

which is an attempt to exhibit a portion of the internal surface of a large trachea near the external orifice, the membrane being hardly more, so far as the tænidia are concerned, than a mass of wrinkles whose folds project into the lumen of the trachea and are scarcely chitinous, when in that respect they are compared with what, for the want of a better name, I have called the completed tænidia.

The second object of my paper is to call attention to certain tracheal appendages which were discovered by Dujardin as long ago as 1849, and by him referred to in a brief note published on page 674 of *Comptes Rendus* for that year. Since then they seem to have been almost forgotten. These are internal, chitinous, hair-like bodies arising from the fold of the tænidia and projecting into the lumen of the tubes. Dujardin gives a list of the insects in whose tracheæ he has seen these hairs, and remarks upon the evidence which they afford as to the external origin of the tracheal intima. A few scattered references to the observation may be found in the European literature of the subject, with absolutely none in this country, with the exception of one contribution by Dr. Henry Shimer of Mount Carroll, Ill., in an elementary microscopical magazine, with one or two made by me in the same journal, my hope being thereby to interest amateur microscopists in the matter, and one or two additional notes by Mr. Fr. Dienelt in a similar magazine (*The Observer*, Portland, Conn.), intended to accomplish the same purpose. This occurred within the last two years, and with these unimportant exceptions, internal tracheal hairs seem never to have been noticed by any American microscopist, although insects possessing them are not uncommon. My own first acquaintance with them was brought about through the courtesy of my correspondent, Mr. Fr. Dienelt of Loda, Illinois, who sent me a slide of the tracheæ from the common Colorado potato beetle (*Doryphora decemlineata*), calling my attention to certain appearances within them which he was at a loss to interpret. These proved to be produced by tracheal hairs similar to those discovered by Dujardin, and since examining that preparation I have seen the appendages in the tracheæ from the ovipositor of the common house fly, whilst Mr. Dienelt has observed them in several other insects; indeed, it was he who called my attention to their abundance and to their great size in the tracheæ of *Zaitha fuminea*.

Whether they are of any importance in the economy of the insect possessing them, it is of course impossible to do more than to conjecture. Dujardin has called attention to their use as evidence in regard to the external origin of the tracheal membrane, referring to them as epidermal appendages, analogous to those of the wings or of the tegument.

In the larger tubes of *Zaitha* these hairs are so abundant that the surface is villous with them. They gradually become fewer as the tracheæ ramify and grow smaller, until they entirely disappear from the finer divisions. They arise from the chitinous folds of the membrane, rarely from the intima itself between the tænidia, and extend obliquely into the lumen, their free extremities usually being directed toward the spiracle. They are hollow, their minute lumen communicating distinctly with that of the tænidium, to which they are attached, or from which they arise by an enlarged base. Their length averages about  $\frac{1}{400}$  of an inch, although it is difficult to measure them with any accuracy, as they are rarely straight. The free extremity of each tapers to an exceedingly fine point, which is sometimes bifid, occasionally trifid. In Fig. 4 several are shown attached to the wrinkles of the tracheæ near a spiracle, and in Fig. 5 is exhibited a transverse section of a tube with the hairs projecting into its lumen.

The third and last of the points to which this paper is devoted is one which, so far as I have been able to ascertain, has not been previously observed as a part of the structure of any insect's tracheæ. These are certain minute, elliptical bodies in the tænidia, each with an internal, presumably glandular, appendage, to all appearance forming part of the tænidium from which it springs. Whilst these are numerous in the main trunks and in the larger branches where the hairs are abundant, they are more conspicuous and seem also to be more numerous in those that bear but few of these internal filamentous appendages.

The external bodies were at first supposed to be the remains of

hairs which had been broken away in the preparation of the tracheæ for microscopical study, but further examination soon dispelled that illusion, as the objects differ widely from the bases of the hairs, which are only thick-walled circular openings. The enigmatical bodies are more or less elliptical or elongate-ovate in contour, no two being of precisely the same shape nor of the same size, although in size they are rather more constant, the diameter varying from  $\frac{1}{8000}$  to  $\frac{1}{3000}$  of an inch, the length externally being about  $\frac{1}{3000}$  of an inch, or but little longer than the diameter of a human red blood-corpuscle. They are commonly in the tænidia, the lateral margins of the fissure within the latter separating to give them space, and they are perforated in the most irregular way, the small apertures varying in number and in form as the bodies themselves vary in shape, the openings occasionally being reduced to a single circular one. These objects are shown in Fig. 1, within the short tænidium beside the second on the left-hand side; in Fig. 3, where there are two in the broad, shallow folds of the membrane, and more in detail by Fig. 6.

