[THE BUILDING NEWS.]

THE RATIONAL DRESS EXHIBITION.

THE Rational Dress Association have at last done something toward putting their ideas of dress reform into practical shape, and the exhibition now open to the public at Prin es' Hall, Piccadilly, London, will be eagerly visited by all who desire to see what the reformers have to institute for women's attire as at present in fashion. It will be admitted, with some exceptions, that modern ladies' dress is a decidedly more artistic arrangement of drapery than that worn a few years ago. There is a closer study of the figure aimed at; the draperies hang with more grace, and are modeled with greater regard to the wearer's ease and movement. The Rational Dress Association appear to be rather divided in their views, and one of the chief differences between the would-be reformers is, to what extent the "divided skirt," as it is called, should be introduced into the new attire. The change, after all, amounts to the wearing

SKETCHES OF RATIONAL DRESS

of trousers—more or less ample, and concealed by the skirt, which Mrs. King would have reduced to shorter and more convenient proportions—instead of petticoats as an undergarment. The advocates of reform are agreed upon one thing, namely, that there shall be no longer a wilderness of frill and insertion below a lady's skirts. On the score of economy alone, there might, perhaps, be an advantage in substituting materials for the undergarments which required fewer changes. The association have drawn up certain rules, and offered prizes. A prize of £50 is offered for a dress fulfilling the following requirements: That it should allow freedom of movement, an absence of pressure over any part of the body, that there must be no more weight than is necessary for warmth, and both weight and warmth must be evenly distributed; that beauty and grace are to be sought and combined with comfort and convenience; and that the new costumes must not depart too conspicuously from woman's ordinary dress. It will be admitted that these are rational conditions, and accord with medical opinions that have been constantly advanced.

blue material. The skirt is not too short, and the trousers of washing silk with a bottom pleating show below it. The latter garment is, in fact, the usual riding trousers worn by ladies. Another model shows a still more pleasing costume for a girl of 12 of a light figured material, and made on the same lines. The mantilla of silk exhibited by Madame Brownjohn is a decided improvement upon the usual constricted style of those garments. The arms, instead of being tied or held back, as is generally the case, are free of movement, and the effect is as graceful as the most approved form of mantilla now worn. We illustrate one or two of these costumes. Confining our attention to dresses suitable for exercise, we find, with few exceptions, they are made up of dark gray or warm-colored merinos and serges, with divided undergarments. A cricketing costume, with a short, loose tunic and trousers, is a highly rational dress for such a pastime. In another case we see a walking dress, consisting of a divided skirt and polonaise, with flannel combination garments underneath of silk, sent by a Manchester modiste. A calisthenic dress, by Miss Fowler, exhibits a tunic and short skirt tied in at the waist with short gathered knickerbockers, which do not conceal the lower part of the legs, very well adapted for active exercise. A dress for tricycle riding, by Mrs. King, is a combination garment of the ordinary riding trousers and knickerbockers, and answers very well for the free movement of the legs. Lawn tennis, as a fashionable ladies' game, has not been forgotten by the new costumers of rational garments. It is a divided skirt and body of woolen or serge material, with smocked sleeves giving free movement of the arms and waist. The color is a bluish green. The dual divided skirt and tunic by Mrs. Beck, of Hyde Park Square, is also noticeable. While some of these possess all the requisites required by the committee, and avoid constraint of the body, we cannot altogether lose sight of the fact that there is a bagginess and fullness in them which are not very attractive to the admirers of the feminine figure, especially the bust. Nearly all of them have adopted the loose-fitting jacket body or tunic, and double continuations or trousers, generally kilted or gathered. In a few the trouser legs are baggy, and so large as to give rise to the objection that the substitution of them for the ordinary undergarments would not add to the comfort of the wearer. The general principle of suspending the dress appears to be to distribute the weight upon the shoulders, and not to let it rest on the hips. A working woman's costume of gray linsey, a combination vest and trousers with a loose tunic over, seems well suited for women engaged in factory work. One of these costumes is described as consisting of a stocking suspender, a combined suit of thin flannel, worn next the skin, with, for winter wear, a high-necked sleeved suit of thick flannel, and for summer a low-necked, short-sleeved suit of calico; a skirt, with shaped band, buttoned on the outer combined suit, of bats' wings, felt, or alpaca, and relieved by long kilts at the bottom. The figure is well sustained by a sort of crinoline. There are other models: one with a loose serge jacket, vest, and pegtop trousers and cloth gaiters; and another, exhibited by Mrs. Boecklin, of the United States, a kind of short paletot, with long vest and pegtop trousers. Both these are without skirts, and have been adopted by ladies in the United States for some time. A light serge boating dress, with long continuations, is a sensible costume for ladies who are fond of rowing. Our notice of the exhibition would be incomplete were we to omit to mention one or two very attractive evening costumes, one of which we illustrate (Fig. 8). It is exhibited by Madame Worth & Co., Parisian modistes, and shows a figure of a lady in a light dress of blue surate, large, loose, Albanian sleeves, freely suspended from the shoulders. The skirt is short, and with the trousers is hung from the waist. There is an elegance in the lines of draperies, which, however, may be deemed rather full, and the long, flowing character of the bodice is quite out of scale with the short frilled skirts. A dancing costume of blue satin and silk, trimmed with lace, waistcoat and jacket-body, is certainly an improvement on the dresses often worn at balls; and so is Madame Grace & Co.'s trouserless costume, though it departs little from the modern style.

