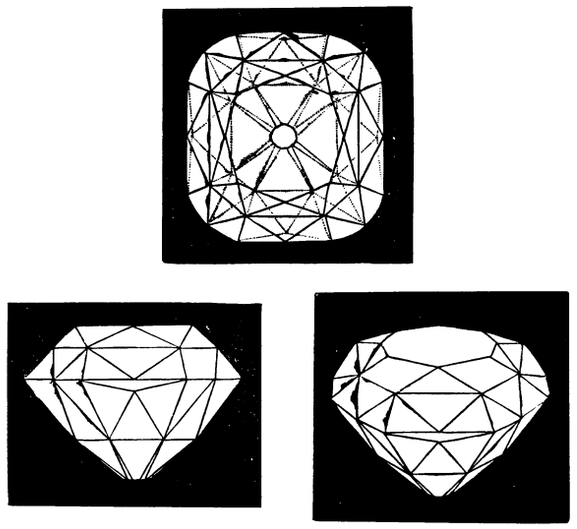
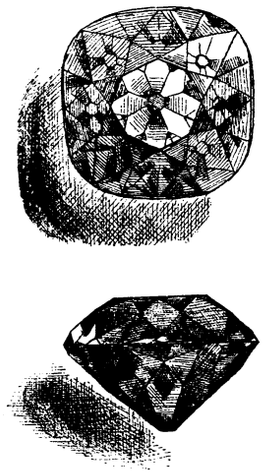
facets on the pavilion or lower side of the stone, and 17 facets on the girdle: total number, 101. Because of its deep color, this is a finer stone than the historical Star of the South (125 carats), which was purchased by the Mahratta, ruler of Baroda, for $400,000, at the French Exposition, 1867. It also rivals the Florentine, which, according to Schrauf's determination (*Sitzb. d. k. Akad. d. Wissensch.*, Band 54, Abtheil. i. Nov., 1866), weighed 133⅝ carats, and was sold for 2,000,000 florins, but is only a long double rose or drop, and not a brilliant.

The Tiffany Company No. 2 (see Figs. 8, 9) weighs 77 carats, is

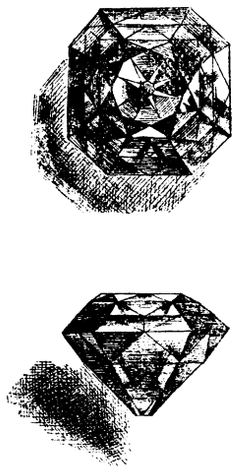


FIGS. 5, 6, 7.

of a light-yellowish color, is absolutely perfect, and is one of the few large stones that have been cut for beauty and not for weight. It is so evenly cut that it will stand on the culet, whlch is only of the regular size. This stone was exposed to a strong blazing sunlight for thirty minutes, two thermometers registering 110° to 120° F. during the whole time of exposure; and only a very faint, if any, phosphorescence was observed, although the stone was placed in a dark room within thirty seconds after exposure. It had been laid on a black velvet case during the whole time of the experiment,



FIGS. 8, 9.



FIGS. 10, 11.

and nothing came in contact with it while it was being carried to a place of darkness. Its specific gravity is 3.523+ at 60° F.; it measures 26 mm. (1 1/32 inches) in length, 25 mm. (1 inch) in width, and 17 mm. (11/16 of an inch) in thickness; there are 33 facets on the crown or upper side of the stone, and 25 facets on the pavilion or back; and, in addition, there are 55 small facets evenly distributed around the girdle.

Figs. 10 and 11 show a fine yellow diamond, weighing 51⅛ carats, also from South Africa, and recently recut by Tiffany & Co. in New York City. It is absolutely perfect, and without flaws. It measures 22 mm. (⅞ of an inch) in length, 22 mm. in width, 23.75 mm (29/32 of an inch) at the corners, and 15.75 mm. (⅝ of an inch) in thickness; there are 73 facets on the crown or upper side of the stone, and 49 facets on the pavilion or back; and the cutting, which is that of a double-deck brilliant with some of the lower crown-facets divided in two, is quite unique, forming a remarkably beautiful gem.

GEORGE F. KUNZ.

New York, Aug. 1.

Pars Propatagialis musculi cucullaris.

IN a previous number of *Science* (ix. p. 623) Dr. Shufeldt publishes an account of his discovery of "another muscle in birds of taxonomic value," — a muscle which he thinks unnamed, proposing for it the name '*dermo-tensor patagii*,' and of which he says that "Garrod, even if he knew of its existence, certainly overlooked" it.

This muscle is by no means a new discovery, nor is it in want of names. In the first place, it is Fürbringer's and Gadow's "*pars propatagialis m. cucullaris.*" Slightly modified, it is Viallane's "*temporo-alaris.*" Gervais and Alix are said to have called this muscle "*tenseur de la membrane axillaire*," and other names might also be quoted. That this muscle has not been "pressed into service with telling effect in taxonomy of the class" is simply due to the fact that Dr. Shufeldt's predecessors found that it did not have the taxonomic value which he seems to attribute to it. He seems to suppose that it is peculiar to the "true passerine birds," by which term I suppose he means the "*Oscines*," since he excludes *Tyrannus* and the "typical *Passeres mesomyodi*."[1] This is not the case, however, as the appended two figures demonstrate, which show that it is typically developed in at least some woodpeckers and parrots.