Here again enters another application of the diatomist's black dot resolution which has made plain the structure of the secondary membrane of so many of those plants. In Fig. 6 the black dot resolution shows the perforations, which are always irregular in number and in form, with the space between the uneven edges of the tænidium, and, in the sketch on the right-hand side, the continuation of an aperture with the tænidial fissure.

These elliptical, cribriform bodies seldom occur on the tracheal membrane between the tubules. Occasionally they are seen to form the principal portion of a short, otherwise solid, tænidium, which to all appearance has been produced only to accommodate that special object. In such cases there is but one; usually a single tubule possesses several.

The perforations pass through the substance of the tænidium and are received, usually by means of a short pedicle, in a cushion-like, apparently glandular, body attached to the inner surface and projecting into the lumen of the trachea. In Fig. 7 are shown three of these glandular bodies, if they are glandular; and it is equally difficult to suppose that they are and that they are not. They appear under the microscope as collections of exceedingly minute, rounded apertures, which, in certain positions, may be seen to be continuous with narrow passages directed toward the pedicle, when that exists, and toward the external cribriform plate. Their structure in minuteness is comparable with the secondary structure of the diatoms, which I have so often mentioned, being as exquisite and as difficult to resolve, in this taxing the good qualities of the microscopist's best objectives. The thickness of the cushion-like objects is about  $\frac{1}{3000}$  of an inch, a space capable of being occupied by much microscopic structure.

Although they do not commonly occur on the tracheal membrane between the tænidia, they may be found there, as shown in Fig. 4, where is delineated a portion of a crumpled region of the membrane near a spiracle, with a few hairs and with several of these problematical, presumably glandular, bodies scattered about like so many islands in a sea of wrinkles.

What their function may be it is difficult to conjecture. Their position within the lumen of the tracheæ, and their connection with the external cribriform spaces, in no way simplify the problem.

Their presence, however, seems to add a unique scientific value to the tracheal tubes of *Zaitha fuminea*, to say nothing of microscopical interest. A microscopist, with a well-trained and intelligent microtome, to do his bidding, might be able to add much to our knowledge of the structure, not only of these apparently glandular organs of the pedicle and the perforated, elliptical objects, but of certain other regions of these remarkable tracheæ.

#### CURRENT NOTES ON ANTHROPOLOGY.—XXI.

[Edited by D. G. Brinton, M.D., LL.D.]

##### The So-Called Caucasian Race.

In a paper which he presented to the Moscow Congress last summer, M. Ernest Chantre, well known for his profound studies in the ethnology of north-western Asia, enters a remonstrance against the erroneous use of the term "Caucasian Race," as

synonymous with "White Race." I take the greater pleasure in seconding his protest, as in my "Races and Peoples" I discarded the term, and gave similar reasons as his own for denying its right to exist in ethnographic classification.

M. Chantre points out that it is demonstrable that none of the so-called Caucasian peoples ever lived in the Caucasus or can be traced to the Ponto-Caspian area. The study of local archæology proves that this tract was comparatively lately inhabited; that its occupants in early times, as to-day, had no ethnic unity, but were the *disiecta membra* of various stocks, who fled to these mountain fastnesses as asylums; that they are without linguistic or somatologic connection; and that the only proper use of the term is to apply it solely to the tribes occupying the main chain of the Caucasus, tribes who have no historic or ethnic identity with any others outside this area.

Yet so slowly does a correction of this kind penetrate popular science, which is nearly always made up at second or third hand, that the term "Caucasian race" will probably survive in school geographies and encyclopædias for a generation to come.

### The Unity of Religious Conceptions.

The curious similarity between the myths and other religious conceptions of nations far asunder in space and kinship has often impressed students, and has been explained in a variety of ways. An instructive comparison of the early Semites and the Indo-Germanic nations in this respect is given by Dr. W. Schwartz in the *Zeitschrift für Ethnologie*, 1892, heft. III. He shows that there is "a whole cycle of mythical conceptions and narrations which are common to Indo Germanic and Semitic peoples." The books of the Old Testament are a rich mine of such. Some of these can hardly be explained otherwise than as direct borrowing, or, as our author prefers, slightly varied versions from some original stock of conceptions belonging to a common ancestry. He is inclined to consider that the conservation of myths and religious notions is stronger than that of language even. He scarcely seems to allow enough latitude to the fact that certain impressions, which are the same everywhere, are likely to evoke similar expressions of the religious sentiment.

