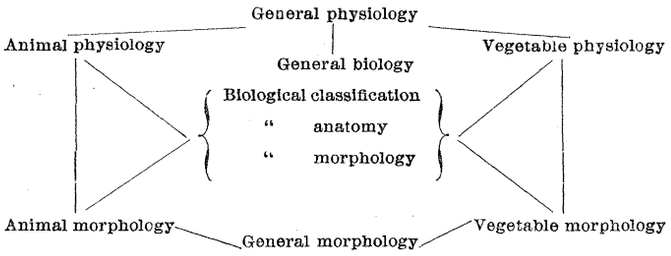
We have had for several hundred years the term physiology, which is the science of the life-phenomena.[1] There is no reason why we should not retain this name, and use it as it has been used ever since the revival of science in the sixteenth century. Biology is of later origin, it was born with evolution, and it is merely a branch of the all-embracing physiology. Biology does not consist of the entire sum of life-phenomena; it is the branch of physiology which treats of *the mutual relationship of the forms of organized matter, especially in view of the theories of adaptations and of natural selection.*

I wish to confine my remarks as far as possible to vegetable biology, and here I shall invite your attention to a very important paper by F. Delpino,[2] who regards biology as the main basis of Darwinism, and points out its importance for the theories of plant metamorphosis. With reference to the latter, we find that Warming[3] will admit only the "definition of metamorphosis" into the biology. Goebel[4] explains the state of affairs very logically in these words: "Biology regards the parts of the plants as if they were not limbs (in morphological sense), but organs, or tools," and thus he mentions one feature of biological investigation, namely, the study of correlation.

If physiology is placed at the head of natural science, and biology in its proper place as a branch thereof, we shall be able to see more distinctly how to reach the ideal, namely, the comparative physiology of animals and plants, for which so much material has been accumulated that we are able to grasp many important features of *life in general.* I have repeatedly[5] referred to this fact, but it will be admitted that the *fundamental definitions* must be logical and not ridiculous.

How biology, in the true and limited sense, branches out into the other departments of botany, I have shown in the following table. We have two features of living things: form and function, and, accordingly, the morphology and the physiology. The table shows



how we get a biological classification, or a comparative systematic botany, or zoölogy. Biological morphology is practically a morphology which deals with adaptations of the different forms to certain ends and comparatively regarded. Biological anatomy is teaching the structural adaptations in animals and plants from a comparative standpoint.

To apply biological characters and features to the systematic part of either zoölogy or botany will tend to make the registration of species and forms more valuable to physiology.

Probably it seems trifling to write quite elaborately about a question of definition. If, however, our fundamental definitions shall be not merely *adaptations for the extension of private power and influence,* we must consider them well. This is not only a question of logical consideration, but of scientific principles.

J. CHRISTIAN BAY.

Missouri Botanical Garden, April 27.

[1] See J. von Sachs, "Vorlesungen über Pflanzenphysiologie," 1887, p. 3.

[2] Fondamenti di Biologia vegetale, I.; Prolegomeni (Revista di Filosofia scientifica, Milano., I., 1880, No. 1, pp. 58-90). See Botanisches Centralblatt, vol. ix., 1882, pp. 333-335.

[3] Warming, in Meddelelser fra den bot. Forening i Kjoebenhavn, I., 192.

[4] Pflanzenbiologische Schilderungen, I., 1889, Introduction.

[5] See Science, March 24, 1893, p. 162; Bot. Gazette, xvii., 1893, p. 105; Biologisches Centralblatt, xiii., 1893, p. 38.

Epidermic Forms of Mental or Nervous Diseases or Disorders.

IT is very desirable that certain data should be gathered on "epidermic forms of mental or nervous diseases or disorders.' As an example of what is meant, I would instance "The Children's Crusade," which occurred in Europe; the persecution of certain individuals supposed to be possessed of witches in New England, and chorea, or St. Vitus's dance, occurring among school children; panic is another form very common, especially at the present day.

Could any of the readers of *Science* furnish me with any information of occurrences which have come under their notice or which they may have read about? They are certainly very common, for one reads of them very often in the daily papers. If some of your "live" readers would consider this subject seriously, and send so full reports as possible, they would not only be doing a personal favor, but would certainly be contributing toward an interesting and important collection of scientific facts.

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Color of Flowers.

I HAVE just seen Miss Neal's question in your issue of March 31, 1893, as to how to preserve the colors of flowers when pressing them. If some of your readers have not already sent a better recipe, the following may be found useful.

Immerse the stem of the fresh plant in a solution of 31 grains of alum, 4 of nitre, and 186 of water for a day or two, until the liquid is absorbed, then press the plant in the usual way, sift some dry sand over the flower, and submit to a gentle heat for about twenty hours.

I have found this process pretty successful. A. B STEELE.

Edinburgh, Scotland, April 28.

The Aurora.

IN my contribution to *Science,* April 7, on the above subject, no mention was made (as required by Dr. Veeder in his reply in the issue of April 28) of a particular instance of want of coincidence between auroral display and solar disturbance at the eastern limb, for the following reasons: First, because I have, so far, considered each phenomenon as being dissociated, or rather not connected in the manner stated; second, because I do *not* think it possible to point out such a want of coincidence with the very liberal limits of time evidently comprised in the term "eastern limb" by the advocates of this theory; and, third, amidst the bewildering number of instances, which must occur between even dissociated phenomena of such frequent occurrence, even when the limit spoken of is of reasonably brief duration, it is possible (most probable) that coincidence will be mistaken for cause. That this coincidence is not so great as claimed, seemed to me to be indicated by the results mentioned as obtained by Greenwich, as also by the same conclusion arrived at by Professor Ricco, as mentioned by Dr. Veeder; surely this is a fair assumption to make, if discussion of the same or similar records give results so widely different?

Personally, I do not wish to take any part in this discussion. Dr. Veeder's theory has constantly appeared in the press and by pamphlet without any attempted refutation; believing it to be founded on false premises, I have felt called upon to act as censor, failing any one else.

Granted a very large number of coincidences between auroral displays and the position of a disturbed area at the eastern limb of the sun; if Dr. Veeder will place a limit of, say, twenty-four hours for the term "eastern limb," and consider occurrences beyond this as not being coincidences, I believe he will find that there are as many auroras (I should be inclined with this limit to say, very many more) which occur without this particular solar source of energy as with it. Again, allowing *any* interpretation of the term "eastern limb," and, applying the same interpretation rigorously throughout, I think it will be found that the proportion of coincidences will increase from the minimum sunspot period to the maximum, and that this coincidence will vary