

extended the Egyptian dominion towards the south, and the supremacy of Tuthmosis III. seems to have been widely acknowledged throughout the Ethiopian region. When Amenhotep II., as we are informed by an inscription in the Nubian temple of Amadas, brought back from his conquests the dead bodies of the kings he had slain, one of them was sent to adorn the walls of Napata, the Ethiopian city now identified with Jebel Barkal. Amenhotep III., Horemhebi, and the more warlike Rameses or Ramessu I. are all mentioned as in possession of the Ethiopian supremacy, but as engaged from time to time in wars within the region. Amenhotep III. founded at Napata a great fortress-temple for the god Amon-ra of Thebes. A general revolt took place against Ramses II. and the importance of the wars that followed is shown by the extensive sculptures and paintings in regard to them still preserved at Ipsambul (Abu-simbel) and Beit Walli. During the XXII. Egyptian Dynasty the independence and power of the principal Ethiopian potentate had increased so much that Azerch-Amen, of Napata, the Zerah of the Biblical narrative, conquered all the valley of the Nile, and advanced against Syria and Judah; the defeat, however, inflicted on him at Zephathah by King Asa was so complete that he withdrew again within his original frontiers. Piankhi Meriamen, the priest-king of Napata, whose family had an Egyptian origin, took advantage of the confusion into which Egypt had fallen during the XXIII. Dynasty, and succeeded in establishing his authority; and for several generations Ethiopian influence was predominant in Egypt. Tirhakah especially was a monarch of great power, as is attested by his monuments at Napata and elsewhere. The great Egyptian Psametik was enabled by foreign assistance to restore a native dynasty; but the excessive favour which he showed to those who had helped him to his throne so displeased the Egyptian military caste that they emigrated to Ethiopia to the number, according to Herodotus, of 240,000. At Ipsambul (Abu-simbel) there is a Greek inscription on one of the great colossi of Ramses purporting to have been engraved by the Greek mercenaries who accompanied the expedition of Psametik against his runaway subjects. The Persian invader Cambyses, who brought the Egyptian independence to a close, failed in his attack on the Ethiopian kingdom; but the change in the condition of Egypt helped to open up Ethiopia to Greek enterprise and influence. Under the Ptolemies various Greek colonies—Dire-Berenices, Adulis, Arsinoe—were established on the Ethiopian coast of the Red Sea, and Greek learning was introduced into the Ethiopian court. Ptolemy Philadelphus invaded the country, but came to terms with the king, Ergamenes or Arkamen, who is reported to have relieved the royal power from the ecclesiastical bondage under which it had long suffered, by putting the priests to death and plundering their temples. Arkamen's name occurs on the monuments at Debod or Tabet. In the reign of Augustus, C. Petronius had to defend the Egyptian frontiers against an invasion under Queen Candace: in the second campaign he extorted the submission of the country, which continued nominally Roman till the reign of Diocletian. A garrison was established at Primis or Ibrim, and a troop of German horse had its head-quarters at Pselchis. There is still a very perfect Roman camp at Mehendi, to the south of Hierasykaminos. About the 1st century of the Christian era a new kingdom seems to have grown up at Axume. The king Zoskales is mentioned by the author of the *Periplus of the Erythrean Sea*, who also tells us that he was acquainted with Greek; he may be identified with the Za Hagalé or Hekla of the Ethiopian list of kings. In the sixth century the Christians of Yemen, being oppressed by the dynasty of Jewish proselytes who at that time held

the throne of the Himyarites, asked and obtained the assistance of the Axumite monarch; but the Ethiopian sovereignty thus established only lasted for about seventy years.

Compare Egypt, vol. vii. pp. 730-748; ABYSSINIA, vol. I., and the works of Salt, &c., there referred to; and in addition Lenormant, *Manuel de l'histoire orientale*; *Records of the Past*, vol. iv.; Vivien de Saint Martin, "Éclairc. geogr. et hist. sur l'inscription d'Adulis," in *Journal Asiatique*, 1868, published separately in 1864, and his *Le Nord de l'Afrique dans l'antiquité grecque et romaine*, 1863.

