peoples constitute together one language, the gesture language of mankind, of which each system is a dialect. The generic conformity is obvious, while the occasion of specific varieties can be readily understood.

ARCHÆOLOGIC RELATIONS.

The most interesting light in which Indians, as other lower tribes of men, are to be regarded, is in their present representation of the stage of evolution once passed through by our ancestors. Their signs, as well as their myths and customs, form a part of the paleontology of humanity. Their picture writings are now translated by working on the hypothesis that their rude form of graphic representation, when at the same time a system of ideographic gesture signs prevailed, would probably have been connected with the latter. Traces of the signs now used by the Indians are also found in the ideographic pictures of the Egyptian, Chinese and Aztec characters.

HISTORY OF THE GESTURE LANGUAGE.

From the records of the ancient classic authors, and also from the figures on Etruscan vases and Herculanean bronzes and other forms of Archaic art, it is certain that a system of gesture language is of great antiquity. Later, Quintilian gave elaborate rules for gesture, which are specially noticeable for the significant disposition of the fingers still prevailing in Naples. The ancient and modern pantomimes were discussed, and also the gestures of speaking actors in the theatres, the latter being seldom actually significant or self-interpreting even, in the expression of strong emotion. The same scenic gesture must apply to many diverse conditions of fact. Its fitness consists in being the same which the hearer of the expository words would spontaneously assume, if yielding to the same emotions, and which, therefore, by association, tends to induce sympathetic yielding. But the communication of the facts themselves depends upon the words uttered. A true sign language would express the exact circumstances, with or without any exhibition of the general emotion appropriate to them.

PRACTICAL APPLICATION OF SIGN LANGUAGE.

This was shown to be in successful use in cases cited by travelers skilled in it, and its powers were compared with those of speech. It finds actually in nature an image by which any person can express his thoughts and wishes on the most needful subjects to any other person. Merely emotional sounds may correspond with merely emotional gestures, but whether with or without them would be useless for the explicit communication of facts and opinions of which signs themselves are capable. Notwithstanding frequent denials, they are able to express abstract ideas. The rapidity of their communication is very great, and can approach to that of thought. Oral speech is now conventional, and with the similar development of sign language, conventional expressions could be made with hands and body more quickly than with the vocal organs, because more organs could be worked at once.

But such rapidity is only obtained by a system of preconcerted abbreviations and by the adoption of absolute forms, thus sacrificing self-interpretation and naturalness, as has been the case with all oral languages in the degree of their copiousness and precision.

RELATIONS IN PHILOLOGY.

Signs often gave to spoken words their first significance, and many primordial roots of language are found in bodily actions. Examples are given of English, Indian, Greek and Latin words in connection with gesture signs for the same meaning, and the structure of the sign-language was compared with the tongues of this continent, with reference also to old Asiatic and African languages, showing similar operations of conditions in the same psychologic horizon.

ORIGIN OF SPEECH.

It is necessary to be free from the vague popular impression that some oral language of the general character of that now used by man is "natural" to man. There is no more necessary connection between ideas and sounds, the mere signs of words that strike the ear, than there is between the same ideas and signs for them which are addressed only to the eye. Early concepts of thought were of a direct and material character. This is shown by what has been ascertained of the radicals of language, and there does not seem to be any difficulty in expressing by gesture all that could have been expressed by those radicals.

CONCLUSIONS.

It may be conceded that after man had all his present faculties, he did not choose between the adoption of voice and gesture, and never with those faculties, was in a state where the one was used, to the absolute exclusion of the other. The epoch, however, to which our speculations relate is that in which he had not reached the present symmetric development of his intellect and of his bodily organs, and the inquiry is: Which mode of communication was earliest adopted to his single wants and informed intelligence? With the voice he could imitate distinctively but few sounds of nature, while with gesture he could exhibit actions, motions, positions, forms, dimensions, directions and distances, with their derivations and analogues. It would seem from this unequal division of capacity that oral speech remained rudimentary long after gesture had become an efficient mode of communication. With due allowance for all purely imitative sounds, and for the spontaneous action of vocal organs under excitement, it appears that the connection between ideas and words is only to be explained by a compact between speaker and hearer which supposes the existence of a prior mode of communication. This was probably by gesture. At least we may accept it as a clew leading out of the labyrinth of philological confusion, and regulating the immemorial quest of man's primitive speech.

TRICHINÆ CYSTS.