It is rather too soon to offer any very decided opinions upon the merits of the new dress. Public taste and criticism are invited by Mrs. King and her colleagues; but we think there can be but one general opinion that the "divided skirt" or trouser costume as we are here confronted

hangs in graceful folds. The same firm sends other pleasingly draped figures. Mrs. Nettleship has also shown some good taste in her girl's dress, and for young girls the short skirt and simple gathered waist, with kilted terminations, are very becoming and exceedingly pleasing (Fig. 2). The smock-frock like gatherings to the wrists and neck are very suitable, and give an elegance and finish. A portion of this work is drawn in detail.

The exhibition must, of course, be viewed as a transitory stage of the dress reform movement. Invitations are offered for designs for the dress of the future for both gentlemen and ladies, upon the conditions laid down; though, as regards the last one, a greater departure from ordinary dress is permitted. It is remarkable so few have attempted anything in the reform of gentlemen's dress, and, to our thinking, it was chiefly in the dress of the male portion of society that an artistic reform was needed.

The following reference notes are descriptive of the specimens sketched as representative of the "Rational" dresses exhibited:

Fig. 1.—An admirable dress for a young girl, made in light figured stuff, suitable for summer wear. A long, flowing line is obtained by a fall from the neck behind and in front a wide pleat carries out the same idea. The drawers are of the same material as the rest of the dress, and lace frills form a finish for the neck and wrists. Madame Brownjohn is the designer.

Fig. 2.—Mrs. John T. Nettleship's gray green stuff dress, with buff trimmings and smock-frock like gathered wrists, and collar necking to the upper part, is a most successful dress, set off with a wide blue silk sash, and hanging pocket suspended from the high waist.

Fig. 3.—A navy blue jersey jacket and kilted to be worn over a skirt. The collar is an elegant feature and forms a sort of breastcoat fly in front; behind, it extends across the back from the armpits. Messrs. Debenham & Freebody are the makers.

Fig. 4.—This is Mrs. King's "Dress of the Future." The sparrowtail jacket is in figured velvet, trimmed with beadings at the edge to the sleeve openings and biceps. A heavy sash is brought round under the jacket in wide folds, and is tied in a large loop knot with a red silk pocket handkerchief tucked in to give a touch of color. The sleeves are in black satin, trimmed with a band of red satin at the wrists, and the trousers are in the same material, with red satin slashings. The several extremities are finished with lace.

Fig. 5.—A check blue jacket and navy blue dress, having a divided skirt in front and back halves, and below complete trousers. It weighs only 1 lb. 10 oz., and hangs entirely from the shoulders, being made in one piece. It is one of the most sensible dresses in the exhibition, and Mrs. Brownjohn is its author.

