

(*Motacilla*), *cirrhatu*s (*Pelecanus*), *australis* (*Sterna*), all of Gmelin, 1789 [suppression]; (6) *phaeus* (*Turdus*), *elegans* (*Motacilla*), *chlorotis* (*Muscicapa*), all of Forster, 1794, and *novae-hollandiae* Latham, 1790, *Muscicapa* [suppression]; (7) *Pyrhocorax* Tunstall, 1771 [validation, for the chough]; (8) *philomelos* Brehm, 1831, *Turdus* [validation, for the song thrush]; (9) generic name *Vermivora* and trivial name *lutea* (*Muscicapa*), *pennsylvanica* [sic] (*Passer*), *americ.* [sic] (*Vermivora*), all of Linnaeus, 1776 [suppression]; (10) *migratoria* Linnaeus, 1776 *Columba* [validation, for the passenger pigeon]; (11) *Bubo* Duméril, 1806, *Coturnix* Bonnaterre, 1790, *Egretta* Forster, 1817, *Oriolus* Linnaeus, 1766, [validation, by suppression of senior homonyms published by Brisson in 1760]; (12) *Capella* Frenzel, 1801 [validation, by suppression of *Gallinago* Brisson, 1760]; (13) *Myiobius* Darwin, 1839 [validation and designation of type species]; (14) *cyanea* Hume, 1877, *Muscitrea* [validation, by suppression of *cyanea* Vieillot, 1818, *Muscicapa*]; (15) *ferruginea* Hodgson, 1845, *Hemichelidon* [validation, by suppression of *ferruginea* Merrem, 1784, *Muscicapa*].

Comments on the above cases should be sent as soon as possible to the undersigned.

FRANCIS HEMMING

International Commission on  
Zoological Nomenclature  
28 Park Village East, Regent's Park,  
London, N.W. 1, England

## Color in Trilobites of Trenton Age

IN 1949, a slab of Trenton limestone was picked up from an outcrop beside Route 12, southeast of Watertown, N. Y. It appeared to be a typical, fossiliferous fragment. Recently, however, its dusty surface was cleaned under cold tap water with a nylon bristle brush, without any other cleansing agent, and the monotone mass of fossils suddenly showed bright shrimp-pink spots. Not only did the two recognizable fragments of carapaces develop this color, but numerous fragments, unrecognizable when dry, were identified as carapaces by the color change. Upon drying, a faint tinge of color was retained by the two larger fragments as long as the air remained humid, but the rest faded again into the gray background, to regain color only upon rewetting.

The rock is a somewhat argillaceous limestone with a brownish-gray ground mass. It appears to represent a strand phase of deposition, as the fragments are small and well sorted as to size. The trilobites appear to be *Calymene senaria* and are represented by shed and broken carapaces. The brachiopods show well-preserved but separated valves, mainly of *Plectambonites sericeus* and less abundant *Dalmanella testudinaria*. The crinoid stems have been recrystallized and appear white at the ends of the broken segments. Four varieties are present, but no crinoid heads were found except one too fragmentary for identification. The stems are broken into single disks to lengths

of 8-10 segments. The bryozoa are also broken, but none of the fragments is markedly worn, and detail is excellent.

There has been some infiltration of iron-bearing water between the close-packed layers and along joint planes, but the color is the normal red of iron oxide and not the same as that in the wet trilobites. Traces of the iron oxide remain when dry, especially about the joint cracks, but none was noted on the surface of the slab.

In discussing the matter with H. N. Coryell, it was learned that some trilobites in the Cincinnati area, from the Upper Ordovician or Lower Silurian, are pinkish in color, but no mention of color in any trilobites has been found in the literature.

The presence of color presents several possibilities. First, the chitinous carapaces may have absorbed selectively dissolved material in the ground water, which calcareous fossils let pass without change. The color of the absorbed material may have been modified in the process of addition to the chitin. Second, the pink may be the residual, natural color of a shed, sun-baked carapace, such as is seen in crab carapaces on modern beaches. Third, this may be the residual color of living trilobites, in seas as colorful as those of today.

The second possibility would indicate a crustacean characteristic of long standing. The third possibility might indicate that the browns, greens, grays, and mottlings of modern crustaceans are an overlay upon the primitive pink. It may be that the pink in modern forms is now restored only by boiling or sun-baking after death.

No study has been made of this matter beyond the observations and description reported here. This note is presented as a suggestion for further study by paleontologists and, perhaps, biologists.

M. W. GARRETSON

84 Carthage Road, Scarsdale, New York

## On Certain Problems of Taxonomists

IN a recent communication (SCIENCE, 116, 152 [1952]) R. I. Smith has discussed one of the problems of the use of names for experimental animals. This suggests to us another problem, which is frequently not recognized by physiologists and ecologists when trying to obtain identification of their experimental material.

