the mighty God  
 Whose wisdom guides the stars, and rules the seas,  
 Should, from the great sublime to the minute,  
 Watch over all the beings He has form'd,  
 And in a bond of joy and harmony  
 Surround th' illimitable universe!  
 Oh, Thou most glorious! when thy works I view,  
 Thy wisdom infinite strikes on my heart!  
 Throughout the scale of life's extended range,  
 Thou giv'st enjoyment to each living thing,  
 And all proclaim, in language of their own,  
 That Goodness Infinite created all.

(M.S.) J. MACKNESS, M. D. Hastings.

BAREN and desolate as the sea appears to those who only look upon it, and search not into it, yet within its bosom are contained creatures, exceeding in number those that walk and creep upon the land; insomuch that, in the sacred language, they have their name from a word which signifies "to multiply."

BISHOP HORNE.

SQUIRREL'S-TAIL CORALLINE.

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THIS is a very elegant and graceful Coralline, having much the appearance of a squirrel's tail, from which its English name is taken. In young specimens the branches are simply pinnate, and as they increase in height, they become subdivided. When the specimen attains a foot or more in height, the lower half of the stem loses its branches and cells, and becomes entirely naked. This species, and one other, *Sertularia Cupressina*, are the only native species which have a distinct stem.

The *Sertularia Argentea* is one of the most delicate and graceful of the zoophytes. It is generally found growing in trios, three on one shell. Though very fragile and weak, it is seldom found as much battered by the wave as some of the other zoophytes; this is probably owing to its flexibility; even as the gentle and yielding temper bending submissively to the will of God, escapes many a storm in life, which dashes with destructive force against the heart which is rendered rigid by the presence of a selfish and independent will.

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M. M. H.

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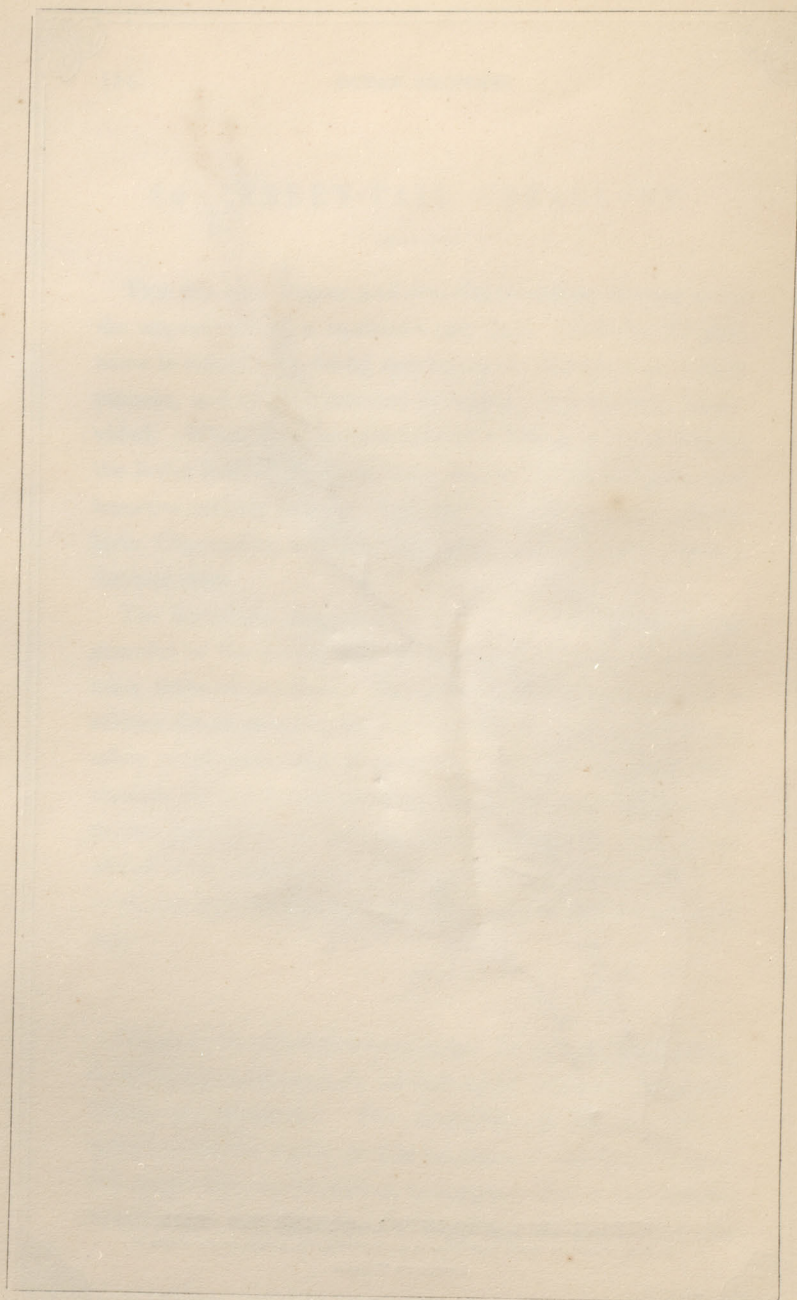
WHAT is Omnipotence?—is it not the power of attending to all things undistracted, as well as of doing the mightiest things unexhausted? The Almighty—is he not able to attend to all the wants of His creatures? Is there in creation aught that would lead us to suppose, that to his comprehensive eye any grandeur is imposing, or any minuteness





SERTULARIA ARGENTEA—SQUIRREL'S TAIL.

In deep water, on oyster and other large bivalve shells, as also on the stalks of  
*Laminaria Digitata*.



despicable? Did he only create the suns and larger planets, and leave it to moons and little worlds to create themselves? Or, coming down to this lower world, did he bestow a higher finish on the bulkier existences, and show little care for the lesser and lower? Was he rejoicing in the greatness of his strength when he formed the oak and the lion, and had his arm grown weary, when it reached the lily and the nightingale? Though there were no Bible to proclaim it, there is evidence enough; whether we look up into the heavens with their circling worlds, or down into a drop of water with its myriads of gay-darting monads, [may we not add, or examine the exquisite structure of the tenants of a zoophyte's cell?] proof enough, that He who *made* the whole of such a universe, is able to *attend* to it.

HAMILTON'S "MOUNT OF OLIVES."

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By "looking unto Jesus," the Christian rises, like a nautilus, from his dark and native depths, to the pure atmosphere and warm sunshine of another world; spreads forth his tiny sails of faith, and hope, and love, and is gently wafted over the waters of life by the balmy gales of grace. Onward he glides, beautiful in movement, and joyful in his new existence, so long as the heavy waters of this world are excluded: that moment he imbibes them, he sinks.

REV. J. STEVENSON.

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## BOTTLE BRUSH CORALLINE.

This remarkable Coralline is sometimes a foot in height, generally less, affixed by a tubular fibre, which is sometimes agglutinated to others from other shoots, so as to form a lichen-like crust concentrically wrinkled.

It is found on the coast of Scotland, and in the north of England; particularly about Scarborough, where from the fishermen it received its name of Bottle Brush, according to Ellis.

Our specimen is from Aberdeen.

In the following ingenious and instructive passage, the Sea-Anemone, a zoophyte of the order Helianthoida, is primarily intended; but the comparison will apply with nearly equal force, to any zoophyte which is rooted and stationary.