Fig. 6 has a port wine silk collar, trimmed with white lace, and the dress is made of figured white silk, enriched by old fashioned flowers in bright colors. The kilted petticoat is in white, with lace edging, making as a whole a very rich costume.

Fig. 7, by the same makers, Messrs. Debenham & Freebody, is a plain white serge jersey and skirt relieved by a port wine colored silk sash or girdle. The close fitting character of the bodice, with the high neck and the wide graceful folds or pleats of the skirt, make the dress an admirable one.

Fig. 8.—Madame Worth & Sons' ball dress in blue silk, trimmed with pearls. The arms are slashed with pink, and wide lace frills trim the sleeves and drawers and skirt flounces.

Fig. 9.—This is Mrs. Blair's, of Manchester, own dress. It is made in cinnamon colored diagonal serge cloth, and has trousers and belt to match. It is the climax of the Exhibition.

"PEAR GRIT" AS A CAUSE OF ANAL IRRITATION.

By DR. J. T. ROTHROCK, of Philadelphia.

FOR three successive summers my attention has been called to a case for which I can find no exact parallel in our

Looking at some of the costumes in the exhibition, some of which we have sketched herewith, it will be easy to find fault with details which a little more careful study of the figure would have avoided. The chief of these are the rather ill-modeled "dummies" on which the garments are shown. Mrs. King's red and black trousered suit (Fig. 4) is upon one of these frames, which certainly does not recommend the costume. Madame Brownjohn exhibits a very useful traveling dress, which can be easily converted into a dinner dress in five minutes without assistance. The style of the costume need not offend the most conventional taste. It consists of a rich plum-colored merino with the addition of a figured satin skirt, which the wearer can assume for evening attire at a moment's notice. Lace trimmings can be buttoned on the upper garments, and a handsome dress is at once produced. A robe with divided skirts giving full freedom of movement, and weighing only 1 lb. 10 oz., is made all in one. There is a sort of open jacket body and vest buttoned up with pearl buttons in front with elastic waist made of washing silk (a small blue check), a skirt of the same material. The vest trimmings are of a dark navy

with is not that best fitted for the female form. Even Mrs. King herself, in her lecture on "Dress," which we reported, has doubts in her own mind as to the propriety of the trouser as a proper covering, for she is willing to allow that it is not a very beautiful garment. To our mind it is far less graceful than the knickerbocker. To see two frilled trouser legs appearing just above the boot, and a few inches below the skirt, as in one Manchester model, might suggest a man in a woman's skirt; but nothing can be uglier. The Bloomer costume, and many of the peasant costumes worn on the stage, would be far more artistic as models. Every one will readily admit a shorter skirt than that usually worn is desirable and proper for ladies' walking dresses, and for working and factory women and girls it is absolutely necessary. The hanging of graceful drapery about the waist without restraining or fatiguing the body is almost essential to a perfect costume for women. Few of the reformers have been very happy in their ideas. One of the most successful attempts by Messrs. Debenham & Freebody we have illustrated (Fig. 3). Here the navy blue close fitting jersey conforms to without restricting the figure, and the skirt

"Pear Grits" i. e. Stone or Sclerenchyma Cells from the Pear. Clusters magnified about 200 diameters.

medical literature, and as it presents some marked features, is, perhaps, worthy to place before the medical public; especially as the diagnosis is easy, the treatment merely abstinence from the offending cause, and because, further, it may give a clue to many other cases with like symptoms.

The patient, a middle-aged strong, active man, very fond of fruit, each summer was taken with what he first supposed a "fit of piles." There was excessive pain on defecation, tenesmus, flattened feces, and a more or less copious discharge of blood. At one time the pain was so severe and so distinctly localized as to lead to the suspicion of fissure or ulcer of the anus.

The periodical return of these attacks was suggestive, and induced an examination for cause.