Dr. Shufeldt, in the paper alluded to, does Garrod great injustice. As I have already pointed out, the muscle is a well-known one, and it is quite unwarrantable to suppose for one moment that Garrod was ignorant of its existence ("even if he knew its existence"). When Garrod wrote his paper on the wing-muscles of birds, he had dissected about one hundred and fifty species of the most different groups of *Passeres* and picarians; and even if he was ignorant of the literature, which of course he was not, he could not possibly have overlooked so conspicuous a muscle. But the fact is, that in the paper in question he treats almost exclusively of the *tensor patagii brevis*, and *t. patagii longus* is only mentioned by the way. The muscular slip which inserts itself on the latter is therefore not at all mentioned, but that does not justify the conclusion that it was overlooked. On the contrary, in the numerous figures which accompany Garrod's paper, it is plainly shown in the only "true passerine bird" (oscinine) figured by him; viz., *Icterus*. And here Dr. Shufeldt grossly misrepresents Garrod. He says, "Garrod chose the wing of *Ramphastos cuvieri* to illustrate the arrangement of the patagial muscles in the *Passeres, but not a hint of this one is given*" (Italics mine).[2] Of course, Garrod did nothing of the kind: he was too good an ornithologist to believe that *Rhamphastos* is one of the *Passeres*. And in point of fact, Garrod expressly states that he presents the figure as representative of a typical picarian bird. That in this case "not a hint" of this muscle is given, should, then, no longer surprise Dr. Shufeldt.

The muscle in question is quite variable, but its true nature as a slip of the deeper portion of *m. cucullaris* (*panniculus carnosus*) may be plainly seen when dissecting such a bird as the English sparrow (*Passer domesticus*). In the free margin of the *parapatagium*, as I call the duplicature of the skin between the neck and the shoulder, which is only a continuation of the *propatagium*, you find a well-developed muscle, which, by means of a tendon at its distal end, inserts itself on the *tensor propatagii longus* at about the middle of the latter. The portion of *m. cucullaris* from which this slip is given off, in its upper extremity corresponds closely with Viallane's *temporo-alaris*, it being easily separated from the skin, and inserts itself on the head above the temporal muscle, while in its entire length it is separated from the dorso-medial line by a considerable space.

[1] See also where he speaks of the "passerine affinities" of *Ampelis* in contradistinction to the "clamatorial ones."

[2] That this is not a *lapsus calami* is evident both from the line italicized, and from the fact that in the explanation of Fig. 1 *Ramphastos cuvieri* is again referred to as "a passerine bird."

These parts are quite similar in the red-breasted grosbeak (*Habia ludoviciana*); but the upper portion of *cucullaris* is wider, apparently reaching the dorso-medial line, and is not so distinct from the skin. The propatagial slip is quite strong, and blends with the tendon of *t. propatagii longus* farther towards the metacarpus, although not distinct so far as in the swallow figured by Dr. Shufeldt.

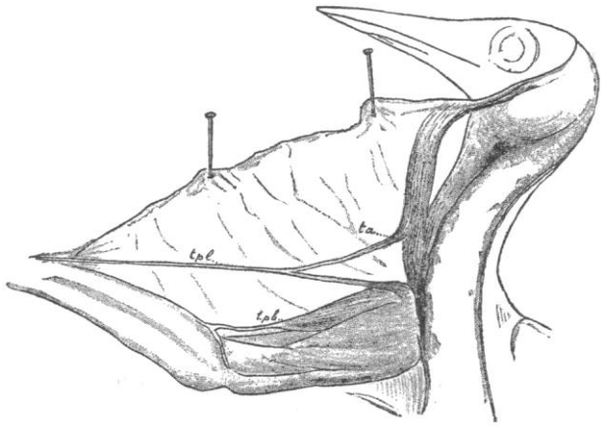


FIG. 1. — DORSAL VIEW OF THE PATAGIAL MUSCLES OF A WOODPECKER, COLAPTES AURATUS (DISSECTED AND DRAWN BY THE PRESENT WRITER).

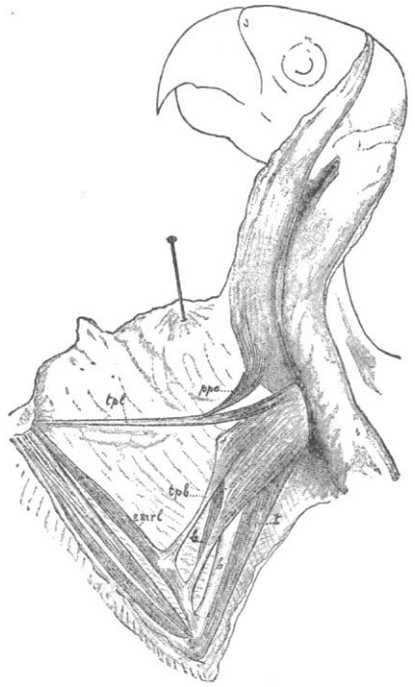


FIG. 2. — CORRESPONDING PARTS OF A PARROT, AMAZONA LEUCOCEPHALA (DISSECTED AND DRAWN BY THE PRESENT WRITER).

tpl, tensor propatagii longus; *tpb*, tensor propatagii brevis; *ta*, temporo-alaris, or *ppc*, pars propatagialis m. cucullaris; *b*, biceps; *t*, triceps; *h*, humerus; *emrl*, extensor metacarpi radialis longus. (Both figures one-third natural size.)