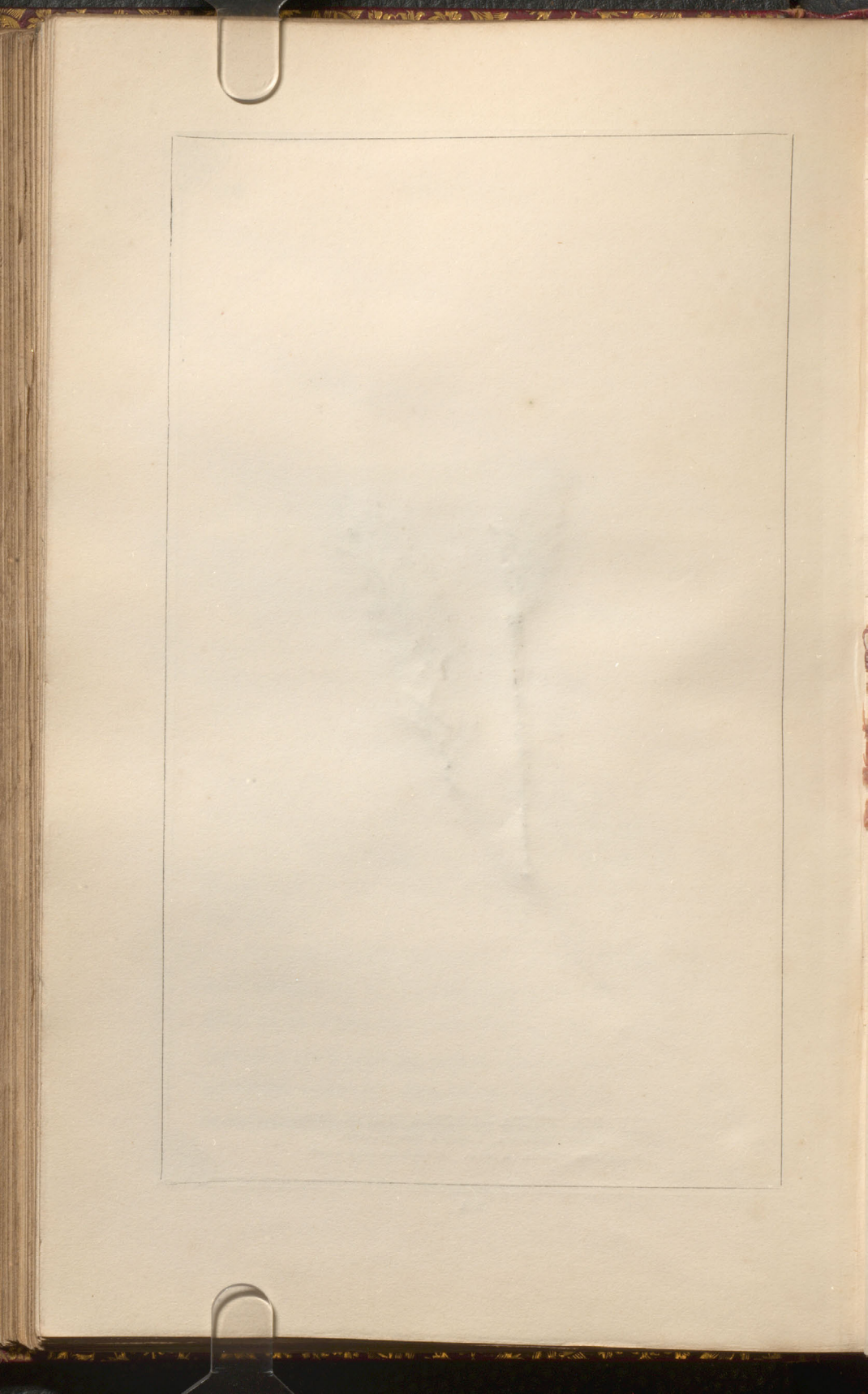
“Those of you who are familiar with the shore may have seen attached to the inundated reef a creature, whether a plant or an animal you could scarcely tell, rooted to the rock as a plant might be, and twirling its long tentacula as an animal would do. This plant-animal's life is somewhat monotonous, for it has nothing to do but grow and twirl its



THUARIA THUIA—BOTTLE BRUSH. EES.

Order 1. HYDROIDA. Family 3. SERTULARIADÆ.

Name from "Thuia," a cedar. On shells from deep water.



feelers, float in the tide, or fold itself upon its footstalk when that tide has receded, for months and years together. Now would it not be very dismal to be transformed into a zoophyte? Would it not be an awful punishment, with your human soul still in you, to be anchored to a rock, able to do nothing but spin about your arms or fold them up again, and knowing no variety except when the receding ocean left you in the daylight, or the returning waters plunged you into the green depths again, or the sweeping tide brought you the prize of a young periwinkle or an invisible star-fish? But what better is the life you are spontaneously leading? What greater variety marks your existence, than chequers the life of the sea-anemone? Does not one day float over you after another, just as the tide floats over it, and find you much the same, and leave you vegetating still? Are you more useful? What real service to others did you render yesterday? What tangible amount of occupation did you overtake in the one hundred and sixty-eight hours of which last week consisted? And what higher end have you in living than that polypus? You go through certain mechanical routines of rising and dressing and visiting and dining, and going to sleep again, and are a little aroused from your usual lethargy by the arrival of a friend, or the effort needed to write some note of ceremony. But as it curtsies in the waves, and vibrates its exploring arms and gorges some dainty medusa, the sea-anemone goes through nearly the same round of pursuits and enjoyments, with your intelligent and immortal self. Is this a life for a rational and responsible creature to lead?

REV. J. HAMILTON'S "LIFE IN EARNEST."

## LOBSTER'S-HORN CORALLINE.

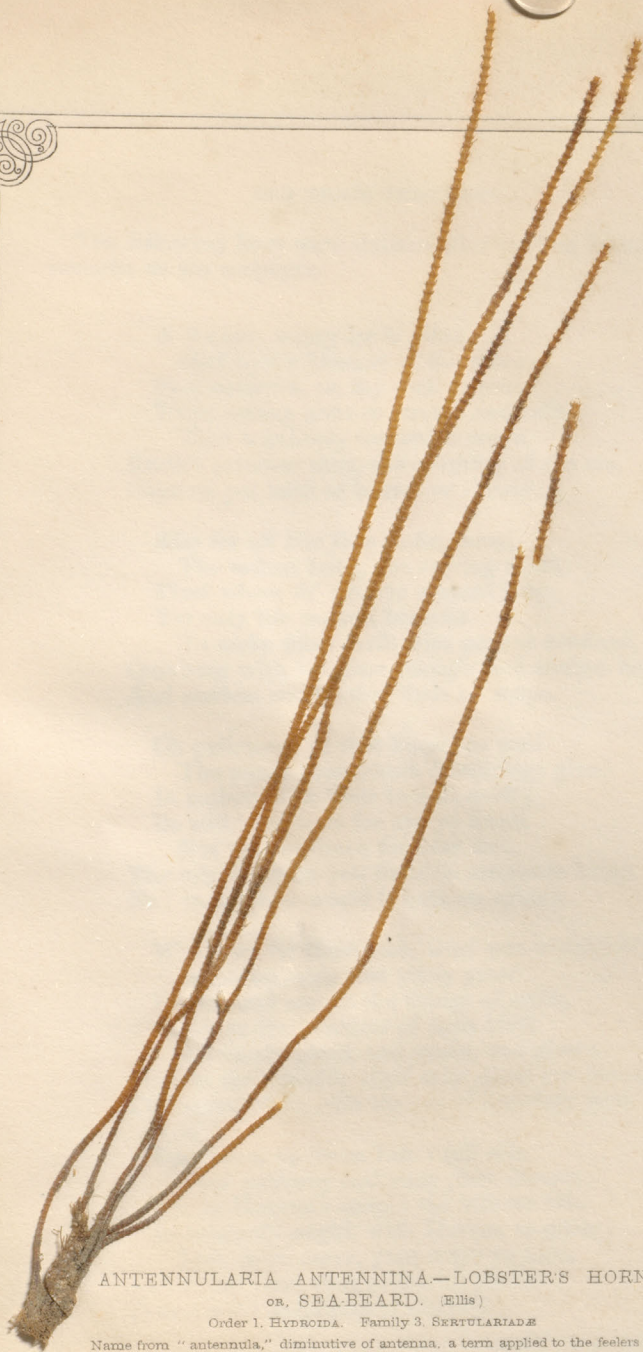
No zoophyte suffers so much in its appearance, by being removed from its native position and transferred to paper, as the *Antennularia Antennina*. In its natural state it is truly a splendid object; one root bearing, perhaps, between forty and fifty antennæ, waving in every direction; sometimes thickly clothed with short hair-like fibres, occasionally branched, and attaining a height of eight inches and upwards.

There are many facts which prove that the growth of these polypidoms is very rapid, but not more so than might be anticipated when it is remembered how vast is the number of polype architects; and no sooner is a new branch extended than it becomes almost simultaneously a support of new workers, which, with "toil unwearable," add incessantly to the materials of increase.\* Their duration is various: some have only a summer's existence, as *Laomedea Genuiculata*; many are probably annual; and the epiphyllous kinds cannot, at most, prolong their term beyond that of the weed on which they grow; but such as attach themselves to rocks, are probably less perishable, for their size and consistency seem to indicate a greater age. There are facts which appear to prove that the life of the individual polypes is even more transitory than their own cells; that, like a blossom, they bud and blow and fall off, or are absorbed, when another sprouts up from the medullary pulp to occupy the very cell of its predecessor, and, in its turn, to give way, and be replaced by another. Lamouroux says, "Some there are that are entirely covered with polypi through the summer and autumn, but they perish with the cold of winter: no sooner, however, has the sun resumed his revivifying influence than new animals are developed, and fresh branches are produced upon the old ones."

DR. G. JOHNSTON.

\* "In the *Sertularia Polyzonias*, I have some reason to believe that a large specimen can be formed, under favorable circumstances, in the course of fourteen days."



