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The search for Crevaux.

Apropos of your recent weekly summary of the progress of geography under the titles of the Death of Crevaux, etc., I may say that a member of the French geographical society, M. Thouars, accompanied the U. S. solar eclipse expedition from Panama to Callao, March 12–21, of this year. M. Thouars had familiarized himself with explorations in South America by extensive travels in Columbia and elsewhere, and intended to penetrate the Pilcomayo region, in search of the relics of the Crevaux expedition, alone, or with only one companion, the two disguised as Catholic priests. The attempt seems foolhardy; and, for my part, I am glad to know that M. Thouars intends to carry a revolver under his priest's robe, and that he is a brave man and an excellent shot.

If he has not abandoned his daring project, we should hear of him during the early part of 1884.

Edward S. Holden.

Madison, Aug. 6, 1883.

Occurrence of the swallow-tailed hawk in New Jersey.

Early in the evening of July 28 I was standing on the brow of the bluff overlooking the Delaware River, near Bordentown, N.J., when my attention was called to a large bird sailing in comparatively small circles high overhead. Fortunately there was a dark blue-black cloud behind it, so that I had an excellent opportunity to observe the bird. It was the swallow-tailed hawk (Nauclerus forficatus). It remained in nearly the same position for over an hour, when it altered its flight, and, with steady wing-strokes, flew rapidly in a north-west direction.

The appearance of this hawk here is one of the rarest events in the experience of New Jersey ornithologists. Chas. C. Abbott, M.D.

A reckless flier.

One might think a tragic end would await such birds as the Swifts, so bold and persistent their flight; and doubtless such is in store for many, though they seem to steer clear of most obstacles.

A case in point came recently to hand, — that of an unfortunate bird impaled to the spear-point of a lightning-rod above a chimney. There it remained until shot off with a gun, — a warning and a ghastly one, indeed, to all this *swift* race. F. H. Herrick.

Swallows in Boston.

I saw on the 4th of this month the first swallow in Boston, at the extreme end of City Point, South Boston. I have been on the lookout for them since April. Two friends, good observers, report that they have not seen one this season.

Carl Reddots.

Boston, Aug. 7, 1883.

'Has any one seen a swallow this summer in Boston?' inquires a correspondent in Science, Aug. 3. Yes: I saw six last week, perched on the state-house. Prior to this I had also raised the query. Whether it was the pugnacious sparrows, or legislature, that had banished these aerial visitors from the capitol, their old haunt, was and is a query.

Leander Wetherell.

Boston, Aug. 11.

WARD'S DYNAMIC SOCIOLOGY.

IV.

It is Mr. Ward's theory, that the more complex sciences should be based upon the less complex. This he avowedly derives from

Comte, but himself defends at length; and his work is constructed consistently therewith. The part which relates to sociology, therefore, is based upon principles derived from the physical and biologic sciences and psychology, which he treats as a biologic science. Some general mention is made of languages, arts, and opinions, in various portions of the book; but no systematic treatment of these subjects is presented. The same is true with respect to all that body of facts which, if systematized, the author would call static sociology. He only attempts to treat, at length and in order, the forces of society. This theory is but a half-truth, and the method of treatment resulting therefrom has sometimes led to conclusions that are erroneous. The most important failure in this respect is Mr. Ward's presentation of what he denominates the four stages of society: viz., "(1) the solitary or antarchic stage; (2) the constrained aggregate or anarchic stage; (3) the national or politarchic stage; and (4) the cosmopolitan or pantarchic stage." The first or solitary stage is that which Mr. Ward supposes to exist among animals. In the second stage he supposes mankind to have multiplied in great numbers, to have been widely spread throughout the earth, and to have been aggregated without organization. The third stage is represented by the organized tribes and nations of the earth. The fourth stage is a prophecy, when all men shall be organized in one body politic.

It will be well to compare this scheme with that of Morgan in his 'Ancient society.' Morgan attempts to establish what he denominates ethical periods. The three grand periods are savagery, barbarism, and civilization; and savagery and barbarism are subdivided. The following is his scheme: —

I. Lower status of savagery	From the infancy of the human race to the commencement of the next period.
II. Middle status of savagery	From the acquisition of a fish subsistence and a knowledge of the use of fire to the commencement of the next period.
III. Upper status of savagery	From the invention of the bow and arrow to the commencement of the next period.
IV. Lower status of barbarism	From the invention of the art of pottery to the commencement of the next period.
V. Middle status of barbarism	From the domestication of animals on the eastern hemisphere, and in the western from the cultivation of maize and plants by irrigation, with the use of adobe-brick and stone, to the commencement of the next period.
VI. Upper status of barbarism	From the invention of the process of smelting iron ore, with the use of iron tools, to the commencement of the next period.
VII. Status of civilization	From the invention of a phonetic alphabet, with the use of writing, to the present time.