Among the fruits quite too freely indulged in by the sufferer were pears. This at once suggested the inquiry as to whether the "grit" that all, even the best pears, contained might not have to do with the trouble. On mention being made, it at once brought to mind the fact that on the paper used in the closet there were small white hard bodies, never larger than the head of a pin.

Examination by the microscope revealed the fact that in the feces there were quantities of bodies like those shown in the figure—clearly the so-called sclerenchyma, or stone cells, of vegetable histologists. This furnished the clew to the treatment, which was simply to abstain from the pears, a cure always following.

An idea of the hardness of these cells may be gained from the statement that they are of exactly the same material and hardness as the shell of the hickory nut.

One may readily understand from this, and from the numerous sharp angles a cluster of these cells show, that lodged in the folds of the mucous membrane at the verge of the anus, even if it were not in an inflamed condition, it would speedily become so, and that to an inflamed or ulcerated membrane it would soon prove an intolerable source of distress.—*Med. and Surg. Reporter.*

DEFORMITIES AND HERMAPHRODITISM IN CRUSTACEANS.

Compiled by C. F. GISSLER.

DR. WALTER FAXON recently* described and figured a large number of crustacean deformities and divided them into five categories, viz.:

Deformities: 1, of deficiency; 2, of excess; 3, of transformation; 4, of arrested development; and 5, of hermaphroditism.

1. In individuals of this class, certain parts normally present are wanting. They are never congenital among crustaceans, but result from accidental amputation of parts commonly restored by growth.

2. Under this head fall the majority of the monstrosities that have been described among arthropods. Professor Jayne lately described and figured such cases three years ago in the "Transactions of the Amer. Ent. Society," vol. viii. In these cases it is commonly the antennæ and legs which are the seat of the monstrous development, which usually take the form of a duplication or even triplication of the appendage. Among crustaceans these examples are very rare. In this category are included specimens of female craw-fish (fresh water lobsters) noticed by E. Rousseau with an extra pair of vulvæ on the basal segment of the fourth pair of legs, the oviduct of each side dividing into two branches after leaving the ovary.

3. Monstrosities of this class result from an organ being replaced wholly or in part by another organ. They are common in plants, but exceedingly rare in animals. They were noticed in *Prionus coriarius*, a European longicorn beetle, with two perfect legs in place of the wing-covers or elytra; in *Cimbex axillaris*, a stinging bee, with a claw like those of the tarsi (toes) on the end of the left antenna; in *Zygana filipendula* (a butterfly), with one of the hind legs replaced by a wing. Among crustaceans the only example of this kind of monstrosity is the *Palinurus penicillatus*, in which a flagellum like one of those of the antennules is developed from the center of a rudimentary cornea on the end of the eye-stalk. Monstrosities of this class are especially interesting on account of their bearing on the morphology of organs.

4. In *Lupa* and some other genera of crabs dimorphism occurs in the females, many full grown specimens having a narrow and acute abdomen, instead of a broad, roundish abdomen of the normal individuals. These females, upon examination, proved to be sterile, and may be properly classed among abnormal variations caused by arrest of development.

5. *Hermaphroditism*.—While numerous cases of hermaphroditic insects have been put on record by entomologists, but a few undoubted cases are known among crustaceans outside of those groups in which it is the normal condition, viz., the barnacles and certain isopods. One case is that of a lobster. In this specimen the right half of the body was female, the left half male, as regards both internal and external organs.

Another similar case has been recorded in a specimen of a fresh water shrimp (*Eubrana tipus*). An account has been given of three specimens of *Cheraps* with openings in the first segment of the third pair of legs answering to the sexual apertures of the normal female, coexisting with the normal male sexual orifices in the first segment of the fifth pair of legs. An examination of the internal parts showed the coiled "vasa deferentia" of the normal male opening out through the apertures in the fifth pair of legs. No ovary or duct leading to the openings in the third pair of legs was detected.

I now give an account of an interesting paper which at the time was unknown to Dr. W. Faxon. It appeared in the forty-ninth volume of the *Sitzungsberichte d. K. Acad. d. Wiss. I. Abtheilung*, Feb., 1874, by Wm. Kurz: "On Androgynous Malformation in Cladocera."