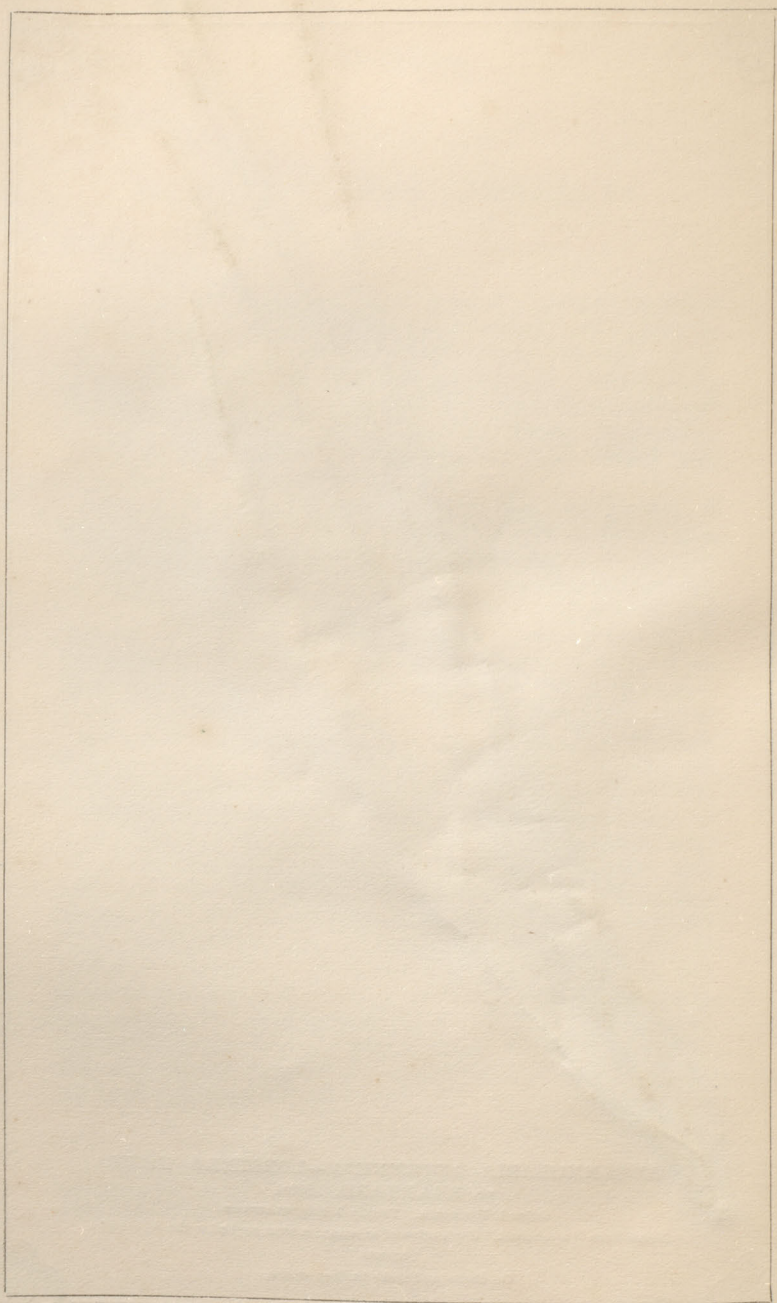


ANTENNULARIA ANTENNINA.—LOBSTER'S HORN.  
OR, SEA-BEARD. (Ellis)

Order 1. HYDROIDA. Family 3. SERTULARIADÆ

Name from "antennula," diminutive of antenna, a term applied to the feelers of insects.

On shells and rocks in deep water.



The following lines were written after reading Hamilton's remarks on the zoophyte.

A WEARY, weary lot is thine,  
 Half-living blossom of the wave ;  
 Fast anchor'd, on thy rock to pine,  
 Thine asking arms to stretch and twine,  
 That hopelessly for action crave.  
 Earth's prisoner thou, the offspring of the sea,  
 Captive, yet born of boundless liberty.

Alas for all like thee!—for those,  
 The ardent heart, the soaring mind,  
 Thro' whom th' electric current flows,  
 Yet only life enough bestows  
 To make them thrill with powers confined,  
 Quiv'ring with voiceless thought and aimless hope,  
 And restless energy that finds no scope.

Oh patience! ye that know too well  
 The pangs those check'd aspirings give!  
 In patient faith their tumult quell;  
 Be still! not here for aye ye dwell,  
 Not thus in death for ever live.  
 The might within you finds no utterance here;  
 No! in a nobler world it hath its sphere.

Woe most for those—ah, most woe worth!—  
 Immortal souls that vilely grow  
 Root-bound amidst the things of earth,  
 In whom the instincts of their birth  
 All vainly plead, and strain, and glow;  
 Close to their muddy shelf they cling, nor move,  
 Tho' round them rolls the sea of heavenly love.

Up, idlers, up!—on Life's full tide,  
 Your pathway and your place discern;  
 Up, in Heaven's name! the billows ride  
 In heavenly might, with Heaven to guide:  
 Lest, as ye serve, your wage ye earn,  
 And living thus, thus evermore ye die,  
 Time-rooted zoophytes of eternity!

(M.S.) A. J. VIDAL.

## SICKLE CORALLINE.

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A COMMON and very elegant species, generally from four to six inches in height, rising in wide spiral turns, and sending out plumous branches from its stem at regulated intervals. In young specimens the branches are two-ranked and alternate.

Dr. Grant thinks that polypi are not the first formed parts of this zoophyte, but are organs which appear long after the formation of the root and stem, as the leaves and flowers of a plant.

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ONE of the general objects of the vegetable kingdom was to ornament the dry land with what was *fair to look upon*, as well as with what was *good for food*. But the depths of ocean, though planted with various vegetables, seem unapt to exhibit in beauty the frail blossoms of the plant, which, though they can bear the fluctuations of their own atmosphere, must often be destroyed by the greater weight and more irresistible agitations of a denser element. To ornament the bosom of the deep, therefore, more solid forms, sending forth blossoms capable of sustaining the action of such an element, were requisite; and therefore God, who gifted his creature man with an inquiring spirit, and with an appetite for knowledge of the works of creation, to furnish him with objects of inquiry, and to gratify that appetite to

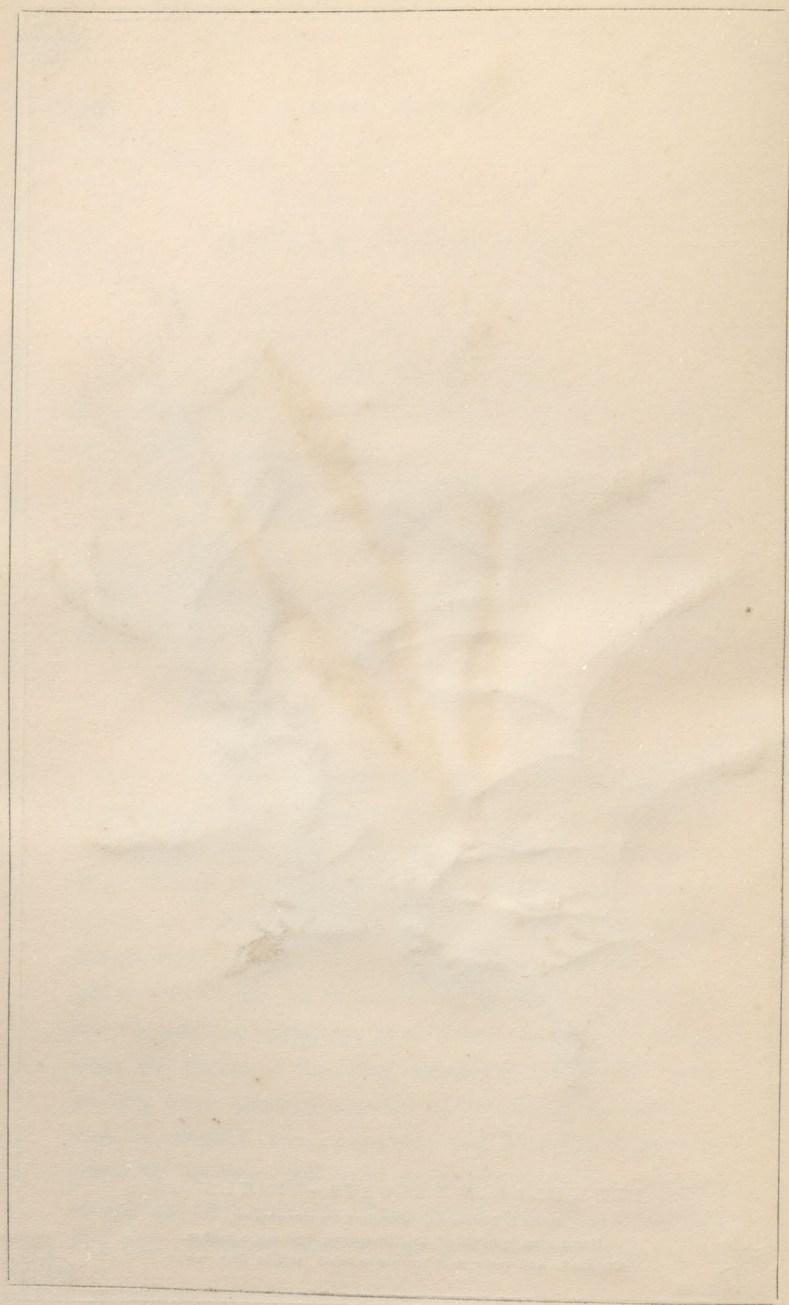


PLUMULARIA FALCATA—SICKLE. (Ellis.)