ETHIOPIAN, or Geez, is the name given in modern philology to a language of the Semitic family, which is still used in Abyssinia for literary and ecclesiastical purposes. It shows the closest affinity in grammatical structure with Arabic. The verb has ten conjugations, of which two are peculiar, and the remaining eight analogous to as many of the ten Arabic conjugations. The noun presents a greater similarity to the Hebrew noun, though at the same time it has decidedly Arabic characteristics. There is no dual form either in noun or verb. About a third of the vocables of the language have been traced to Arabic roots, while others find their counterparts and kindred in Aramaic and Hebrew. A considerable number of words have been imported from foreign tongues—some as mere exotics by translators and scholars, but many others through direct popular intercourse with foreign nations. Aramaic, Hebrew, and Greek have been chiefly laid under contribution, the last especially for words technical to Christianity. Of course it is often difficult to decide in the case of Aramaic and Arabic vocables whether they are real borrowings since the differentiation of the languages, or are part of the original common stock of the Semitic. There are at least two modern languages which have sprung from the ancient Geez, distinguished in modern philology by the conventional names of Tigrina and Tigré, both derived from the native Tigrā, which is applied to either indifferently. The Tigré, spoken by the half-nomadic races on the frontiers of Nubia and Sennaar is, at least among one tribe, the Habab, extremely like the parent speech; the Tigrina, on the other hand, is corrupt both in its sounds, its inflexions, and its vocabulary, and bears evidence more especially of Amharic influence. Tigré has been very partially investigated: Merx published, in 1868, a vocabulary and grammatical sketch; Munziger's vocabulary is printed in Dillmann's *Lexicon*; and a Tigré translation of the gospel of Luke by Kugler and Isenberg exists in manuscript. The Tigrina, or rather the Adoan dialect of the Tigrina, was treated pretty fully by Dr Prætorius in his *Grammatik der Tigrina Sprache*, 1872, and he has since published, in the *Ztschr. d. Deut. Morg. Ges.*, 1874, a paper on the two dialects of Hamasén and Tanben, which differ considerably in vocabulary as well as in pronunciation, but are mutually intelligible. Another dialect mainly of Ethiopic character is spoken by the people of Harrar, who form a small Semitic enclave in the Hamitic population to the east of southern Abyssinia. Its peculiarities have been investigated by Burton, *First Footsteps in East Africa*, 1856, and by Prætorius in *Ztschr. d. Deut. Morg. Ges.*, 1869. The affinity of the Geez alphabet has given rise to no small discussion: Ludolf brought it into comparison with the Samaritan, De Lacy with the Greek and Coptic, and Lepsius with the Devanāgarī, but in the opinion of most Semitic investigators, its Semitic origin has been proved by the discovery of the cognate Himyaritic alphabet or *musnad* (cf. Renan, *Hist. des Langues Sémitiques*, p. 308).

The literature of the Ethiopian language, like that of Armenian, is almost exclusively Christian, and, indeed, with comparatively slight exceptions, theological or ecclesiastical. Only a few inscriptions have been preserved of the pre-Christian period, the most notable being those of Axum

and Adulis, but it is not improbable that light will be obtained on the earlier times from the inscriptions of Southern Arabia, which are beginning to receive special attention. The language of the Axum inscriptions is the same as that of the Bible, and contains the Amharic element. The forms of the letters vary, and the older forms are like the Himyaritic. Vowel signs are irregularly employed, and sometimes omitted, and the numeral notation is peculiar. The work which forms the standard of a classical style is the version of the Bible. According to native tradition it was made from the Arabic, either by the first bishop Frumentius (Abba Salāmā) or by the "Nine Saints" of the 5th century; but internal evidence goes to prove that it was really derived from the Greek version in use in the Alexandrian church. In the course of centuries it has undergone numberless alterations at the hands of copyists; but even its most corrupted condition leaves it clear that it must have been characterized by great fidelity to the Greek text. Among the MSS. of the Old Testament Professor Dillmann distinguishes three classes: the first, which seldom occurs, preserves in the main the original translation; the second, and most numerous, contains a text revised according to the Greek; and the third has been improved by comparison with the Hebrew. Besides the ordinary canonical books of the English Bible, and the ordinary apocryphal books, with the exception of the Maccabees, the Ethiopian canon includes a number of works of various interest and value, as the Kufale or Book of the Jubilees, the Book of Enoch, and the Ascension of Isaiah,—concerning which consult APOCALYPTIC LITERATURE, vol. ii. The books of the Maccabees were either never translated or have been lost, but their place has been supplied by spurious productions of the same name. Several apocryphal books are also incorporated with the New Testament, which is usually reckoned to contain 35 altogether. It was printed in 2 vols. at Rome, 1548, in the London Polyglot, and in 1830 by the London Bible Society, under the editorship of Th. P. Platt. Dillmann published the Octateuch, Leipsic, 1853, the four books of the Kings, Leipsic, 1861-1871, Enoch, 1851, and the book of the Jubilees, 1859; and R. Lawrence published the *Ascensio Jesaia*, 1819, and the *Apocalypse of Era*, 1820, at Oxford. (Cf. Dillmann's article on the *Äthiopische Bibelübersetzung* in Herzog's *Real-Encyclopädie*, 2d edition, 1877.) Of the numerous works which rank as ecclesiastical authorities in the Ethiopian church, it is sufficient to mention the *Cyrrillus*, which contains, not only several dogmatic treatises of Cyril of Alexandria, but also similar productions of several others of the fathers; the *Synodus*, which includes, *inter alia*, the constitutions and statutes of the apostles, the canons of the councils of Ancyra, Neocæsarea, Sardis, Antioch, and Nicæa, an exposition of the Nicene creed, and an exposition of the Decalogue; the *Mafshafa kidān za egriena Iyasus*, or the Testament of our Lord Jesus (usually quoted as the *Kidān*), which treats of various ecclesiastical, liturgical, and eschatological matters; the *Genzat* or *Mafshafa Genzat*, and the *Mafshafa Kedr*, containing respectively the burial service and other sections of the ritual; the *Philexius*, a