The great majority of systematists (especially in marine groups) are not working at this discipline for a living but practice it on their own time. Only the museum specialists belong to the happy, fortunate band of those chosen to practice systematics for a living, and they are too often snared in red tape. In some groups, which may be favorite experimental or critical ecological material, identifications are exceedingly difficult and the number of competent specialists is very small. Furthermore, almost every specialist is loaded up with collections he has obligingly agreed to identify for some ecologist or research institution.

or he is continually being asked to make such identifications. If systematists were well organized and of ill-will, they could well bring much ecological and some physiological work to a near standstill by balking at these requests. Suppose the shoe were on the other foot. What would the physiologist say to a request from a taxonomist which went something like this: "Under separate cover I am sending you some specimens of *Exus yus*, the salinity tolerance of which I would like to have ascertained at your convenience"? Or, an ecologist, to: "Please provide an account of the position of these specimens in the Eltonian pyramid"?

The problem of how to compensate a systematist for the service of identifying species in a group that has taken him years to master has recently troubled curators at the U. S. National Museum. It has begun to be apparent that it is unfair to burden an obliging specialist with such work, and that many of them now have more than they can handle. The alarming decrease in taxonomists is in part to blame for this situation, which further aggravates the shortage of taxonomists in a vicious circle. However, how can one estimate what the fair fee for naming material should be? Should it be on a per diem basis, or so much per specimen, or by permitting the specialist to sell the types? And who should pay these fees? The individual researcher, or his institution? Or could payment be arranged on the basis of release from academic or investigational duties by the institution that employs the systematist?<sup>1</sup>

Obviously, we need more systematists than we have, and expressions from bystanders such as Smith are all to the good. They emphasize the need for more enlightened employment of taxonomists, for greater salary budgets for museums, especially our hopelessly understaffed National Museum, and for more enthusiastic acceptance of budding systematists as Ph.D. candidates in our graduate schools. Further, they emphasize the need for really useful monographs of particular groups, which can be achieved only if systematists are allowed to pursue their work without the interruption of extraneous duties. (Were we full-time practitioners of our specialties we would not, of course, consider the requests of physiologists and ecologists as extraneous to our work.) Perhaps it might also be well to consider the endowment of posts specifically for monographers, whose sole duty it would be to produce monographs, with adequate provision for printing their work. But that is another story.

JOEL W. HEDGPETH  
ROBERT J. MENZIES  
CADET H. HAND  
MARTIN D. BURKENROAD

8602 La Jolla Shores Drive  
La Jolla, California

<sup>1</sup> The possibility of establishing a closed union or guild of taxonomists, with set fees for identification services (with a special charge for naming new species after the collector), may be worth careful consideration. The writers would welcome suggestions.

## Survival of *Microfilariae* of *Dirofilaria immitis* in Rats and Mice

DURING an investigation dealing with canine filariasis, measured quantities of blood containing known concentrations of the microfilariae of *D. immitis* were injected subcutaneously and intraperitoneally into rats and mice. In both series viable microfilariae were found in the peripheral blood at least three weeks following injection. Although Fulleborn (in Kolle and Wasserman, *Handbuch Pathologisch. Mikroorganism.*, 6, 1044 [1929]) performed one similar experiment, he did not report the findings in detail. In addition to determining the longevity of these larval forms in an unnatural host, the present experiments raise the possibility of utilizing infected rodents for screening filaricidal agents. Further information will be reported in a subsequent publication.

PHILLIP H. MANN  
ITALO FRATTA

Department of Animal Care  
College of Physicians and Surgeons  
Columbia University

## Device for Transporting Kymograph Papers

CARRYING long kymograph papers between the smoking apparatus and the kymograph is a perennial problem in physiology and pharmacology laboratories. The apparatus for smoking and shellacking the papers is usually at some distance from the laboratory, and the common practice requires two people to slip the paper off the smoking apparatus and to walk carefully in lock step, maintaining the paper taut between their upraised hands. The return trip is even more hazardous in view of the value of the records on the kymograph paper.

Fig. 1 shows a simple device that has been used in this laboratory with complete satisfaction for the past three years. The dimensions are not critical and should be selected to fit the particular needs of a given laboratory. Basically, the device consists of two wooden bars *A* and *B*, approximately  $\frac{3}{4} \times 1$ ", which slide through two brass guides *C* and *D*. Guide *D* is provided with a wing-nut thumbscrew for clamping the bars in a given position of extension. On one end is

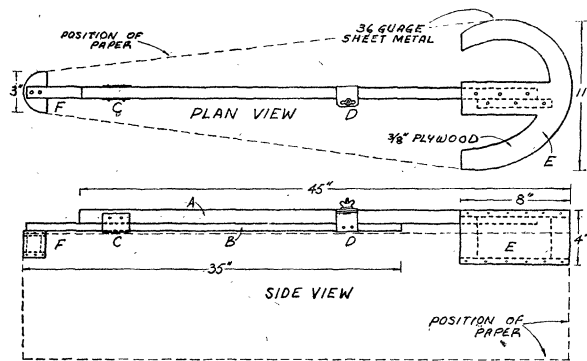


FIG. 1.