Order 1. HYDROIDA. Family 3. SERTULARIADÆ.

Name from "plumula," the diminutive of pluma, a feather.

On shells and rocks near low-water mark, and in deep water.



the utmost, not only placed before his eyes on the earth an innumerable host of creatures, of which he could gain a notion by only opening his eyes, and by observing their beauties, and experiencing their utility, might praise his Maker for them ; but also filled the deep with inhabitants, and ornamented it with animals, which appearing to vegetate and blossom like plants, his curiosity being excited, he might also study the inhabitants of the water, and glorify his Maker for the creation of them.

KIRBY'S "BRIDGEWATER TREATISE."

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These remarks may be well succeeded, we think, by the beautiful ideas expressed in the following lines by two of our favourite poets :—

"The faint echoes in my breast that dwell,  
And for their birth-place moan, as moans the ocean-shell."

"FOREST SANCTUARY." MRS. HEMANS.

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Such a shell has Wordsworth thus described :—

"I have seen  
A curious child, who dwelt upon a tract  
Of inland ground, applying to his ear  
The convolutions of a smooth-lipped shell ;  
To which, in silence hush'd, his very soul  
Listen'd intently, and his countenance soon  
Brighten'd with joy ; for murmurings from within  
Were heard, sonorous cadences ! whereby  
To his belief the monitor express'd  
Mysterious union with its native sea.  
—Even such a shell the universe itself  
Is to the ear of faith.

THE "EXCURSION."

### THE PODED CORALLINE.

"EACH plume," says M. Sister, in reference to a specimen of this coralline, "might comprise from 400 to 500 polypi; and a specimen of no unusual size before me, has twelve plumes, with certainly not fewer cells on each than the larger number mentioned; thus giving 6000 polypes as the tenantry of a single polypiom! Now many such specimens, all united too by a common fibre and all the off-shoots of one common parent, are often located on one sea-weed; the site then of a population which not London nor Pekin can rival! But Plumularia Crstata is a small species; and there are single specimens of Plumularia Falcata or Sertularia Argentea, of which the family may consist of 80,000 or 100,000 individuals. It is such calculations, always under-rated, that illustrate 'the magnalities of Nature,' and take us by surprise, leaving us in wonderment at what may be the great objects of this her exuberant production of these 'insect-millions, peopling every way.'"

DR. G. JOHNSTON.

WHILE thus with pleasing wonder, you inspect  
 Treasures the vulgar in their scorn reject,  
 See as they float along, th' entangled weeds,  
 Slowly approach, upborne on bladdery beads.

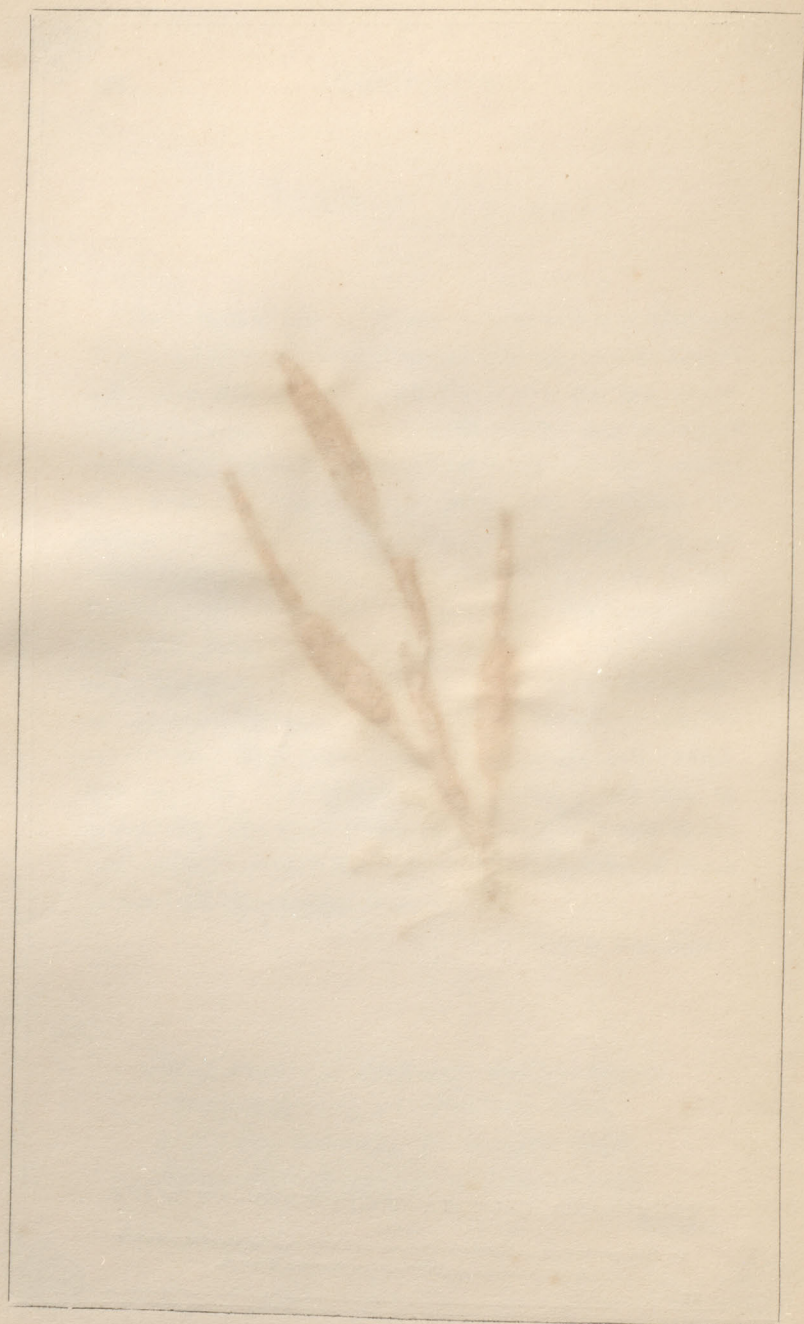
CRABBE.





PLUMULARIA CRISTATA—THE PODED CORALLINE.  
(Ellis.)

On Fuci, particularly on Haledry's Siliquosa, and sometimes on muscles and other shells. Common on the Southern Coast of England.



THE number of living creatures, of all orders, whose existence intimately depends upon that of the kelp (*Fucus Giganteus*), is wonderful. A vast volume might be written describing the inhabitants of one of these beds of sea-weeds. Almost every leaf, excepting those that float on the surface, is so thickly incrustated with corallines as to be of a white color. We find exquisitely delicate structures, some inhabited by simple hydra-like polypi, others by more organized kinds, and beautiful compound *Ascidia*. On the flat surface of the leaves, various patelliform shells, *Trochi*, uncovered molluscs, and some bivalves, are attached, with innumerable crustacea, which frequent every part of the plant.

DARWIN'S "JOURNAL OF THE VOYAGE OF THE BEAGLE."

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IN the following pretty description of the obsequies of Icarus, the "pearly sea-flowers" may well find their representatives in the "Podded Corallines."

So erst with melting wax and loosen'd strings,  
Sunk hapless Icarus on unfaithful wings ;  
His scatter'd plumage danced upon the wave,  
And sorrowing mermaids deck'd his watery grave ;  
O'er his pale corse their pearly sea-flowers shed,  
And strew'd with crimson moss his marble bed,  
Struck in their coral towers the passing bell,  
And wide in ocean toll'd his echoing knell.

DARWIN.

### COAT OF MAIL CORALLINE.

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THE cells in this zoophyte are placed back to back, "so that the pair together resemble a coat of mail or pair of stays, and the entrances of the cells look like the places for the arms to come out."—ELLIS. This appearance is distinctly visible under the microscope.

---

THE coral insect, of which so much has been written, and which plays so important a part in the world's physical history, is a foreign species of zoophyte of the order Helianthoida; and as it may therefore claim a near relationship with the little beings whose habitations adorn our pages, it will not be out of place to present to our readers the following beautiful passage from the sermons of the present Bishop of Oxford, in which a striking analogy is drawn between the achievements of these wonder-working insects and the slow, silent, gradual process by which has pleased God to build up His kingdom on the earth.