From the arrangement as I find it in a young flicker (*Colaptes auratus*), to that of the fully detached *temporo-alaris* of *Lophorina*, there is but a very short step, as will be seen from the accompanying figure (Fig. 1). The insertion on *t. propatagii longus* is more distal, however, than in *Lophorina*.

On the other hand, the case of *Amazona leucocephala* (Fig. 2) is more like that of *Habia;* but here again there is a difference in regard to the insertion of the tendon, it being more proximal in the parrot, though not so much so as in *Lophorina*.

From Dr. Shufeldt's description, it would seem as if, in the swallows at least, the temporal part of the muscle has become obsolete, — an arrangement corresponding exactly to that which Mr. Viallane found in the cockatoos.

In *Lophorina superba*, as shown by Mr. Viallane, the posterior end of *cucullaris* is the portion that has become obsolete. The parapatagial slip is here strongly developed, and the junction with *propatagialis longus* takes place rather close to the shoulder.

Dr. Shufeldt claims that this muscle in question is 'wholly absent' in the kingbird (*Tyrannus tyrannus*). In this case, also, I am forced to disagree. Upon dissecting a bird of this kind, I find the propatagial slip of *cucullaris* present, but it does not insert itself on *propatagialis longus*, nor does it develop any tendon at its distal termination. It inserts itself, however, on the skin just where it overlies the fleshy portion of *propatagialis longus*. As in the other birds examined, it follows the free margin of the *parapatagium*.

In a young *Sayornis phœbe* the arrangement is essentially the same, though less distinctly developed, only a few muscular fibres being traceable.

A cuckoo (*Coccyzus erythrophthalmus*) gave a similar result. The whole *m. cucullaris* was exceedingly thin, with the fibres greatly disconnected.

Returning to those species in which the propatagial slip joins the *tensor propatagii longus*, I wish to record the fact, that both in *Passer* and *Habia* I found the propatagial portion of *m. cucullaris* to give off a slight muscular slip to the base of the humeral feather-tract, the feathers of which it probably helps to raise.

This leads to the question as to the function of the propatagial slip. In the first place, it acts as a *tensor parapatagii*. When particularly developed in its proximal portion, as in *Lophorina*, it also raises the elongated neck-feathers, while special development of its tendineal portion aids in strengthening the *tensor propatagii*.

The fact that it occurs similarly developed in so distantly related groups as the parrots, the woodpeckers, and the acromyodian *Passeres* (or *Oscines*) robs it, to a great extent, of its taxonomic value; even were it proven to be present in all the latter, and absent in all the *mesomyodi*, of which we are by no means sure. The example, however, which Dr. Shufeldt adduces to show its importance, is not a very fortunate one; for no ornithologist who knows that *Ampelis*, the waxwing, and the cedar-bird have laminiplantar tarsus, rudimentary tenth primary, and acromyodian (oscinine) syrinx, has had any excuse for suspecting, during the last forty-five years, that its "clamatorial characters" are "predominating in its organization."

Since the above was placed in the hands of the publisher, Dr. Shufeldt has corrected (*Science*, July 29) the mistake in regard to *Rhamphastos* being a passerine bird, — a mistake which he said was caused by circumstances beyond his control. It is a matter of congratulation that he also presents a new drawing of the propatagian muscles of the swallows, in which he corrects the mistake of the former drawing, which represented the swallows as having a *tensor propatagii brevis* with an insertion similar to that of the picarian *Rhamphastos*.

LEONHARD STEJNEGER.

Smithsonian Inst., Washington, D.C., July 22.

Cause of Consumption.

IN the number of your journal for July 8 my respected friend, Dr. Donaldson, has a compact article on the cause of consumption. I agree to every word of it, but would suggest that he has not named one influence which for many years I have held to be a most potent one in New England, and also in Old England, in the development of that terrible disease; viz., residence upon a damp soil. This factor was first proved to be a powerful one in Massachusetts in 1862. Three years subsequently it was proved still more conclusively to exist in England by Dr. Buchanan, medical officer of the Local Government Board of that country. So far as I know, nothing has been done to prove or disprove whether it prevails over the whole world, or only on certain portions of it. I believe, from facts which I have already learned, that it is really a cosmic law. As it is desirable that it should be proved or disproved in this wide sense, I would respectfully suggest it as a subject worthy of the appointment of a world's commission, consisting of an able man from every country that may be represented in the International Medical Congress, which is to be held in Washington this autumn.

My professional experience since the law was first found to be