The article is an interesting contribution to the science of religion, and shows a proper understanding of its meaning; being, in this, singularly in contrast with the printed circular issued by those Chicago luminaries who represent the "Department of Religion" in "The World's Congress Auxiliary of the World's Columbian Exposition." This astonishing body has summoned a congress of teachers and members of all faiths, "to indicate the impregnable foundations of theism, and the reasons for man's faith in immortality;" blandly and densely unaware, it would appear, that one or both these dogmas are absent as religious elements in many highly-developed religions! What a spectacle for the world of science!

### On Demographic Neurology.

In Dr. Rockwell's letter about the relation of nervous diseases and civilization (*Science*, Dec. 30), he advances several very judicious observations on their prevalence in the United States, though disagreeing with me entirely on the general thesis. As Dr. Rockwell is aware, this is by no means the first time that I have joined issue with him and his friend the late Dr. Beard, on this subject. I shall not renew this discussion, which was carried on in various medical journals, but would ask the attention of readers who would like recent information on the subject to an article by Dr. Irving C. Rosse, professor of nervous diseases in the Georgetown Medical College, which appeared in the *Journal of Nervous and Mental Disease* for July, 1891.

It is entitled "The Neuroses from a Demographic Point of View," and, apart from its medical value, is interesting to the ethnologist as a contribution to comparative nosology. From quite an extended collation of authorities, he shows that there is as much, if not more, nervous disease in low stages of civilization and inferior races than in those which are higher. In the Dis-

trict of Columbia, for example, the decedents among the colored people from nervous diseases often exceed those of the white population thirty-three per cent. Dr. Rosse is inclined to believe that a sudden change in the social habits and condition of any race, at any stage of advancement, will result in a prompt development of neurotic disease. A high civilization, which is stable, excites such a condition less than instability in lower grades. This seems very reasonable.

### Ethnography of the Picts.

It used to be taught that the Picts, who once inhabited portions of northern Great Britain, were so called from the Latin *pictus*, painted, because they colored themselves with woad and other paints. They were believed to have been Celts, and linguistically allied to the Welsh.

Both these opinions have been challenged. Their name is a Latinized form of Gaelic *peht* or *peght*; and from the sparse fragments of their tongue preserved, scarcely anything more than lists of kings and names of places, it is quite possible that it belongs to an allophyllic stock.

Their material remains are believed to be the numerous earth-houses or *weems*, found in the Orkney and Shetland Isles, and in many parts of Scotland near the seashore. An excellent description of these has recently been privately printed at Edinburgh by David MacRitchie, under the title "The Underground Life." Many of these subterranean dwellings have been carefully explored by archæologists; but the results it must be said are disappointing. Few objects referable to the culture of the Picts proper can be discerned. The ancient notion that they were an undersized people seems borne out by the narrowness of some of the passages. They are not over four and a half feet high, and two or two and a half feet wide. The walls are of stone and sometimes also the roof. The *weem* is sometimes below the level of the soil, sometimes above it, and is then covered with a mound. Mr. MacRitchie gives a number of plans and illustrations. In the Hebrides these *weems* were inhabited as late as the close of the last century by a class of predial slaves of debased condition, called *sgalag*. Perhaps in this word is to be found the much-sought-for original of our colloquial term *scalawag*.

### The Craniology of Spain.

Two meritorious authors, Luis de Hoyos Sainz and Telesforo de Aranzadi, published last year an excellent survey of Spanish craniology under the title "Un Avance à la Antropologia de España." In text, maps, and tables, it displays the results of the examination of a number of series of skulls obtained from most of the provinces of Spain. The conclusions are drawn with calmness and under the proper reserves on account of the material from various areas being incomplete.

These conclusions point to the presence in prehistoric times of an "indigenous primitive race," characterized by dolichocephalic, leptorhinc skulls. These became modified by a series of invasions; first, of a brachycephalic people in the north, whom our authors identify with the Celts; then certain sub-dolichocephalic, leptorhinc peoples, supposed to be Visigoths, Suevi, and "Blond Tamau from Africa"; finally certain later Berber and Moorish hordes, which are described as dolichocephalic and platyrrhinc; though the Berbers in the latter respect have the same index as the average Londoner and Parisian to-day, that is, between 46 and 47.

The most interesting point of the discussion, that which is peculiarly the duty of Spanish craniologists to decide, namely, as to whether the primitive stock was identical in osteology with the Basques of the Pyrenees, is left unclear. The fact is, he would be a daring anthropologist who would positively say what the Basque type of skull is. The assertion of Quatrefages, that it is the *tête de lièvre* shape, has now no supporters in Spain. The evidence has proved inconclusive, and with it falls the theory that the Portuguese kitchen-middens are of Basque origin, as it was on such skulls that the theory was based.