monastic treatise, probably translated into Ethiopic in the 14th century, and deriving its name from Philoxenus of Manbig. Among the poetic works are a collection of hymns in honour of the saints of the Ethiopian calendar, entitled *Erziabkhan nagsa*, or "May God reign," and the *Organona Maryām*, a eulogy of the Virgin in rhythmic prose. The MSS. of the *Mavāsēt* or *Antiphonary* sometimes contain an interesting musical notation, which, according to native tradition, was introduced by a saint who lived in the 6th or 7th century. Certain works called *Savāsev* or guides are devoted to the illustration of the Ethiopian language, but they are very poor, and make no distinction between grammatical, lexicographical, and historical-scientific information, standing thus on the same level with such a work as Elyot's *Latin Dictionary*. The historical works, as for example those concerning Alexander of Macedon, are of little moment; and the real value of the lists of early kings of Ethiopia is still a matter of dispute. According to Prætorius, one of the most recent investigators (*Ztschr. d. Deut. Morg. Ges.*, 1870), all the statements made in Ethiopian literature about the earlier history of the country have been in the main derived from Arabic legends not earlier than the 14th century, and then reconstructed with the assistance of the king-lists, which alone have some degree of historic credibility. The European libraries which possess the richest collections of Ethiopian MSS. are the British Museum, the Bodleian, the Royal Library at Vienna, and the National Library at Paris. Ruppell's collections are preserved at Frankfort-on-the-Maine, and Krapff's at Tübingen and Würtemberg. The Bodleian catalogue was published by Dillmann, 1858; D'Abbadie's *Catalogue raisonné de manuscrits éthiopiens* appeared in 1859; and a list of the Magdala collection in the British Museum, consisting of upwards of 300 MSS., was contributed to the *Ztschr. d. Deut. Morg. Ges.*, 1870, by William Wright. Ewald gives a list of the Würtemberg MSS. in *Ztschr. für die Kunde des Morgenlandes*, 1843, and of the Tübingen MSS. in *Ztschr. d. Deut. Morg. Ges.*, 1847. Dorn had already made known the few works possessed by the St Petersburg library, in the *Bull. de l'Acad.*, May and October 1837. The Vienna collection is dealt with by Fr. Müller in *Ztschr. d. Deut. Morg. Ges.*, 1862. The first scholar who turned his attention to Ethiopian was Potken of Cologne about 1513. A grammar and dictionary were published by Jacob Wemmers, a Carmelite of Antwerp in 1638; and in 1661 appeared the first edition of the great lexicon by Job Ludolf, who, in the 1702 edition, prefixed a *Dissertatio de harmonia lingue æth. cum. cæl. orient.*, and was also the author of *Comment. de Hist. æth.*

Modern works connected with the subject are:—Hupfeldt, *Exercitationes Æthiopicæ*, 1825; Dorn, *De psalterio æthiopico*, 1825; Tuch, *De Æthiop. lingue sonorum proprietatibus quibusdam*, 1854, and *De æth. lingue son. sibilantium usu*, 1854; Ewald, *Ueber des æthiop. Buch's Henokh Entstehung*, 1854; D'Abbadie, *Hermæ Pastor Æthiopicæ*, 1860; Schrader, *De Lingua Æthiopicæ indole*, 1860; Ceriani, *Monumenta sacra et profana e codicibus Bibl. Ambrosianæ*, Milan, 1861; Rodwell, *Æthiopic liturgies and prayers*, 1865; *Physiologus æthiopicæ*, 1877.

ETHNOGRAPHY AND ETHNOLOGY

I. *Definition*.—Ethnography embraces the descriptive details, and ethnology the rational exposition, of the human aggregates and organizations known as hordes, clans, tribes, and nations, especially in the earlier, the savage and barbarous, stages of their progress. Both belong to the general science of anthropology or the natural history of mankind, being related to it as parts to a whole. Ethnography and ethnology, indeed, run up into

anthropology as anthropology does into zoology, and zoology into biology. No very sharp line can be drawn between these two sciences themselves, their differences being mainly those between the particular and the general, between the orderly collection of local facts, and the principles according to which they may be grouped and interpreted. Ethnographers deal with particular tribes, and with particular institutions and particular customs

prevailing among the several peoples of the world, and especially among so-called savages. Ethnologists bring simultaneously under review superstitions, legends, customs, and institutions which, though scattered in distant regions of the earth, have some common basis or significance. Ethnography and ethnology run as easily one into another, as the two sections of general anthropology, viz., (1) *anthropology* proper, as expounded by anatomists and physiologists, who deal with the different races of man, their elements, modifications, and possible origin; and (2) *demography*, which, as constituted by the researches of Quételet and his friends and disciples, as Farr, Galton, Guillard, and Bertillon, treats of the statistics of health and disease, of the physical, intellectual, physiological, and economical aspects of births, marriages, and mortality.