The entire literature of the Cladocera (crustaceans) does not know of a single case of hermaphroditic malformation. I recognized several specimens exhibiting both external and internal hermaphroditism. In October, 1873, at the time when the males began to become more frequent, I found among numerous male and female individuals of *Daphnia pulex* (water flea) a hermaphrodite, which first struck me by its peculiar formation of the antennæ (Fig. 1). The right antenna of the first pair was short, as in the female, and situated under the apex of the rudimentary rostrum; on the other hand, the left was formed after the type of the male antenna, without, however, having its usual size.†

It projected largely from beneath the short rostrum, bore on its tapering end the flagellum with a strongly outlined base and below the fascicle of short, cylindrical olfactory setæ, while on the anterior antennal margin, in addition, the small sensory bristle of the male antenna was inserted. Abstractedly from the difference of the two sensory antennæ, the entire habitus of the animal yielded already a sufficient number of differences in comparison with the adult female as well as also with the adult male. The side view of the body approached more the female structure, the dorsum was curved, the head was much less bent downward

than in the male; yet the rostrum was reduced, holding about the middle between the male and female rostrum.

The spine was likewise much shorter than in the female, but its position and direction were decidedly female. Still more, the anterior angle of the shell recalled the male character, which however did not so widely project as in the male, but nevertheless caused a gibbous interruption at the continuous rounding of this place in the female, and was on both sides densely beset with long bristles. The first pair of legs, like the antennæ, showed an unequal formation; the right leg was female, the left decidedly male, provided with a claw and flagellum.

In look the post-abdomen was female, but the genital organs were peculiarly malformed. On the right side the genital gland was represented by an ovary, plainly exhibiting germ-vesicles and fat globules of the yolk; the effering duct, however, did not, as in the females the ovaries do, i. e., discharge dorsally near the abdominal appendages, but the duct bent, parallel with the intestine, into the post-abdomen, where it could be followed by some distance, however leaving me the genital porus in the dark. The testicle was normally developed on the right side, and filled with zoosperms, the *vas deferens* also had its normal course. The incubatory pouch was undeveloped, and the three dorsal appendages, especially the uppermost, were also rudimentary only.

The size of the animal kept the middle between the size of the male and female, since, while the former measures 1 to 1.1 mm., and the latter always over 1.5 mm., the hermaphroditic specimen measured from the front to the base of the shell spine 1.34 mm.

Consequently, this individual, as a whole, was a laterally (though incomplete) separated hermaphrodite with the male sex predominating, which latter was especially expressed in the effering ducts of the genital glands. Previously, already, on August 4, 1873, I had come across a hermaphrodite of *Daphnia schafferi*, but could not study it up then on account of lack of time and on account of its lesser transparency. Nevertheless, I take its hermaphroditism as sufficiently proved already from its external characters (Fig. 2).

The dorsum was entirely straight and horizontal, as in the male; the *formices* (arches) ran out exteriorly and posteriorly in unusually acute angles, and continued in a widely projecting and dentate head, which ran parallel with the dorsal ridge, horizontally along the shell valves, and became gradually lower toward the posterior shell margin. The shell sculpture was normal, as met with in males and adult females; the meshes below the ridge were triple contoured, but single above it.

All other characters recall more the structure of the parts in females. The anterior angle of the shell, for instance, was evenly rounded, without gibbositities, lacking also the striking pilosity* of the males. The legs and the post-abdomen decidedly exhibited a female character; the uppermost of the four dorsal appendages was a little less than half as long as in adult females. The incubatory space remained undeveloped. The sensory antennæ only were of a pronounced hermaphroditic character; the right was female, but the left remained incompletely male, since it remained far behind the usual size, lacked the sensory bristle and the pennate bordure of the flagellum. This hermaphrodite, therefore, comes in the category of "mixed" hermaphrodites.