"How many holy men have prayed and waited long for strength, and suffered and resisted temptation, and crushed the evil self within, and so borne their witness for Christ, before any evil influence in society was uprooted, or any holy and true principle established or widely spread abroad. And thus their secret struggles, their slowly-ripened Christian graces, have become the blessing of the Church around them: even as the strong foundations of those coral islands of the southern seas, which are now so rich and verdant with the prodigal upgrowth of grass, and flower, and tree, were wrought silently in the chambers of the deep by thousands of living beings which were never seen by those who have entered into their labours."

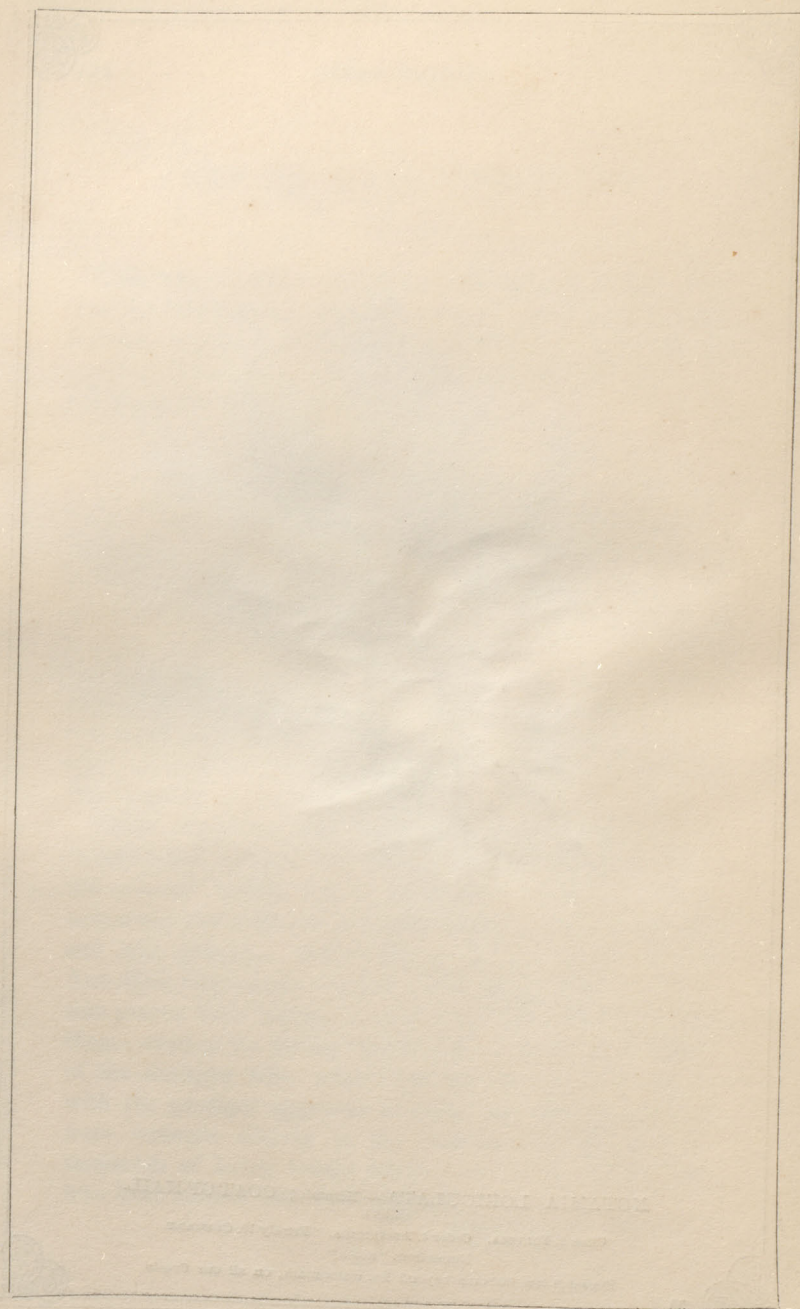
WILBERFORCE'S SERMONS.



NOTAMIA LORICULATA.—(Hemming.) COAT-OF-MAIL.  
(Ellis.)

Class 2. POLYZOA. Order 4. ASCIDIODA. Family 10. CRISIADÆ.  
Name from "notos."

Found a few fathoms beyond low-water-mark, on all our Coasts



## THE CORAL INSECT.

MILLIONS of millions thus from age to age,  
 With simplest skill, and toil unwearable,  
 No moment and no movement unimproved,  
 Laid line on line, on terrace terrace spread,  
 To swell the heightening, brightening, gradual mound,  
 By marvellous structure climbing towards the day.  
 Each wrought alone, yet all together wrought ;  
 Unconscious, not unworthy, instruments,  
 By which a Hand invisible was rearing  
 A new creation in the secret deep.  
 Omnipotence wrought in them, with them, by them ;  
 Hence what Omnipotence alone could do  
 Worms did.        \*        \*        \*        \*

A point at first,  
 It peer'd above those waves ; a point so small,  
 I just perceived it, fixt where all was floating ;  
 And when a bubble cross'd it, the blue film  
 Expanded like a sky above the speck ;  
 That speck became a hand-breadth ; day and night  
 It spread, accumulated, and ere long  
 Presented to my view a dazzling plain,  
 White as the moon, a sapphire sea ;  
 Bare at low water, and as still as death ;  
 But when the tide came gurgling o'er the surface,  
 'Twas like a resurrection of the dead :  
 From graves innumerable, punctures fine  
 In the close coral, capillary swarms  
 Of reptiles, horrent as Medusa's snakes,  
 Cover'd the bald-pate reef ; then all was life  
 And indefatigable industry ;  
 The artisans were twisting to and fro,  
 In idle-seeming convolutions ;  
 Yet they ne'er vanish'd with the ebbing surge,  
 Till pellicle on pellicle, and layer  
 On layer, was added to the growing mass.

MONTGOMERY'S "PELICAN ISLAND."

---

### BROAD-LEAVED HORN-WRACK CORALLINE.

---

HOOKE, in his *Micrographia*, says, "For curiosity and beauty, I have not, among all plants and vegetables I have yet observed, seen any one comparable to this sea-weed. When recent, it exhales a pleasant scent."

Dr. Grant says, "The aperture of the cells (in the *Flustra*) is formed by a semicircular lid, which folds down when the polypus is about to advance from the cell."

---

WHO can measure the difference between a grain of sand and the sun of our system?—or between the lowest creature that seems to form the link between the animal and vegetable world, and the mind of Solomon or Paul?

Still all these beings so different, extending from things lower than we can conceive, up to things higher than our conceptions; all, from the highest angel to the lowest atom, are yet, religiously speaking, all classed together as though they were all equal. They are all creatures; and however different when compared with themselves, yet they seem actually to be all on one level when contrasted with that infinite difference which exists between the highest creature and God.

DR. ARNOLD.

---

### THE WHITE CORAL POLYPE.

"BUT the most celebrated Polypes, and those which produce the most wonderful effects in some parts of the globe that we inhabit, belong to the genus *Madrepora*. It is amongst the species of this genus that we are to look for the polype which is instructed by its Creator not only to erect rocky reefs, of vast extent and wonderful solidity—which