Ethnography, ethnology, and anthropology are interwoven with philology, jurisprudence, archaeology, geography, and the various branches of history. A fact may require to be investigated successively by linguists, anatomists, and mathematicians. In current language ethnography and ethnology are often used indiscriminately, but if a distinction is to be made between them, an instinctive perception teaches us to speak of ethnographic facts and ethnological theories, of ethnographic literature and ethnological science,—ethnology being related to ethnography as the wine to the grape.

II. *Division*.—Just as the lines which separate ethnology, anthropology, and history one from another are vaguely traced, so are the boundaries of the several provinces of ethnology themselves indefinite. We are obliged, for the sake of convenience, to draw up classifications, but the more rigorous we make them the more artificial they become. "Nature," as Lamarck has said, "recognizes neither kingdoms, nor classes, nor orders, nor genera, nor sub-genera; nature recognizes nothing but individuals." The older sciences may be tabulated to a degree which the younger sciences cannot allow, and ethnology is one of the youngest of all,—its existence, even its name, not dating further back than the present generation. Ethnologists are pioneers in a new field of inquiry,—squatters in the Far West of learning. Intent on opening the first paths through the dark forest of prehistoric times, on driving the first plough through these virgin prairies, they erect no structures which pretend to more than a provisional character. They throw up now a log cabin, and now a wooden shanty, leaving to their successors the work of building substantial houses of brick, and in the far future stately edifices of enduring marble.

At first sight it might appear convenient to divide ethnology into two great branches:—(1) *historic ethnology*, comprising researches into the origin, the filiation, the customs and institutions of wild and barbarian tribes still existing, or of whom we have authentic records; (2) *pre-historic ethnology*, comprising similar researches into the early condition of man, but founded necessarily on deductions, and not on positive testimony. But the fitness and the simplicity of this division are more apparent than real. The two sections as thus indicated cannot be treated apart, because so few or incomplete are the vestiges of prehistoric man that they cannot furnish a basis for sound theories unless these remains are studied in the light of the knowledge which we possess of tribes existing in the non-civilized state, and who thus form the connecting link between historic and prehistoric man. Being a part of natural history, anthropology deals principally with the question of the several races, their anatomy, physiology, and pathology. It seeks to determine which are the permanent varieties, by the crania, by the facial features, by the stature and proportion of the body, by the microscopic structure of the hair, by the colour of the skin. It analyses the great

problems of evolution. It assigns to food, to climate, to what the French call the *milieu*, and the Americans "the surroundings,"—the share which each has had in producing or fostering the variations of human types. Ethnography does not discuss anew the solutions, presented by anthropology, but accepts them as generally true, and observes if they fit and work satisfactorily in its department. The task, thus limited in order to secure its better execution, is still a gigantic one. Human development branches out into a multitude of ramifications, which may be brought under the following heads:

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| 1. Material Development. | 4. Intellectual Development. |
| 2. Family | 5. Religious |
| 3. Social | 6. Moral |

III. *Method*.—Astronomy starts from the principle that the laws of mathematics and those of light and matter are universal,—that they are true not only on the earth but throughout the universe. Ethnology takes its stand on the assumption that the laws of intelligence have always been what they are, and have always operated as they do now, that man has progressed from the simple to the complex, from the particular to the general. This assumption does not interfere with the discussion which the anthropologists carry on respecting monogeny or polygeny,—that is to say, the common or multiplex origin of the different races which inhabit the earth, nor does it affirm that the progress has been always continuous and well-marked. It recognizes the fact that some races may have been stationary and some may even have retrograded. It postulates simply that mankind, whatever be its origin, is, or has become, a mass practically homogeneous, more uniform than diverse. The wide differences between civilized and uncivilized man are now admitted to be only differences in degree,—actual civilization being the adult age, and savagery the infancy of mankind. "The conditions and habits of existing savages," says Sir John Lubbock, "resemble in many ways those of our own ancestors at a period now long gone by; they illustrate the earlier mental stages through which the human race has passed." To the casual observer, savages seem to be, as to Dr Johnson, all alike, and in fact they are so in comparison with ourselves; but to the close observer who compares savages with savages, they are easily distinguishable. Although contemporaries, they are separated by differences in culture so great that it would seem the work of centuries for the more backward to attain the state already reached by the more advanced. Great, indeed, are the facilities which ethnology confers on the historian who may, for example, explain the condition of the Israelites under the Judges by that of the Maories of New Zealand, as they were almost within the present generation, or may compare the earliest Aryan races with the Malay-Indian populations of to-day. By its aid the philosopher may trace an institution through all countries and in every period, accumulating illustrations of its progressive stages, and piecing them together in their natural sequence like the scattered bones of an extinct animal. Uncivilized countries are for us a standing exhibition of prehistoric matters, museums where we find duplicates of objects which were thought to be lost or which were forgotten; each of them is a Pompeii, exhumed from beneath the rubbish of ages. To study wild tribes is, as it were, to discover in the forests of Central America an ancient city, not crumbling and desolate, but still inhabited by a race preserving the old Maya habits and manners. The laying bare of all these scientific riches gave the impulse to which we owe ethnology. It does not require much reflection to understand that the principle just developed is an instance of the great law of evolution. According to the naturalist of the modern school, evolution has transformed successively the