It will be seen, that Ward's scheme is consistent with his philosophy, and based on method of aggregation, while Morgan's scheme is based on the development of arts. Ward is right in his philosophic plan, but altogether wrong in its execution: Morgan is wrong in his plan, or method, but more nearly right in his final conclusions; for the three grand stages which he endeavors to establish can with some modification be fully based on the method of aggregation, i.e., on the data of sociology as distinguished from technology. This will be briefly set forth.

The inception of social organization is in the biologic differentiation of the sexes, giving husband and wife, parent and child, brother and sister, and other relations of affinity and consanguinity. At that time, when the species now known as man had made no farther progress than have some of the lower animals at the present time, this elementary organization existed; and a greater or less development of this organization is discovered among many species of the lower animals. On it the subsequent organization was built. The importance of this fundamental organization seems to have escaped Mr. Ward.

Archeologic evidence is now abundant to show, that man was widely scattered throughout the earth at a very early stage in the development of art, i.e., in the paleolithic age. Again: there is abundant linguistic evidence to show, that man was widely scattered throughout the earth at the inception or beginning of the development of articulate, i.e., organized, speech. In this condition he must have had at least something of the social organization which is based on sex. The stories which have been told, to which Mr. Ward refers without giving full credence, of men living in utterly discrete conditions, are but idle tales, and have no place in the data of scientific anthropology. Mr. Ward says, "The second stage embodies none of the elements of per-

manency, and cannot be expected to be found extensively prevailing at any age of the world. It is essentially a transition stage, and, like transition forms in biology, is characterized by an ephemeral duration. Nevertheless, it has numerous living representatives among the lower existing tribes, particularly among the Fuegians, interior Australians, Wood-Veddas, and Bushmen." The illustrations given of this second stage are also idle tales. These people must also have had the organization mentioned above as based on sex; and it is now known that some of them at least, especially the Australians, have a highly organized system of social aggregation based on kinship. These people are, in fact, organized as tribes. In the presence of facts, the first and second periods of Mr. Ward disappear.

Travellers among savage peoples, seeking for the institutions with which they were themselves acquainted among civilized men, have found them not, and have sometimes reported the peoples to be without institutions, and at other times have completely misinterpreted what they did discover. If we accept such statements, we must believe that some tribes were without organization, and some had the institutions and governments of civilization. And if we compare the statements of a number of travellers about the same people, we shall discover that most of the savage tribes of the earth have been reported, now as being destitute of government and sociologic institutions, and now as having kings, aristocracies, and the elaborate paraphernalia of civilized governments. None of these accounts are true: all are to be rejected. But there yet remains a body of sociologic data relating to the lower tribes of mankind, collected by scientific anthropologists, chiefly during the last two or three decades. We owe much of this knowledge to Morgan's researches, and the investigations of others which have grown out of his suggestions. We now know something of the organization of almost every tribe on the face of the earth, though in many cases our knowledge is exceedingly meagre and fragmentary. Yet perhaps enough is known to warrant the assertion, that there is no tribe so low but that it has a sociologic organization highly developed in comparison with that mentioned above as based on sex and exhibited among the lower animals. The outlines of this plan of organization must be set forth.

The tribes of mankind, as distinguished from nations, have each an organization based on kinship. This system of kinship invariably recognizes grades, based primarily on degrees of affinity and consanguinity, and secondarily on relative age, or the series of generations which may be extant among a people at any given time. All of the relations which exist among such a people, and which may be denominated as rights and duties, are determined by the kinship relations recognized in their social organization, and expressed in their language. This subject is too vast for thorough exposition here, and a single illustration must suffice. Among all such tribes age gives authority, but no method of determining the absolute age of any individual exists among them. Dates of birth are soon forgotten. But there is in the language of every such tribe a device by which relative age is invariably expressed; for every man, woman, and child accosts and designates every other man, woman, and child within the tribe by a term which in itself expresses relative age. Thus, in these languages there is no term for *brother;* but there is one term for *elder brother*, and another for *younger brother*. A man cannot speak of his 'brother' as such simply: he must use a term which says 'my elder brother,' or 'my younger brother,' as the case may be. In the same manner, if he speaks to or of any other person in the tribe, the term by which that person is designated will itself show the relative ages of the persons speaking and spoken to or of. Age gives authority, and this authority is so important and so universal that it is woven into the texture of every tribal language. Every tribe is organized as a great family, — a system of kindred.