Finally, on November 1st of the same year I met with a hermaphrodite of *Alona quadrangularis* (Fig. 3). Its habitus was perfectly male: dorsum horizontal, rounded at the posterior angle. The posterior margin of the shell valves passed with a gradual curvature over into the lower margin, which ascended obliquely before the middle, and in the short anterior margin passed over in a projecting but dull angle. The entire lower margin was pilous; the angle especially was more densely beset with longer hairs. The greatest height was not, as in the female, posteriorly, but a little before the middle of the shell-length. The sensory antennæ were of the length of the rostrum, both equally long; terminally they bore the fascicle of the unusually long olfactory setæ; very close and above it was the normal sensory seta, but in addition to which, on the left antenna above the seta and a little exteriorly, was the flagellum, which is characteristic for the male sex; its length was inconsiderable. The legs of the first pair were different; on the right was a female leg; the left had a rudimentary hook, which was a good deal smaller and shorter than in the adult male. The post-abdomen presented the greatest irregularities. It was club-shaped, strongly broadened toward the apex, and provided with the aculeate armature of the female.† But the upper margin‡ was

totally anomalous, from the female as well as from the male structure, being gibbous and bulging;* the exit of the common *vas deferens* of the bilateral sexual glands occurred before the highest elevation. The relation of the latter was the same as in the above-mentioned hermaphrodite of *Daphnia pulex*. That is to say, on the left the male apparatus is fully developed, the testicle full of sperm, on the right neither sperm nor germ-vesicles could be found, but a yolk mass of smaller granules and large round fat-globules. Consequently this was an ovary with nearly mature eggs. Again, the effering duct was curved downward in the manner of the *vas deferens*. What particularly struck me was the unsymmetrical distribution of the fat in the body, since, while the left (male) side was almost without fat, the right side showed numerous orange-colored fat-globules embedded in the connective tissue. This hermaphrodite likewise held in size the middle between male and female. Some measurements show best the similarities and differences.

	Female.	Male.	Hermaph. I.	Hermaph. II.
Length from rostrum to posterior margin of shell . . .	mm. 0.84	mm. 0.72	mm. 0.8	mm. 0.74
Greatest height of shell valves	0.46	0.35	0.42	0.4
Length of post-abdomen inclusive claw	0.4	0.32	0.33	—
Greatest width of same . . .	0.1	0.094	0.11	—

The as Hermaphr. II. mentioned hermaphrodite was observed and figured in May, 1873. At that time I was not yet acquainted with the male of *Alona quadrangularis*, and took this hermaphrodite for a time for the male. Later on numerous specimens of males were at my disposal, when I succeeded artificially to domesticate them.† I then, of course easily found the numerous abnormalities of this specimen, but not till I found the above-mentioned hermaphrodite an understanding was obtained in the organization of the hitherto puzzling individual. The drawing represents the right side of the animal. The outline is male, both sensory antennæ are female, the right anterior leg is male; the post-abdomen shows the female aculeate armature; has the upper margin wrinkled, plicate-like; the *vas deferens* was plainly visible, but it discharged earlier than is the case in adult males. To my regret I did not examine the left side; the genital gland of the right side also escaped my attention.

These four described hermaphrodites I found within a short space of time and without having purposely looked for them; from this may be inferred that androgynous malformations among Cladocera are perhaps of more frequent occurrence. All circumstances point to this. The female which produces during its whole life again only females, shall suddenly, without an exterior motive, without preceding fertilization, commence to produce males. In such a male egg-germ a relapse into the female formation is presupposed. The facts also speak for this assumption, as all hermaphrodites were found at a time when the males just began to appear, and were still very rare; in this manner the transition from the exclusive generation of females to that of males would be brought about by hermaphroditic malformations.

CHILDREN SHOULD STUDY NATURAL HISTORY.

THE fear of inoffensive animals seems to be as truly a source of danger as ignorance of the harmful and venomous. Within a few days the children in a school in this city were panic-stricken by the entrance into the school room of one of the harmless insects known as the devil's darning needle. While no evil followed, the possible results of a panic are only too well known.