animal genera; according to the anthropologist, it has transformed the races of man; and, according to the ethologist, it has transformed human thought. It must be confessed that evolution has yet opponents who contend that history records, not progress, but degeneration from a state of innocence and bliss, from an age of gold or Saturnian cycle. This doctrine, borne out by the unanimous testimony of all tradition, was assumed at one time to be beyond dispute, and had nearly become an article of faith. But in recent times it has not remained unchallenged. In answer to its assailants, the theory of degeneration has, within this century, been reasserted with great ingenuity and vehemence by ultramontane writers, such as De Maistre and De Bonald, and in our own country it has been more recently defended by Whately with characteristic vigour. But an effective reply has been given by such writers as Lubbock and Tylor, especially the latter, who concludes an exhaustive discussion by these words, to which most ethnologists will subscribe:—

"We may fancy ourselves looking on civilization as in personal figure she traverses the world; we see her lingering or resting by the way, and often deviating into paths that bring her toiling back to where she had passed by long ago; but, direct or devious, her path lies forward; and if now and then she tries a few backward steps, her walk soon falls into a helpless stumbling. It is not according to her nature; her feet were not made to plant uncertain steps behind her; for both in her forward view and in her onward gait she is of only human type."—*Early Culture*, ii.

To the facts and reasonings adduced by the naturalists Mr Herbert Spencer adds the weight of speculative argument:—"Each organism," he says, "exhibited within a short space of time a series of changes which, when supposed to occupy a period indefinitely great, and to go on in various ways instead of one way, gives us a tolerably clear conception of organic evolution in general. The whole exhibits one grand scheme of progression." These words are the substance of the whole philosophy of evolution, which, sketched out by Maupertuis, Lamarck, and Goethe, reasserted and victoriously demonstrated by Darwin and Wallace, and taken up by Huxley, Virchow, Quatrefages, Broca, and Haeckel, now underlies all ethnological research.

In the view of its supporters, evolution has not only in past ages differentiated genera and species, but is at work to-day in transforming the actual types. Here may be the place to advert to the great law, of which Von Baer and Agassiz were the most thorough and successful exponents, namely, "that the development of the individual is an epitome of that of the species." The human embryo, for example, passes rapidly through all the principal phases, in one or other of which whole series of inferior animals stay permanently, in such a manner that every new generation repeats in an abridged manner those that have gone before. Of the many corollaries which follow from this theory, the most important seems to be that, however much some groups of animals may differ from each other in structure and habits, they must have descended from the same parent form, if they are found to pass through similar embryonic stages. This is *heredity*. Ethnologists, again, have not been slow in borrowing this law from anatomists. The embryo going over the same organic form as the species, they argue that the child too must repeat the intellectual developments of past mankind. Parents, and not only the observers among them, had already reversed the opinion of the philosophers that savages are children by saying that children are savages. The remarkable similarity between their ideas, language, habits, and character, though generally admitted, had been regarded merely as a curious accident; but coincidences of such vast magnitude are not to be considered as merely accidental. Everybody knows, and the fact is as

important as it is obvious, how boys delight in romping, running, leaping, boating, swimming, and all out-door exercises, and how their favourite heroes are the Red Rover, Robin Hood in the forest green, Robinson Crusoe in the solitude of his island home, where he had to begin all anew.

