The Origin of Punishment.

The young science of ethnologic jurisprudence is one of the branches of anthropology destined to throw unexpected light on the origin and significance of many of our daily customs and beliefs. A most important contribution to it has recently appeared from the pen of Dr. S. R. Steinmetz, on the early development of punishment ("Ethnologische Studien zur ersten Entwickelung der Strafe." Leiden, 1892). It is the second volume of the work, which, for various reasons, has been published first. His aim has been, first, to offer to students an extensive collection of facts drawn from the customs of primitive peoples regarding the question of punishments; and, second, to analyze their sociologic and psychologic significance.

The present volume begins with a chapter on blood revenge, tracing its development into the ordeal and the trial by battle up to the modern duel. The effects of blood revenge on social condition are pointed out, some being highly advantageous, others evidently injurious. The administration of punishment by the state is treated with much clearness and from a wide range of reading. It is shown to have developed from the systems of correction adopted in the primitive family, and was often in the nature of a compromise or blood money. Several chapters of special interest relate to the position of woman with reference to family feuds and revenge, and the authority over the males which she exerted in various communities, some of matriarchal, others of patriarchal constitutions. The intense bitterness of her feelings, and her ferocity, far ahead of that of men, are referred to and illustrated. The punishment of slaves and that of military discipline are also discussed. A curious closing chapter is added on the punishment by the gods, in this world and the next, and its influence on human punishments. It will be seen from this brief reference how extremely interesting the book is.

SCENTS AND THEIR RECOGNITION.

BY J. W. SLATER, LONDON.

THERE are some points connected with both the production and the recognition of odors by animals which seem to need further study. It is agreed that all species possessing the sense of smell at all, like and are attracted by the scent of their usual food, or of substances of a similar character. We have also evidence that animals are agreeably impressed with the specific odor of their own species, or of their own race or strain. On the other hand, they are disgusted and repelled by the emanations of hostile species.

These are results which we might expect on evolutionist principles, and which we actually detect whether we ascribe them to Professor Jäger's "soul-particles" or not. It is sometimes forgotten that peculiar odors not merely aid in the diagnosis of different human races but contribute no little to keep such races asunder. That the odor of the Negro or of the Australian "black-fellow" is repulsive to the white man is a familiar fact. But the aborigines of South America distinguish in the dark the smell both of the Negro and of the white man from that of their own race, and dislike the two former about equally. Even the two great branches of the white race, the Aryan and the Semitic, have a different and in many cases a mutually repulsive odor. During the recent anti-Semitic agitation in Germany and Austria the *Fœtor judaicus* did not escape comment.

At the same time we observe a few cases which we cannot well account for on the principles above laid down. Instance the feline group; the natural food of all such beasts is the flesh and blood of animals recently killed, and even in case of need, carrion. We might expect that beings habituated to such a diet would prefer odors not merely unlike but opposite to those which mankind select. Yet the fact remains that not merely the domestic cat but the leopard is passionately fond of the very same perfumes which we enjoy. Lavender, thyme,— in short, most plants rich in essential oils have a well-known fascination for the cat. Leopards have been charmed into docility and submission by means of lavender water. The difficulty becomes the greater if we reflect that nothing similar has been observed among the canidæ which have a much more acute sense of smell than the cats. I suspect, though I cannot furnish distinct proof, that the plants in question act upon the felidæ as aphrodisiacs. What may be the reason why cats so persistently browse away *Nemophila pulchella*? Its cultivation in London suburban gardens may be pronounced impracticable except under the protection of wire-screens.

THE PERCOPSIDÆ ON THE PACIFIC SLOPE.

BY CARL H. EIGENMANN, INDIANA UNIVERSITY.

THE Percopsidæ have hitherto been known from a single species having a very wide distribution. This species was discovered by Agassiz and described in his "Lake Superior."[1] He considered it a generalized type and relic of an older fauna. Professor Agassiz says (285): "Now the genus *Percopsis* is as important to the understanding of modern types as *Lepidosteus* and *Cestracion* are to the understanding of the ancient ones, as it combines characters which in our day are never found together in the same family of fishes, but which in more recent geological ages constitute a striking peculiarity of the whole class. My *Percopsis* is really such an old-fashioned fish, as it shows peculiarities which occur simultaneously in the fossil fishes of the chalk epoch, which, however, soon diverge into distinct families in the tertiary period, never to be combined again. . . . Now my new genus, *Percopsis*, is just intermediate between Ctenoids and Cycloids; it is, what an ichthyologist at present would scarcely think possible, a true intermediate type between Percoids and Salmonidæ."