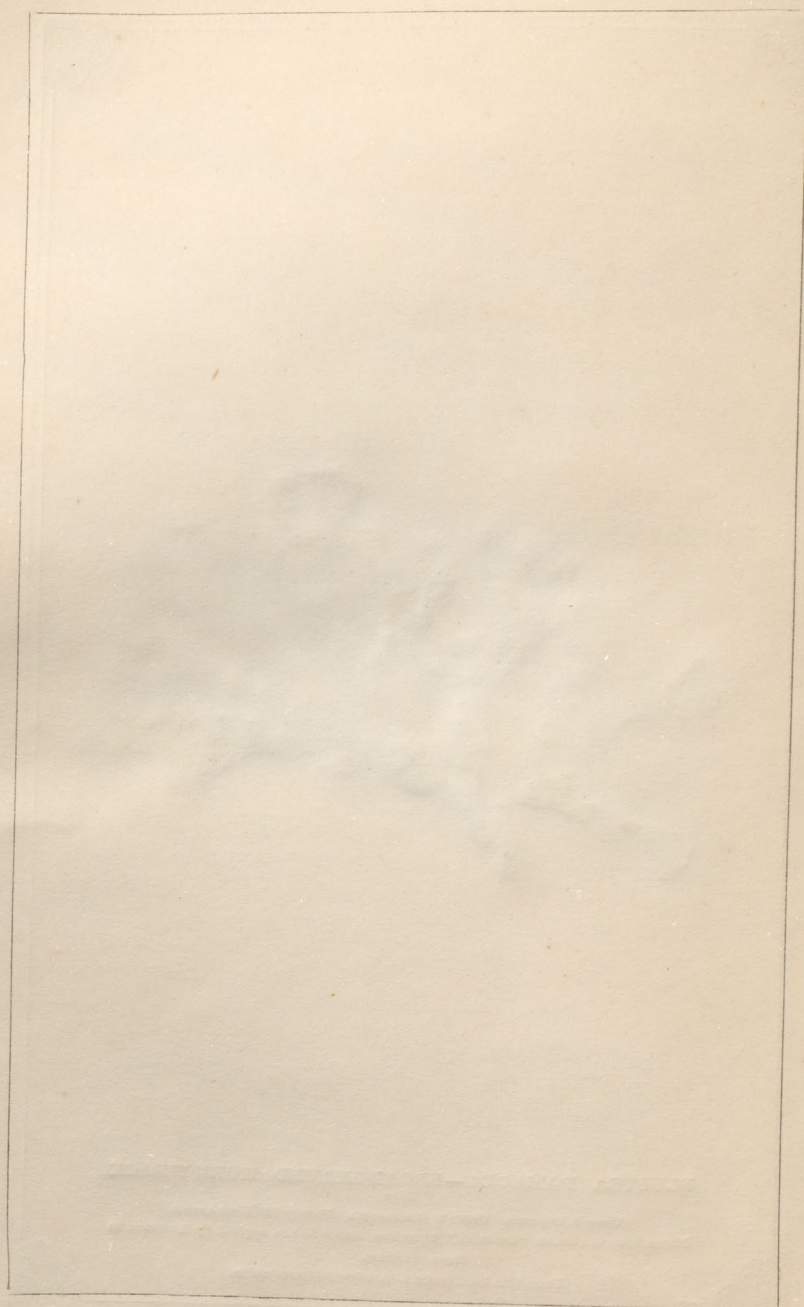


FLUSTRA FOLIACEA—BROAD-LEAVED HORN-WRACK.  
(Ellis.)

Class 2. POLYZOA Order 4. ASCIDIODA. Family 13. ESCHARIDÆ.

Name from the Saxon "flustrian," to weave; hence flustra, applied by Linnæus to these sea-mats.

Found on hard ground, in a few fathoms water.



often arrest and perplex the course of the navigator, and greatly increase the perils of navigation—and submarine mountains, that keep gradually diminishing the mass of waters, but also islands, which, emerging from the ocean, in process of time are covered with vegetation, and fitted to receive and maintain an animal population, with man at their head. The species principally engaged in this great work is the coral called by Linnæus the *muricated Madrepore*, and generally known by the name of *white coral*. Its polype, though so celebrated for its wonderful works, seems to be unknown. They do not always elevate their polyparies (polypidoms) from the depths of the water to its surface; some extend themselves horizontally upon the bottom of the sea, following its curvatures, declivities, and anfractuosities, and cover the soil of old ocean with an enameled carpet of various and brilliant colours, sometimes of a single colour as dazzling as the purple of the ancients. Many of these beings are like a tree which winter has stripped of its leaves, but which the spring adorns with new flowers; and they strike the beholder by the *éclat* of petal-like animals with which their branches are covered from the base to the extremity. After considering all the wonderful facts with regard to the proceedings and progress of these seemingly insignificant animals, a speculative imagination may not only picture to itself, with respect to any group of coral islands, its conversion into one vast plain, yielding forests of bread-fruit and other trees, and ultimately sustenance to a numerous population, and a variety of animals subservient to their use; but taking a wider range and still further enlarging its view, might behold the tropical portion of the vast Pacific studded with these islands, and so large as almost to form a kind of bridge of communication between Asia and America. Indeed, at present we know not how far these founders of islands may have been concerned in rearing a considerable portion of those continents that form the old world.”

KIRBY'S "BRIDGEWATER TREATISE."

## NARROW-LEAVED HORN-WRACK CORALLINE.

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THE *Flustra Truncata* attains a height of four or five inches, is very bushy, and acquires a kind of varnish when dry.

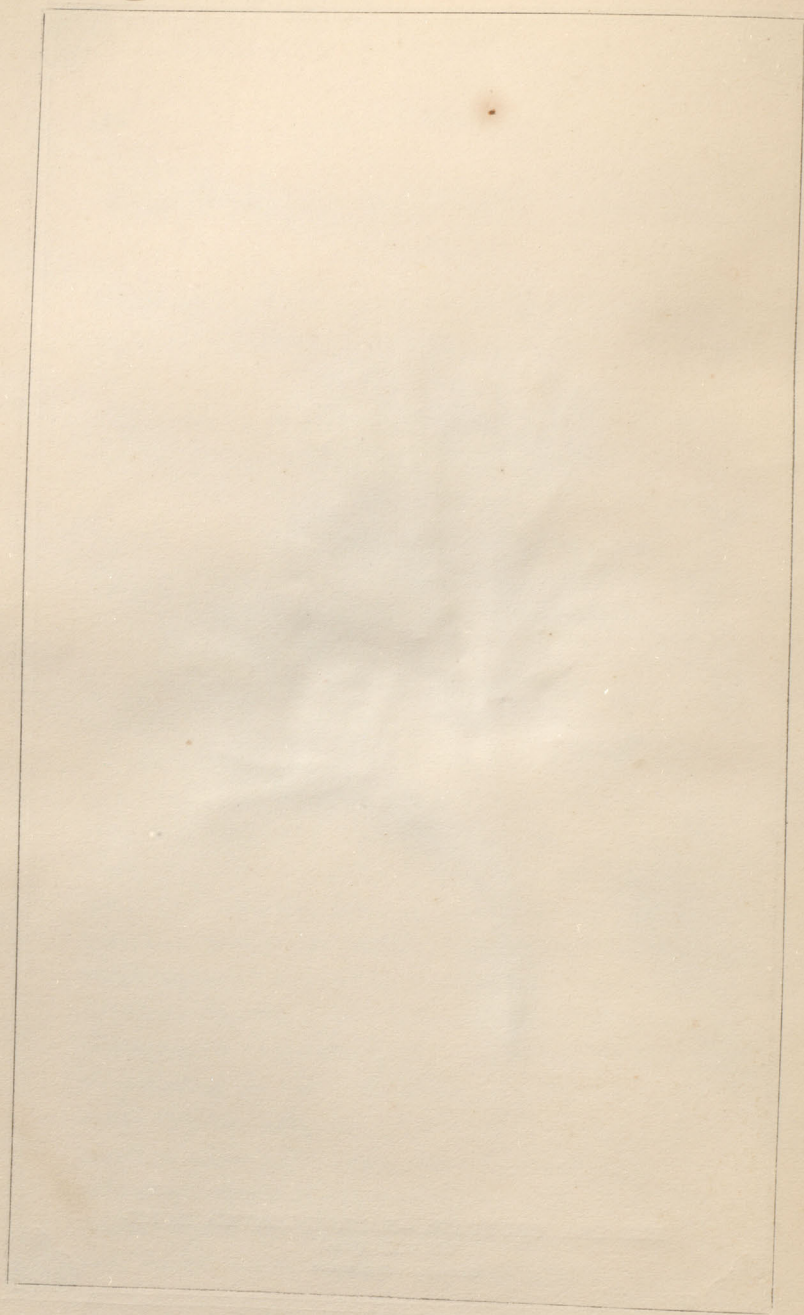
Seen under a microscope, Dr. Grant says the opening of the lid of its cell appears like the opening of a snake's jaws.

---

WHEN the Creator formed the coral animals, what foresight, as well as power and wisdom did he manifest! That a minute pouch of animated matter, with no other organs than a few tubercles surrounding its mouth, should be fitted to secrete calcareous particles from food collected by it, to transpire or regurgitate them, so as to construct for itself a limestone house, and should be empowered perpetually to send forth germs, that could also act the same part, is in itself sufficiently wonderful; but, that in process of time, these animals by their combined efforts, should build up in the fluctuating ocean not merely insignificant islets, but whole groups of islands and extensive ridges, I had almost said continents, is still more worthy of admiration;—but far beyond and above this, that creative wisdom should so order all other circumstances connected with this procedure; as for instance, the action of the waves and winds upon this nascent little world, that they, when the animal has built up to that point, which its nature (for it cannot exist out of the water) enables it to attain, should take up the wonderful work, and by other means complete his design, give the structure its due elevation, furnish it with fountains and streams, cover it with a



FLUSTRA TRUNCATA — NARROW-LEAVED HORN-  
WRACK. (FISH.)  
Common in deep water.



soil capable of affording nutriment to plants and trees, yielding a supply of food to some portion of the animal kingdom, and, finally, to man himself—how strikingly does this whole concatenation of dependent circumstances, demonstrate the adaptation of means to an end by the Infinite Mind.

KIRBY'S "BRIDGEWATER TREATISE."