Peculiar instances of the general law of inheritance have been called *atavism*. It occurs often that one individual is the exact countertype of his grandfather, or some more remote ancestor. By this law, still a very obscure one, ethnologists explain how men are occasionally met with who live in the midst of our civilization as mere savages. The passion manifested by many people for hunting and fishing as a sport, for a tramping roving life, the frequent falling or relapse of French settlers in Canada (the Bois brûlés) into Indian habits, are supposed to be manifestations of atavism. But our stiff and rigid civilization is averse to those old-fashioned individuals, who roam about, living from hand to mouth; the existing system of law can scarcely be brought to distinguish them from criminals. Moralists attribute to atavism a large number of offences which lawyers attribute to guilty dispositions. Now-a-days more than one Beadicea emerges into a brief celebrity upon being sentenced to hard labour in the house of correction; more than one Cassivellannus has been severely flogged and sent to penal servitude. Mr Dugdale, an industrious statistician of New York, has traced to its common ancestor a family, the Jukes, consisting of 1200 people, of which the majority are paupers, thieves, or prostitutes, in a greater or less degree, and who are computed to have cost the state in prison maintenance, almshouse relief, &c., something like £260,000. The ancestor was a descendant of the early Dutch settlers, and lived much as backwoodsmen do now upon the Indian frontiers. He is described as a "hunter and fisherman, a hard drinker, jovial and companionable, averse to steady toil, working hard by spells and idling by turns, becoming blind in his old age, and his blindness has been entailed upon his children and grandchildren."

It is not, however, owing to atavism, but to the mere continuance of an old order of things, that so many of our ill-educated classes, shepherds, agricultural labourers, and even factory hands, are as little developed, and live a life as little intellectual as savages. Latent in our small hamlets and large cities there is more savagery than many reformers are aware of, and it needs but little experience to discover something of the old barbarity lurking still in minds and hearts under a thin veil of civilization.

Atavism is a word applied to persons; *survival*, an expressive word for which we are indebted to Tylor, has a similar meaning, but is applied to things. Survivals are habits, ideas, or expressions which are senseless and perfectly inexplicable by the light of our present modes of life and thought, but can be explained by reference to similar customs or prejudices which are still to be found among distant tribes, or which are mentioned by ancient writers. The word *survival* corresponds exactly to the Latin word *superstitio*, meaning the remainder or residue of bygone ages. But as the use of the word *superstitio* is practically restricted to matters pertaining to religion and magic, a more general word had to be coined. "Survivals," says Tylor, "are milestones on the way of culture." They are intellectual fossils. Just as spear-heads and fragments of ancient pottery are disinterred by the plough in the midst of our fields, so survivals may be picked out in our daily conversation, in our habits and manners, but it requires a trained intelligence to detect them. Their original meaning has been lost, and they have been modified and distorted to serve modern purposes. Survivals may be compared to those muscles or pieces of

bone which are retained in the bodies of animals and even in the human frame, as relics of a former construction. But sooner or later they will fall to the ground. Nature closely husbands her means; she may keep for a while forms that are apparently useless; it seems that she has forgotten them, or that she intends to fall back on them in case of failure; but when the new type is firmly settled, everything that is not serviceable disappears.

The scientific exploration of caverns with a view to discovering the remains of ancient men and beasts, as Pengelly has described it in the case of the Kent Cave, may serve as a model to ethnographers. The explorers did not leave an inch of soil untouched; all the mound was dug out yard by yard, and carefully sifted; nothing was taken up, nothing thrown away without good reason; the objects collected were labelled with care, and even the nature and the condition of the refuse recorded. So the main work of the ethnographer consists in scooping the historic or the prehistoric soil, in picking up everything that has lived, or that has been touched by living hands, and not rejecting as valueless anything as long as he is not perfectly cognizant of its nature. Thus he finds precious things and valuable information where the ignorant sees but heaps of offal and scourgings. And when he travels, especially in semi-civilized countries, there is no limit to the things he may look and inquire after; the less the people are civilized, the richer the harvest he may gather in. One investigator prefers to study the people themselves, another their institutions. But whatever be the study, the first rule will always be to observe the facts with unprejudiced eyes; to draw a deep line of demarcation between them and all mere conjectures. Besides, all explanations have to be called in question, even those which seem sensible and judicious; the student is in duty bound to distrust every theory and interpretation, especially his own glosses and commentaries. Rushing to conclusions is a fault into which beginners are sure to fall. The unscientific mind resembles the child in many respects, and in none more than this; it is impatient and cannot bear suspense. Ready acquiescence in the assertion of others is dangerous, and easy conviction in one's own ideas is the worst bane to science.

One single fact well observed, well authenticated, is a positive gain, and may turn out to be of the highest value in future studies. But a single fact proves too much or too little; as long as it stands alone, nobody can know whether it demonstrates a general law, or only an exception, as we see by the controversies still held on the famous skull of Neanderthal. Laws are obtained by grouping analogous facts in series. In nature, as in history, a series may be termed the development of an idea. Therefore, when the ethnographer does not restrict himself to the simple description of a single subject, of a single locality, of a single custom, he will have to search for analogous facts, that he may give the reader a scale of comparison. For he would expose himself and his readers to gross errors if he were to conclude from a single trait to the whole institution, or from a single institution to the whole national organization. Such primitive populations as the Aleutians or the Todas it would be easy to represent as living either in a moral paradise or in a moral hell, according as one chose to regard only the attractive or only the repulsive side of their character. A fine ethnographical portrait, which is an abstract representation, will be always difficult to draw. In the sketch of that collective individual, a nation, the features must be impressed with the many lines and furrows which the wear and tear of existence have left on the original. In describing an institution which is a collective fact, the numerous and contradictory feelings must be indicated which it stirred up in the many minds and hearts on which it acted, and which reacted on it. But masters only know

how to blend light and shade—now with some few colours to express a multitude of things.