During the past summer I made a series of collections of fishes through south-western Canada and the north-western United States. I collected in the streams emptying into Hudson's Bay and the Gulf of Mexico on the Atlantic side, and into Puget Sound and the Columbia River on the Pacific side of the continent. *Percopsis guttatus* Agassiz was found to be abundant in almost all the streams tributary to Hudson's Bay, from the Red River of the north to the Saskatchewan at Medicine Hat. In the Bow at Banff, at an elevation of 4,500 feet, it was no longer seen. The species seems to belong to the plains. It extends south to the Delaware River and Kansas, but is only rare south of the Great Lakes. It was not found in the Columbia at Revelstoke or at Golden, where collections were made, and which are nearly directly west of the localities where it was found to be so abundant, nor was it expected in these localities. When on my return trip I came to Umatilla, where the Union Pacific leaves the Columbia, and I noticed the favorable conditions for collecting, I concluded to stop, although the place was not on my itinerary and I would have but a short time for collecting. The Umatilla is a small stream which expands over a sand strip to form a shallow lagoon before emptying into the Columbia. I reached the station Sept. 6, at 5.20 P.M., and began work at once, as it was necessary to leave again at 4 the next morning. I was more than surprised to find that one of the most abundant fishes was a species of *Percopsidæ*, and that by this find the known habitat of this family was extended to the Pacific slope. Fishing was confined to the lagoon at the mouth of the Umatilla and to the Columbia immediately above this place. During the short time at my disposal over one hundred specimens of this family were obtained. No specimens were found in the Snake and its tributaries. It is really surprising that a species so abundant should have escaped detection till now unless its distribution is quite limited, as its absence at Golden and Revelstoke seems to indicate.[2]

The specimens prove to belong to an undescribed genus. The genus is more specialized than *Percopsis*, but still bears out Agassiz's idea of the family. It approaches much nearer the *Percidæ* than *Percopsis*, in that its dorsal and its anal fins are armed with strong spines, and its scales are much more ctenoid. In other words, its percoid affinities are much more pronounced than are

[1] Lake Superior: Its Physical Character, Vegetation, and Animals, Compared with Those of Other Regions. Boston, 1850.

[2] The elevation of Umatilla is given to be 300 feet by the Union Pacific Railway estimates.

those of *Percopsis*. The genera may be distinguished as follows: —

A. Dorsal with two feeble, slender, unbranched rays; anal with a single similar ray; scales most strongly ctenoid on caudal peduncle; posterior margin of preopercle entire or with feeble crenulations; form slender. *Percopsis.*

AA. Dorsal and anal each with two very strong spines; scales most strongly ctenoid on anterior part of body; posterior margin of preopercle with a few short but strong spines; form heavy, deep. *Columbia.*

Diagnosis of *Columbia transmontana* E. and E., sp., nov.: —

Head, $3\frac{1}{3}$–$3\frac{1}{2}$ (3 in the young); depth, $3\frac{1}{2}$–$3\frac{2}{3}$ (4 in the young); dorsal, II., $9\frac{1}{2}$; anal, II., $6\frac{1}{2}$; scales, 769–44 to 46–7.

Body comparatively deep, the dorsal profile more arched than the ventral, making an angle at the origin of the dorsal fin; sides compressed, caudal peduncle most so. Head short and chubby; eye equal to snout, about $3\frac{1}{4}$ in the head. First dorsal spine about equal to the pupil, second spine one-half length of head, recurved and very deeply grooved behind. Anal spines somewhat lower than the dorsal spines; ventrals reaching past vent. Nape, with the exception of occipital spine, scaled. Translucent in life. Color generally smutty. Side with three rows of more or less oblong blackish spots, the middle and superior rows most noticeable. Back with a series of similar spots, one being conspicuous at beginning and end of first dorsal. Dorsal mottled, caudal barred. Head smutty, a blue-black spot on middle of opercle, a narrow, silvery, lateral band. Young translucent, with well-defined dark spots.

The greater part of the specimens belong to the British Museum.

MICHIGAN MINING SCHOOL.[1]

THE committee appointed by you to act as a Board of Visitors to the Michigan Mining School respectfully report as follows: Finding it impossible to arrange a date which would enable the entire committee to make the inspection at the same time, two of us visited the institution on Wednesday and Thursday, March 30 and 31, and the third on April 8 and 9. We were cordially received, and every effort was made to place us in possession of the items asked for and appertaining to the duties assigned us. The examination was as careful and searching as time would permit.