From this plan of early tribal organization, there is a great development exhibited in many ways; for tribes are differentiated into classes, or clans, or gentes, which are interdependent bodies politic.

This tribal organization, so briefly characterized, has its fundamental idea in kinship; and the minds of the people in this stage can conceive of no other form of organization. If two or more tribes form an alliance, temporary or permanent, for defensive or offensive purposes, one or both, the same thought prevails. In a council for such an alliance, one of the first propositions to be settled is, 'What shall be the kinship relations existing between us?' and, before the alliance can be consummated, this must be settled.

Once upon a time the Cherokees, Choctaws, Chickasaws, Muskokees, and other tribes met in council for the purpose of forming an alliance against the upper Mississippi tribes of the Dakota stock; and it was decided, that,

as the Cherokees lived at the sources of the streams that watered the country occupied by the other tribes, they, the Cherokees, should be called 'elder brothers,' and the tribes living on the lower courses of the streams should come in order from east to west as second, third, fourth, fifth, and sixth born sons, because such was the course of the sun as it travelled over their lands. Then the people of one tribe called the people of another 'elder' or 'younger' brothers, and took precedence and authority in council and war therefrom.

This plan of organization is a distinct method of aggregation, designated as kinship, or tribal; but it gradually developed into something else. As tribes, by alliance, by conquest, and various other processes, enlarged, it was done by establishing artificial kinship, — by what Sir Henry Maine denominates a 'legal fiction;' and in many cases it came to be that the whole organization was chiefly a legal fiction. Kinship ties were chiefly artificial. Under these circumstances the kinship bond, composed of marriage-ties and streams of kindred blood, was found to be but a rope of sand; and gradually, by many steps, the basis of aggregation was changed to territory, and the bonds of society became the organs of government for the regulation of relations arising from property. But, before a territorial system of aggregation is fully established, intermediate stages are discovered. First, the tribal organization occupies a distinct territory, but the territorial organization is latent; then aggregations partly by territory and partly by kinship supervene; and finally, by many steps, kinship organization is abandoned, and territorial organization remains. This gives two very distinct methods of aggregation or plans of social organization, viz., kinship and territorial society, or tribal and national government; and the two are objectively discovered, and not simply theoretical. The first in its simplest state is Morgan's Status of savagery; the second in its simplest state is Morgan's Status of civilization. His Status of barbarism includes the higher forms of kinship organization and the transition forms mentioned above. If we confine his Status of barbarism to the transition forms, we will then have savagery, barbarism, and civilization established properly on modes of aggregation; but barbarism will merely be a transition stage, and comparatively ephemeral.

Of Mr. Ward's fourth stage, it is simply necessary to say that he himself recognizes it as an ideal of the future; but it is properly based upon history, and is in the manifest course of social evolution. Of the myriads of languages once existing, and of many of which we now have but mere glimpses, few remain, and of these few a very small number are rapidly predominating. The many have become few, and the few will be completely unified, for such is the course of philologic evolution. Of the myriads of tribes scattered by the shores of the seas, on the margins of the lakes, and along the streams of all the habitable earth, but few remain. They have been gradually integrated into larger tribes, and finally, with the most advanced, into nations; and the time will come when there will be but one body politic, for such is the course of sociologic evolution. Every tribe of the myriads that have spoken distinct languages has each for itself developed a mythologic philosophy. These mythologic philosophies are rapidly disappearing, and now are comparatively but few; and the time will come when but one philosophy will remain, — the philosophy of science, the truth, — for such is the course of philosophic evolution. The fourth stage of society — the cosmopolitan or pantarchic — is a legitimate induction, a qualitative but not a quantitative prophecy, for who shall say when it shall come?