---

TOIL on! toil on! ye ephemeral train,  
Who build in the tossing and treacherous main;  
Toil on,—for the wisdom of man ye mock,  
With your sand-based structures, and domes of rock;  
Your columns the fathomless fountains lave,  
And your arches spring up to the crested wave;  
Ye're a puny race, thus to boldly rear  
A fabric so vast, in a realm so drear.  
Ye bind the deep with your secret zone,  
The ocean is seal'd and the surge a stone;  
Fresh wreaths from the coral pavement spring,  
Like the terraced pride of Assyria's king;  
The turf looks green where the breakers roll'd,  
O'er the whirlpool ripens the rind of gold;  
The sea-snatch'd isle is the home of men,  
And mountains exult where the wave hath been.  
Ye build,—ye build,—but ye enter not in!  
Like the tribes whom the desert devour'd in their sin,  
From the land of promise ye fade and die,  
Ere its verdure gleams forth on your weary eye;  
As the kings of the cloud-crown'd pyramid  
Their noteless bones in oblivion hid,  
Ye slumber unmark'd 'mid the desolate main,  
While the wonder and pride of your works remain.

LYDIA H. SIGOURNEY.

## FLUSTRA CARBASEA.

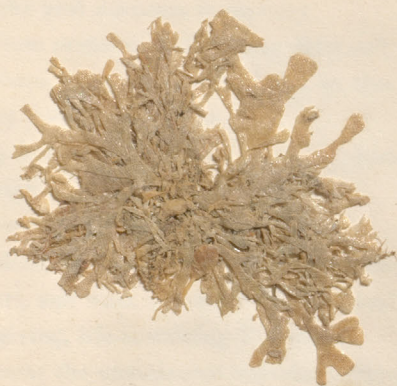
IN this species there are more than eighteen cells in a square line, or 1800 in a square inch of surface, and the branches of an ordinary specimen present about ten square inches of surface; so that a common specimen of the Flustra Carbacea presents more than 18,000 polypi.

GRANT.

AND now, should it be asked, granting all this to be true, to what end has so much labour been bestowed in the demonstration? I can only answer that, as to me these disquisitions have opened new scenes of wonder and astonishment, in contemplating how variously, how extensively life is distributed through the universe of things; so it is possible that the facts here related, and these instances of nature animated in a part hitherto unsuspected, may excite the like pleasing ideas in others; and in minds more capacious and penetrating, lead to farther discoveries, farther proofs (should any be wanting) that one infinitely wise, good, all-powerful Being, has made, and still upholds, the whole of what is good and perfect; and hence we may learn, that if creatures of so low an order in the great scale of nature, are endued with faculties which enable them to fill up their sphere of action with such propriety; we, likewise, who are advanced so many gradations above them, owe to ourselves, and to Him who made us and all things, a constant application to acquire that degree of rectitude and perfection, to which we are also endued with faculties of attaining.

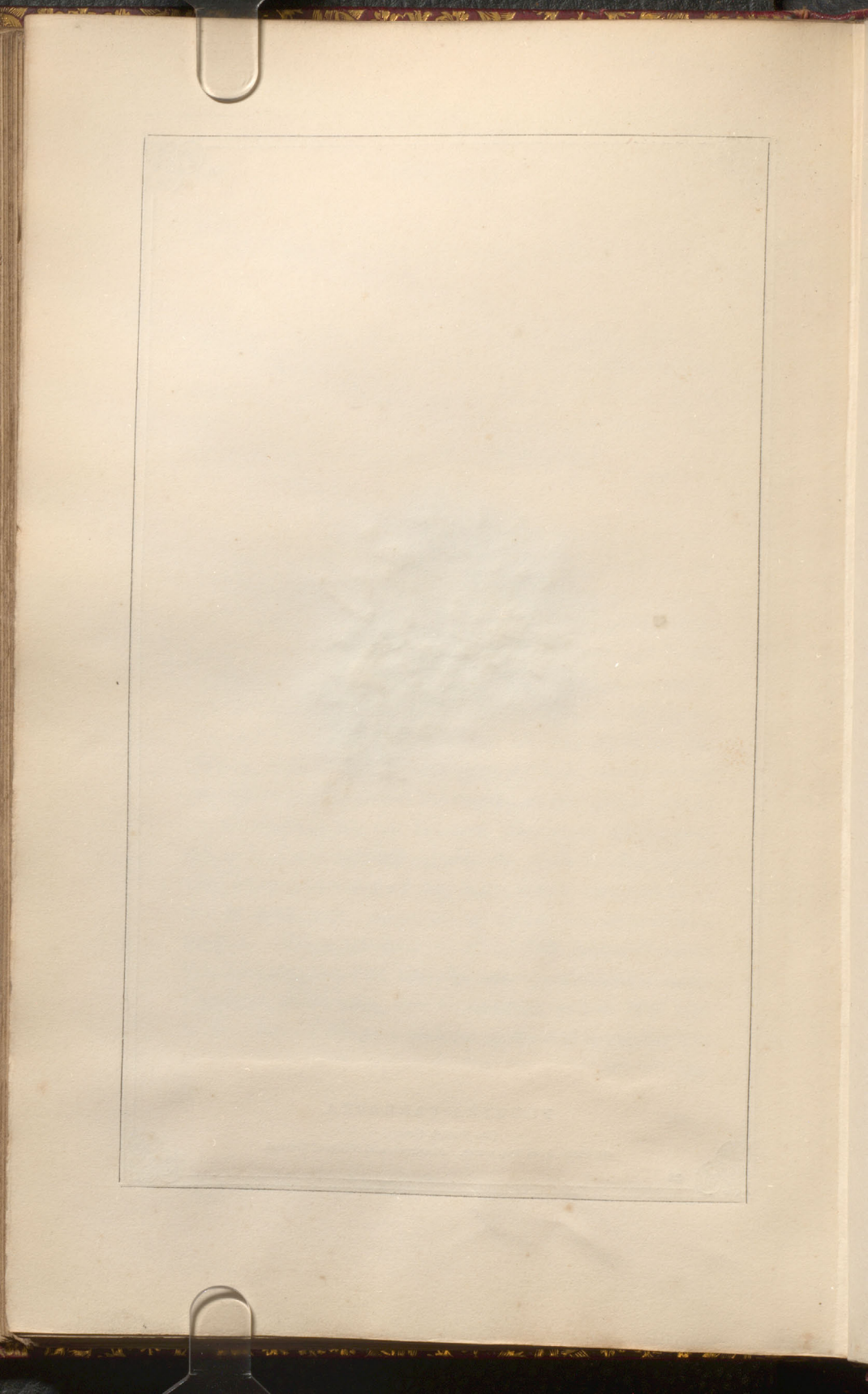
ELLIS.





FLUSTRA CHARTACEA—SEA MAT.

First found on the Coast of Sussex.



In its sublime research, philosophy  
May measure out the ocean deep—may count  
The sands, or the sun's rays—But, God! for Thee  
There is no weight nor measure:—none can mount  
Up to thy mysteries; reason's brightest spark,  
Though kindled by thy light, in vain would try  
To trace thy counsels, infinite and dark:  
And thought is lost ere thought can soar so high,  
Even like past moments in eternity.  
Thou from primeval nothingness didst call  
First chaos, then existence;—Lord, on thee  
Eternity had its foundation:—all  
Sprung forth from thee:—of light, joy, harmony,  
Sole origin:—all life, all beauty thine.  
Thy word created all, and doth create;  
Thy splendor fills all space with rays divine;  
Thou art, and wast, and shalt be, Glorious! Great!  
Light-giving, life-sustaining Potentate.  
Thy chains the unmeasured universe surround:  
Upheld by thee, by thee inspired with breath!  
Thou the beginning with the end hast bound,  
And beautifully mingled life and death!  
As sparks fly upward from the fiery blaze,  
So suns are born, so worlds spring forth from thee;  
And as the spangles in the sunny rays  
Shine round the silver snow, the pageantry  
Of heaven's bright army glitters in thy praise.

BOWRING.

## CONCLUSION.

---

WE have here presented to our readers a few of the "treasures of the deep;" but how many remain untouched! Whole classes, whole groups of interesting objects, besides numerous species in the classes we have noticed. There are the shells—they would require a volume—there are the various finny tribes, sometimes so strange in form, sometimes so gorgeous in coloring—there are the ocean-rocks themselves—but we must stop in our enumeration of these untouched wonders, and only give our readers one piece of singular beauty—

### THE LONE ROCK.

THERE is a single stone  
Above yon wave,  
A rocky islet lone,  
Where tempests rave.

What doth it there? The sea,  
Restless and deep,  
Breaks round it mournfully,  
And knows no sleep.

The sea hath hung it round  
With its wild weed;  
No place can there be found  
For better seed;

Storm-beaten rock ! no change  
Tis thine to know !  
Only the water's range  
Of ebb and flow.