Ethnology, having entered on the scientific stage of development, requires to be treated as a science. The fields of anthropology and ethnology are no longer the tilting-yard for fancies against opinions, for hypotheses against guesses; they are now the place where facts well authenticated are stored up and gathered into orderly groups. Ethnology has become a science of observation, a branch of natural history. It was born the last of all sciences, not because it is the most difficult, but, on the contrary, because, being easy enough, people have dealt with it too lightly. Everybody thought himself able to judge, and his sentences expressed his biases or dislikes. Now, ethnology requires of its adepts that they be as unprejudiced as mathematicians, that they discard all preconceived judgments as much as do the chemists and physicists. Ethnographers must be exact observers and faithful recorders. Science and virtue alike begin and prosper by the same means—by sincerity and by effort.

IV. Material Development.—Any inquiry into the material progress of man bears upon a multitude of details. Briefly stated, the most important are Food, its nature and its preparation; Weapons, Tools, and Implements; Shelter and Clothing; Domestic and Public Fires: Barter and Trade.

Food.—Man has been defined as a digestive tube. He is happily something else as soon as his most imperious physical wants are satisfied, but it must be confessed that, until the cravings of his hunger or thirst are allayed, he is little better than a ravenous brute. For the statesman and the economist there is scarcely any question of more gravity than that of subsistence, even in the face of our enormous accumulation of wealth, in spite of our gigantic means of communication. There are four great phases through which nations pass, or have passed,—hunting and fishing, sheep and cattle tending, agriculture, and industry; and these are nothing else than a succession of improvements in the means of raising food. All the results of manifold culture converge towards a grand total,—more food for more men, better food for every man, and consequently lives longer and more numerous. A simple calculation shows how much modern industry increases the amount of disposable food. From the United States census, showing the extent of land occupied by the Redskins in 1825, it was calculated that the hunting tribes, although they raised some maize, required 1.75 square miles per head. At that rate, all Europe, including Russia, could feed two millions of Indians and no more; but, thanks to its agriculture and to its industry, it supports three hundred millions of inhabitants. It would be hazardous to estimate how many more Indians the North American prairies might feed, if those Indians had taken to bison breeding instead of bison hunting. According as the chief produce of the herd is to be milk or meat, the calculations would vary by large amounts. Nor ought the yield of our improved breeds to be taken as the measure. But, to proceed, it is reckoned that an area under wheat affords from ten to twelve times more human food than it would give under grass for cattle or sheep. That ratio, ten or twelve to one, may express in human lives the progress which was realized when husbandmen succeeded to nomad communities. With the introduction of steam as our great mechanical agent, we are entering the period of large cities. Human anthills of one million souls and more exist already in many parts of the world; they increase constantly both in absolute numbers and relatively to the population at large. It is already necessary that the supply of food to these immense agglomerations of "digestive tubes" be as regular as clockwork.

For the chief information we have on the subject of human food in prehistoric times, we are indebted to Professor Rüttimeyer, who examined the fauna of the lake dwellings in Switzerland, and to Steenstrup and Thomsen, who dug up the shell mounds of Denmark. They have displayed in their researches an amount of science and sagacity which is an honour to our century.

The quality of food is calculated to exert a great influence upon the temperament, the health, the vigour, and the intelligence of men. There is thus some truth in Buckle's statement that the history of the most civilized nations may be explained by the chemical constituents of their food; but until the action of aliments on bodily and intellectual organisms is better known, the discussion would be premature. Besides, the subject belongs to anthropology, and if ethnologists mooted it, they would trespass upon their neighbours' preserves. Were primitive men a set of cannibals? Plausible reasons may be given for and against such a view. As men can feed on men but exceptionally, the question would be better discussed in the chapters relating to religious sacrifices and to the progress of morality and intelligence.