The occurrence, says the *Sun*, emphasizes the importance of general and thorough instruction for children in elementary natural history.

At the public schools, both in the city and in the country, the pupils should be taught something about the common animals, birds, insects, and plants of the region in which they live. They will thus learn to distinguish between that which is harmless and that which is harmful in animal and vegetable life, and their knowledge in this field will possess a practical value which does not belong to every branch of study, even in our public schools.

* Among the males of *Lynceidæ* this is not so rarely occurring; it even seems to be the rule with some species, that this margin has gibbositities. P. E. Müller found the male of *Pleuroxus personatus* (*Rhyppophilus glober*, Schoedler) provided with such a tail (loc. cit., Tab. IV., Fig. 22), and I can not only verify this statement, but add yet, that also the male of *Pleuroxus trigonellus*, O. F. Müller, possesses a similar post-abdomen, whereby a new proof is rendered to a contraction of the genera *Pleuroxus* and *Rhyppophilus*.

† It is usually stated that the males of *Cladocera* appear in fall. But I had repeatedly occasion to make interesting observations on these relations. On April 7, last year, I found females with ephippia and males of *Daphnia galeata* in a cistern in such a number as to render the water unfit for drinking. The day following I met with a new undescribed species of *Daphnia*, both males and females, in a small ditch, just about drying up. During the summer I visited several times this locality, near the town of Deutschbrod, and found after nearly every good rain the ditch filled with water and populated by the same *daphnia*; but as soon as the water began to evaporate, the males reappeared. The thought struck me to artificially imitate the process of drying up. Into a richly populated aquarium I placed a few cotton threads in such a manner over the edge of the glass that they with one end dipped deeply into the water, but that they with the other end reached into another, empty glass jar. Through the effect of capillarity the water very slowly began to trickle over, so that the water in the aquarium after two weeks was reduced to its sixth or eighth part. At this time the remaining water contained numerous individuals of both sexes of *Simnocephalus velulus*, *Eurycerus lamellatus*, *Alona quadrangularis* and *A. leydigii*, Schoedler, although it was but middle of May. But other similar experiments with *Macrothrix* and *Ilyocryptus* did not come to the point. On the other hand, however, the males of *Eurycerus* and *Simnocephalus* developed from themselves and without my meddling with them, in putrefying water; the females probably notice in the putrescence of the water a danger for their existence. From these observations I inferred that the males of *Cladocera* are not produced until that time, when the females begin to regard the waters of their habitation quantitatively and qualitatively as insufficient for the sustenance of their life. This makes its appearance, first, when the water evaporates; secondly, when it chemically changes; or thirdly, when it reaches an unbearable degree of temperature. These events must, moreover, go on sufficiently slow, to give the females time for the development of the male embryos. But the same degree of water putrescence does not hold good for all genera and species; some are very sensitive toward the least change of their vital relations, as, for instance, *Leptodora*, *Polyphemus*, the *Sida* and most *Daphnidæ*; the majority of the *Lynceidæ* appears to be less sensitive, among which again the genus *Pleuroxus* is marked for its endurance; but the highest degree of indolence possesses the *Bosminidæ* and *Lynceidæ*, of which hitherto the fewest males are known. There are perhaps species which, through the climatical influences of our districts, are not at all compelled to a production of males.

* Bulletin of the Museum of Comparative Zoology at Harvard College, vol. viii, No. 13. "On some Crustacean Deformities." Cambridge, Mass., March, 1881.

† Compare F. Leydig's illustrations of the male and female of *Daphnia pulex*, in his "Naturgeschichte der Daphniden," 1860, Tab. I., Figs. 1 to 5.

* Leydig, loc. citat., Tab. III., Fig. 23, and Tab. II., Fig. 21.

† P. E. Müller, "Danmarks Cladocera," in "Naturhistorisk Tidsskrift," III. Række, 1868, Tab. III., Figs. 29 and 31.

‡ I mean that margin which the animal in repose bears curved upward toward the venter; with stretched out tail it becomes the lower margin, and as such it must morphologically be interpreted.