The happy sounds of earth  
Are not for thee,  
The voice of human mirth,  
Of children's glee.

No song of birds is thine,  
No crown of flowers ;  
Say, dost thou not repine,  
Thro' long lone hours ?

Yet stars for thee are bright  
In midnight skies,  
And tranquil worlds of light  
Around thee rise.

They smooth thine ocean-bed,  
Its heavings cease,  
While they from o'er thy head  
Breath on thee peace.

The wearied man of grief  
Like thee I deem,  
To whom comes no relief  
Thro' life's dark dream.

No human ties are left,  
Earth's hopes are gone,  
He dwells like one bereft  
Blighted, alone !

Yet o'er him from above  
 Bright spirits bend,  
 And He whose name is Love,  
 Calls him His friend.

And thus he thankful learns  
 Why grief was given ;  
 And trusting, peaceful turns  
 To God in Heaven !\*

---

And now, at the conclusion of a work like this, may we not well say, with Sharon Turner, that "the ocean has been formed with as much regard to taste and beauty as the earth; and yet, like the earth, it bears the impress of the curse; it preaches the moral, "Arise ye, and depart, for *this* is not your rest, because it is polluted."†

---

"There is sorrow on the sea."—Jer. xlix. 23.

"THERE is sorrow on the sea," when the loving cherish'd  
 boy,  
 His widow'd mother's solace, and his fair young sister's joy,  
 Gazes on their lessening forms, which he may behold no  
 more,  
 And with strangers goes to toil, on a distant, unknown  
 shore.

\* "Hymns and Songs for the Sick and Suffering." By T. V. Fosbery.

† Mich. ii. 10.

“There is sorrow on the sea,’ when the young and gentle  
bride,  
For new friends and foreign home, quits her tender parents’  
side ;  
Sweet sisters and companions blend fond wishes with their  
tears,  
And her hopes and joys are dimm’d by sad thoughts of  
distant years.

“There is sorrow on the sea,’ when the widow leaves the  
shore  
Of her late so joyous home, the wide sea to cross once more ;  
The desire of her meek eyes, by a stroke has been removed ;  
Like Naomi she returns, but without a Ruth beloved.

“There is sorrow on the sea,” when the transport-ship sets  
sail,  
And some among the convicts all too late their sin bewail ;  
They who think with breaking hearts of the shame and  
bitter pain,  
Bequeathed by them to loved ones, they shall ne’er behold  
again.

“There is sorrow on the sea,” when the raging storm beats  
high,  
And the riven vessel sinks, and no friendly bark is nigh ;  
And when the spreading smoke-wreath dread, proclaims the  
ship on fire,—  
From shore, from ship, no rescue—the crew’s last hopes  
expire.

“There is sorrow on the sea,” for that man, fall’n man, is  
 there,  
 And earth, and sea, and creatures, must awhile his sorrow  
 share ;  
 But a blissful kingdom cometh, where sin shall cease to be,  
 With death and sorrow, tears and pain, “and there is no  
 more sea !”

Behold, with clouds He cometh, who will make all things  
 new,  
 A heaven and earth all glory, far too bright for mortal view ;  
 Nor sun, nor moon, nor temple, in that shining world are  
 known,  
 For God the Lamb is all in all, on his eternal Throne !

MRS. VAN HAGEN.

---

To the Christian there remains this blessed prospect.—  
 Whatever may be the precise meaning of those words found  
 in the Apocalypse, “And there was no more sea,” they  
 surely relate to a time when all sin, sorrow, and imperfection  
 shall be for ever banished from the habitation of God’s  
 children.

---

“And there was no more sea.”—Rev. xxi. 1.

AND there was no more sea !”

Oh! words of peace and rest,

Breathing so tenderly

Calm to the troubled breast !



No more of chance and change,  
No more of doubts and fears,  
Of hideous things, and strange,  
That scare our tingling ears.

“And there was no more sea:”  
No more of darksome deeps,  
No more such mystery  
As in its bosom sleeps;  
No vast abyss of sin,  
No waves of wrath and pride,  
Nor whirlpools, that suck in  
Th’ unwary and untried.

“And there was no more sea:”  
No more of faithless crowd,  
Wavering restlessly,  
Fickle, and fierce, and loud;  
No more of tumult rude,  
No more of wild turmoil,  
Nor roaring multitude,  
Nor violence, nor spoil.

“And there was no more sea:”  
No more of sever’d hearts,  
Of that full agony  
When friend from friend departs.  
No more of parting tears,  
Of dim and aching eyes,  
Of weary, lingering years,  
When hope, slow-sickening, dies.

“And there was no more sea!”  
 Oh! words of peace and rest,  
 Breathing so tenderly,  
 Calm to the troubled breast.

ANNA J. VIDAL.

---

But while we anticipate with holy hope the glorious day when there shall be no more Sea, let us not forget that this great ocean, while it yet lasts, is to us a gracious gift of that God, of whom it is said, that “His way is in the sea, his paths in the great waters, and his footsteps are not known.” So feeling, we would close our pages with one last expression of admiration and delight.

FAREWELL, thou wonder of the earth,  
 Coeval, p'rhaps, with time,  
 That swept, ere yonder orb had birth,  
 Thy foam o'er every clime,  
 In darkness, ere the all-forming God  
 Call'd from thy depths the rock and clod;  
 Earth's image of eternity,—  
 The Sea, the Sea for me!

THE LAUREL.



## DIRECTIONS

FOR

### PREPARING SPECIMENS OF SEA-WEED, &c.

---

As we are not without hope that the sight of our specimens may prove an incitement to other collectors, we offer a few of the results of our experience as to drying and preserving Algæ and Zoophytes.

Different kinds of sea-weed require different treatment. The first thing to be done when taken from the beach and rock, is to wash it thoroughly in fresh water; some of the larger kinds will require several washings; many of the finer red kinds will improve in color, if left in spring water for some hours; but *Ceramium Rubrum*, on the contrary, must be suffered to remain in water but a very short time, all its color otherwise quickly disappearing.

The *Fucoidæ* may be dried and prepared much the same as land plants. The *Floridææ*, and all the finer sorts, require to be spread out on the paper introduced under them whilst floating in the water. For this purpose, a shallow dish is the best, and some fine steel instrument, not too sharp at the tip, for separating the branchlets: or they may be spread out on earthenware plates, the water being gradually drained from under them. If spread on paper, they should be left to drain for a few minutes, and then placed between other papers, under some moderate weight. A rug, or something of similar weight and absorbing quality, in a warm situation, answers remarkably well for this purpose; but they should not be placed too near the fire, or allowed to dry too quickly, as they will curl up. When they are quite dry, all the sorts in this book, with the following exceptions, will, with care, peel off the paper, and may then be placed in books to flatten.

*Rhodomenia Palmata* is one of the most difficult to dry, as it adheres to whatever it touches: it requires but slight pressure, and should be removed to the leaves of a book in two days. It is best to dry it on tin, or oil paper.

*Nyctophyllum Ocellatum* also dries best on tin or oil paper.

*Laurencia Pinnatifida*, ditto.

*Desmarestia Aculeata* should always be spread out when first gathered, as it soon becomes flaccid, and cannot be made to regain its stiffness.

The *Ulva* tribe require to be spread when first gathered, as they soon decay, and will not bear a second wetting. But nearly all kinds of seaweed, if thoroughly washed and dried when fresh gathered, will keep for any length of time, and on being put again into fresh water, will spread out as well as at first.

The *Bryopsis Plumosa* should be placed on the paper immediately from the rocks where it is found; it can afterwards be transferred to other paper under water.

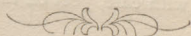
*Porphyra*, when arrived at nearly the last stage of drying, contracts almost immediately on being exposed to the air; the best way of obviating this difficulty is to have a book open ready to receive it, before the pressure is taken off the plant, and removing it quickly into the book, from the drying paper—there leaving it pressed until it is known to be thoroughly dry.

Zoophytes, Coralline, and Sponge, require only to be carefully washed and spread, and placed under paper when wet.

The best paper for drying sea-weeds, &c., is Bental's botanical paper, or grocer's cartridge paper: the more delicate kinds should be first placed between writing-paper, or manuscript-paper, which does equally well.

The best cement for fixing the specimens on paper, is thin gum water with flour stirred into it; the proportion is a large spoonful of flour in a cup of gum.

Seaweeds should not be placed in a tin box, as they soon decompose there.



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## ERRATA.

- Page 14. Note. For "J. Marchness," read "J. M. Mackness."  
 Page 52. For "Marine Botanist," read "Little Marine Botanist."  
 Page 53. ditto  
 Page 77. For "Isabella Knockmore," read "Isabella. (Knockmore.)"  
 Page 97. For "this yet unsettled?" read "of this yet unsettled?"  
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