Weapons, Tools, and Implements.—Ethnology centres in this study, and by far the greatest number of ethnologists have made it the chief subject of their researches. They go everywhere, beating about all corners, looking for potsherds, bones, teeth, cherts, nephrites, flints, and everywhere their search is more or less successful. *Ex ungue leonem* is their motto. As the tool, so the work and so the workman; as the arrow-point, so the archer. And they are right. Man is a tool-using, or, as Franklin defined him, a tool-making animal. These weapons, these implements were subservient to the tyrannic necessity of obtaining food. The better the weapons, the more regular the supply of nourishment, and as the food changed, the tools had to be changed. Wood, bones, and rough stones were first used, then polished stones, afterwards bronze, and lastly iron,—each marking a new era. Strong doubts, however, begin to be entertained in many quarters about the separation in two periods each of the stone and of the metallurgic ages: it is objected, first, that polished stones were used as articles of luxury, or where flints could not be had, and, secondly, that the finding of bronze implements much older than any of iron does not prove that bronze was invented before iron, because bronze keeps in a tolerable state of preservation when iron, which oxidizes readily, has long disappeared; and, moreover, it is asserted by technologists that iron or steel tools are indispensable in the fabrication of bronze. Be that as it may, every invention was more than a simple addition to the old stock; it was an advance in quality and variety as much as in quantity; it marked a new progress in intelligence. Tylor says—

"The ethnographer's business is to classify such details with a view to making out their distribution in geography and history, and the relations which exist among them. To the ethnographer, the bow and arrow is a species, the habit of flattening children's skulls is a species, the practice of reckoning numbers by ten is a species. The geographical distribution of these things, and their transmission from region to region, have to be studied as the naturalist studies the geography of his botanical and zoological species. Just as certain plants and animals are peculiar to certain districts, so it is with such instruments as the Australian boomerang, the Polynesian stick-and-groove for fire-making, the tiny bow and arrow used as a lancet or phlebotomy by tribes about the Isthmus of Panama; and in like manner with many an art, myth, or custom, found isolated in a peculiar field. Just as the catalogue of all the species of plants and animals of a district represents its flora and fauna, so the list of all the items of the general life of a people represents that whole which we call its culture. And just as distant regions so often produce vegetables and animals which are analogous, though by no means identical, so it is with the details of the civilization of their inhabitants. How good a working analogy there really is between the diffusion of plants and animals

and the diffusion of civilization comes well into view when we notice how far the same causes have produced both at once. In district after district, the same causes which have introduced the cultivated plants and domesticated animals of civilization have brought in with them a corresponding art and knowledge. The course of events which carried horses and wheat to America carried with them the use of the gun and the iron hatchet, while in return the old world received not only maize, potatoes, and turkeys, but the habit of smoking and the sailor's hammock."

House and Shelter.—Previous to the recent scientific movement to which we owe ethnology under its present form, architects had already divined and applied to their art ethnological principles. They had understood that the most superb temples and palaces, the most splendid monuments, when they have a national character, reproduce on a large scale the modest abodes of the country people. A greater care is bestowed on the construction of a princely hall, its materials are more costly, the proportions more stately; but in most cases it is a poor man's cottage magnified. So a church may be but the enlargement of a sepulchre. If the homesteads of the earlier inhabitants were caves or some piled-up slabs, if they were tents or log cabins, the primitive physiognomy will be still detected in the disposition of the magnificent buildings, and even in the costly furniture. For one sees in the Egyptian temples that their columns were imitations of Nile reeds tied in a bundle, that their walls were an imitation of plaited mats. What is called the architectural style is the character of the nation and of the epoch expressed in wood, stone, or brick.

Fire.—After some discussion, it appears now to be the general belief that there has not been within historical times any race of men ignorant of fire. There is certainly a wide chasm between civilized and uncivilized men, but none so deep as would imply the absence of fire, the use of fire being the great practical distinction between man and brute. We have to avoid the double danger of supposing uncivilized tribes to be either too intelligent or too stupid. Indeed, if it had not been for fire, mankind could not possibly have become what it is. It is a theory amongst architects, to whose relations towards ethnology we have just adverted, that the first buildings of men, inhabitants of caves, holes, or trees, were not dwellings for themselves, but simple hearth-places protected by reed walls and some thatching against wind and rain. They believe that on this model of a prytaneum, or abode of the firegod, the abode of his priest, and then of the kings and the chiefs of noble families, were successively erected, and that it is only in later times that all families obtained a fire-place of their own.

We have spoken of tools and weapons; their history and that of modern industry are inseparable from the history of fire. Everywhere the stone celts and arrows were alleged imitations of thunderbolts, and are still believed by many villagers to have been once hurled down from the skies. Fire is mixed up with whatever men had to tell about things of the earth, of heaven, or of hell. Fire lore is a science by itself.

Commerce and Industry.—Slaves have been, perhaps, the first commodity purchased by the pastoral from the hunting and warlike tribes. Lindenschmidt and Peschel have reacted against the current belief that the tools and implements of bronze and steel had been manufactured in the countries where they have been found. They note that commerce already existed in the earliest ages of which we have any notice. It must have been by barter that the cave dwellers of Perigord, in the reindeer period, obtained rock crystals, Atlantic shells, and the horns of the Polish saiga antelope. The Phoenicians, and their descendants the Carthaginians, were attracted to and retained in Spain by the quarrying of silver ore. Tin has promoted civilization