Morgan's method of basing his stages upon the arts is unphilosophic: it was simply stages of art development, not stages of social organization. But, because art and society have evolved interdependently together, it very nearly represents the truth; but the actual condition of the progress of any given society or body politic can be determined with less accuracy from its arts than from any other department of anthropology, and this from the fact that art is expressed in material form that can be easily imitated. Its use is at once apparent; and a people may easily borrow an art, or an aggregate of arts, without passing through the stage necessary for its invention. Arts, therefore, travel beyond the boundaries of tribes, languages, and philosophies, and are rapidly spread throughout the world. Tribes that to-day use the bow and arrow may to-morrow use the gun, though they have no knowledge of chemistry and metallurgy. The attempts of the archeologists of modern times to trace migrations, or to connect peoples by a genetic tie, have been to a large extent rendered vicious by the failure to recognize this principle. Tribes and nations, peoples, bodies politic, cannot be classified by arts: but the evolution of arts may be marked off in stages, as done by Morgan; and his stages are the

best yet proposed, though he failed as an ethnologist in the attempt to classify races.

In the same manner, but to a less degree, scholars have failed to classify peoples by languages; for languages only to a limited extent represent genetic connections of peoples. Tribes speaking diverse languages have coalesced; and languages have thus been compounded, and language has supplanted language. A linguistic classification, therefore, is not completely ethnic, but it comes nearer to the truth than the technologic classification. If a classification by philosophies were attempted, it also would fail, though it would be superior to the philologic; for opinions last longer than words. A sociologic classification of peoples also fails to exhibit genetic relationships. Arts, languages, states, philosophies, may be classified, each to show genetic relationships; but they each and all together fail to classify mankind in a fundamental and philosophic manner.

Scholars have devoted much time and ingenuity to classify mankind by biologic characteristics, sought for in the color of the skin, the texture of the hair, the form of the skull, the relative proportion of parts, etc. These attempts have all failed. It is probable that in the early history of mankind biologic differentiation progressed so far as to produce some well-marked varieties; but the biologic method of evolution by the survival of the fittest was more and more repealed as the anthropologic methods of evolution gained ground, and the scattered and discrete tribes were more and more commingled by the union here and there of distinct streams of blood, by the spread of arts, that placed all peoples under conditions of artificial environment, and made them more and more independent of natural environment, and by various other anthropologic conditions too numerous and complex to be here set forth. But, altogether, the tendency to differentiate into distinct biologic peoples has been overcome, and the tendency to unification has been steadily increasing: so that the distinctions of biologic varieties of mankind, of which we now have but hints in the biologic characteristics remaining, are gradually being obliterated; and we may confidently predict that in the fourth stage, yet to be reached, race distinctions will be utterly lost.

In the short articles of this review an attempt has been made to give a synopsis of the work in question, to show the relation of 'Dynamic sociology' to current philosophy, and to point out its more important defects. Little space is left for that commendation which its intrinsic merits deserve. Mr. Ward's presentation of the subject is simple, clear, systematic, and courageous. For its preparation he has explored vast fields of thought; and his conclusions, however they may be questioned, cannot be ignored by those who are interested in modern philosophy. Ward's Dynamic sociology is America's greatest contribution to scientific philosophy.

ELEMENTARY METEOROLOGY.

Elementary meteorology, with meteorological charts and illustrations. By R. H. Scott. London, *Kegan Paul, Trench, & Co.*, 1883. 408 p. 8°.

This volume, the latest English contribution to the science of meteorology, is not a treatise, as the title indicates. It is, however, an excellent work, treating the subject from a modern stand-point, and sweeping away many untenable theories. We especially note the chapters on the barometer and on the formation of rain and hail. The descriptive chapters collecting all known facts relating to wind and ocean currents are very valuable and well presented.

Our author rejects the once seemingly satisfactory theory, attributing the south-west monsoon winds of India to the rising of heated air above the plains to the north-east of the Himalaya range, and also the theory that the existence of sea-breezes is due to the rising of heated air upon the land near oceans. He, however, adopts this theory of ascending currents of heated air in explaining the formation of cumulus-clouds. It is difficult to see how the atmosphere can be heated, save gradually, in strata parallel to the earth's surface, except on mountain sides. This is the theory adopted by Hann, who regards the cumulus-cloud as simply indicating the layer at which the air has the temperature of the dew-point.

Mr. Scott seems to indorse the theory that there is an ascending current in the centre of a barometric depression, though his storm-chart on p. 355 shows all the wind-directions near the low centre tangent to the isobars. This shows that the air-motion, which at the outside of the storm is directed more or less toward the centre, gradually becomes circular as it approaches the centre. Such a whirl moving over the earth's surface, losing a part of the air in its path, does not require any ascending current at its centre. The same may be said of our author's theory that rain can be formed by rising currents of heated air. In this case, not only is there the doubtful assumption of an ascending current, but