The first visit was made during the progress of the regular work, aud the second during examination week at the close of the term. Thus the opportunity was afforded the committee of witnessing the work of students in the class-room and laboratories, as well as the results of that work as exhibited by the examinations. So far as we are able to judge, the work of the institution is being pushed along its legitimate lines and solidly and conscientiously performed both by students and instructors. The lectures indicated carefulness of preparation and thorough understanding of the subjects taught on the part of the instructors, and the character of the examinations showed that there was no disposition to accept less from the students. We were favorably impressed with the earnestness of purpose which seemed to pervade the students as a body, and with the manifest fitness of the members of the faculty for their special lines of work. Some of these men, we understand, left much more lucrative positions on account of their love for their specialty, and their desire to devote themselves exclusively to it. Such men cannot fail to do strong work. It was with regret that we learned, soon after our visit, of the resignation of Dr. Keller. He is unquestionably one of the ablest men in the institution. The building, rooms, laboratories, apparatus, and machinery all indicate efficiency on the part of those having them in charge. The Mining School is purely and distinctly a professional school, having for its object the practical training of its students in mining engineering, and we believe it is carrying out the purpose for which it was established. Of course, much of the theoretical is taught, but so far as your committee could learn, it is with sole reference to its practical bearing upon what is to follow.

[1] Report to Hon. Ferris S. Fitch, Superintendent Public Instruction, Michigan, by a committee consisting of D. A. Hammond, Perry F. Powers, and S. E. Whitney.

Although much time is spent upon theoretical mathematics, the object is to give the student a mastery of those principles which will be necessary in his after work of surveying and engineering. The students are then taken to the field and into the mines, and, under the guidance and direction of an expert (Professor Denton), are taught the practical applications of the principles learned, and other necessary operations of mining. The same methods prevail in the other departments of the school. It is this element of practicability in all the work of the school, in our opinion, which has brought to the school the very general support of the people of the Upper Peninsula and of mining men in particular. The consensus of opinion among all classes is that the school has a direct and financial value to the State. It promotes intelligence in methods of mining, develops inventiveness in the line of mining machinery, and directs thought to measures for securing greater safety to miners.

Your committee, or at least one member of it, before visiting the school had always regarded it as an expensive one considering the number of students enrolled. But after careful investigation at the school and an examination into the methods pursued by the Board of Control, there can be do doubt but that all means appropriated have been economically and intelligently expended. Of course it is well understood by all that technical education is necessarily much more expensive than general education, on account of the peculiar character of the work. The equipment, including buildings, laboratories, apparatus, machinery, and collections in geology, is very costly. A comparison of the per capita cost at the Michigan Mining School, however, with the cost at other similar institutions shows that the Michigan school is among the cheapest. This cost will decrease as the number of students increases. The faculty as at present constituted could undoubtedly handle a larger number of students than are now enrolled in the school (76), and yet the work of the various departments could not be satisfactorily performed with a less number of instructors. In fact, were it not for the union of the school and the geological survey, the faculty would have to be increased; but this arrangement adds to the teaching force for a large part of the year three skilled assistants, Drs. Lane and Patton and Professor Seaman.

This brings us to the consideration of the question of the union of the mining school and geological survey. We believe this arrangement to be mutually advantageous and a direct saving to the State. It places at the head of the Survey, as State Geologist, the Director of the school, Dr. Wadsworth, who is eminently qualified both as to scholarship and executive ability for the positions he holds, and strengthens the faculty of the school by adding to the teaching force the three capable members of the survey. With the means at the command of the Geological Board it would be impossible to retain the services of these men; but by dividing their time between the survey and the school, and receiving a part of their salary from the survey and part from the school the State is enabled to retain them in its employ. It also furnishes convenient headquarters for the survey and places at the service of the school its valuable geological collections. At no other place in the State could this collection be so well preserved and made of such practical value. The wisdom of locating the school where it is, is apparent to all who have ever visited this region. It is surrounded by some of the richest copper and iron mines in the world, and the student has the opportunity of making constant practical application of his studies. Some means, however, should be adopted at once to reduce the expense of living to the students. We understand that it is very difficult for the students to find rooms and board without paying exorbitant prices therefor. If means could be devised for relieving this condition of things it would be well, in fact, it is almost imperative that something be done in this direction. There ought to be a room at the building, also, large enough for an assembly-room. There are many occasions when it is quite important to bring the students together in a body. We believe, also, that the heating apparatus should be removed from the main building and placed in a building by itself.

The Michigan Mining School, we may say in closing, has come to stay; because it has demonstrated its fitness to live. Whatever