The mode of formation of the cyst of trichina has been studied by M. Chatin and described in a communication to the Académie de Sciences. It was formerly said to be formed partly from the contractile tissue, and partly by a secretion from the nematoid, but this opinion was based only on some apparent differences in the thickness or aspect of the cyst wall, and not on any careful study of its formation, which necessitates the examination of animals dying or killed in different states of the affection. When it arrives in the muscles the worm forms adhesions with the interfascicular tissue in which rapid changes occur. The elements increase in size, and during the growth of the protoplasm it assumes the appearance of an amorphous mass, in which, however, nuclei and vacuoles can be seen, which seem to indicate that the mass consists really of aggregated cells. By the growth of this the primitive fibres are compressed. In the new protoplasm fine proteoid granulations are first observed, and then other granulations which present all the reactions of glycogen. Then follow important changes in the periphery of the granular mass, containing the trichina, now curled up in the interior; the outer surface becomes distinctly thickened and indurated, and may then become lamellated or present granulations or folds. The sarcolemma takes no part in the formation of the cyst except occasionally furnishing it with a purely adventitious layer. Moreover, when the nematoid contracts its first adhesions to sarcolemma, and not to the interfascicular tissue, it rapidly dies without determining a new formation.

BEFORE leaving New York, King Kalakaua called on Mr. Edison. He was accompanied on his visit by the Attorney-General of his island kingdom, Mr. Armstrong, and by an intimate friend residing in this city, whose acquaintance he made in Vienna. Punctually at nine o'clock in the evening his majesty alighted from the carriage of his friend in front of the Fifth-avenue mansion. He was introduced to Mr. Edison, who escorted him through the building, and by means of models, maps, drawings, and the 55 lamps in operation, explained the theory of the conversion of steam-power into electricity and the generation of light in the carbon loop.

Escorting his distinguished visitor to the library, Mr. Edison first explained the science of the light, and then, by reference to maps of the district that his engineers are preparing for the experiment, the application of his system to the practical requirements of a city. The region to be lighted will require 22,000 lights, all of which are to be supplied from a central station in Pearl street, where 12 engines of 185 horse power are to be placed. Ten of these will be in constant operation, the other two being held in reserve to meet the emergencies of accident. The engines will be run at a rate of speed equal to that of a locomotive at 60 miles an hour, and a new feature of the system is that no belts are employed to transmit the power to the dynamo-electric generators, and the power is applied directly, avoiding the irregularity and vibration arising from the slipping of the belt which seems inseparable from the old practice. The mains consist of large iron pipes, in which the crescent-shaped positive and negative conductors are carried, being insulated from such by means of a non-conducting material with which the pipes are filled when in a pasty condition, induced by heat, but which hardens like a concrete pavement in the process of cooling. These mains in their passage through the streets are all connected with each other by means of ingenious connection boxes, the whole forming a subterranean net-work of electrical conductors comparable to the capillary circulation in the skin of an animal body.

His Majesty listened with intense but almost silent interest, and examined the cross-sections of the electrical mains and the interior arrangement of the connection boxes with critical closeness, now and then asking a question in the purest English imaginable, and with a voice that was strikingly low, mellow, and muscial, and yet so sharply defined in the articulation of the consonants as to impress the ear at an unusual distance. He seemed particularly interested in the statement that after steam power had been transformed into electricity and carried to a great distance in that form it could again be converted into motive power by means of an electrical motor, and sold to customers for the purpose of running elevators or operating hoist-ways. His eyes lighted when he was told that one of the most profitable departments of the business of the company would be the sale of power to manufactories and business firms in quantities as small as a single horse-power, costing, under circumstances of ordinary use, not more than eight cents a day.

From the library Mr. Edison led the way to the front parlor, brilliantly lighted. Pressing the toe of his shoe upon a knob projecting from the floor, every lamp was instantaneously extinguished and as suddenly blazed out again. The inventor next turned the stop-cock of a single lamp among the group and extinguished it. The party then ascended to the upper floor, where more wonders were in store, and then descended two flights beneath the street level, where, in a low-ceiled vault, a small engine was operating, with nearly absolute silence, a generator whose cylinder performed 1200 revolutions per minute. After inspecting every detail, his Majesty took leave of the inventor, and repaired to his carriage. One of the points that appeared to impress him most was the steadiness of the light, and its freedom from vibration.—*N. Y. Times.*

METEOROLOGICAL REPORT FOR NEW YORK CITY FOR THE WEEK ENDING SEPT. 24, 1881.

Latitude 40° 45′ 58″ N.; Longitude 73° 57′ 58″ W.; height of instruments above the ground, 53 feet; above the sea, 97 feet; by self-recording instruments.

SEPTEMBER.	BAROMETER. Mean for the day. Reduced to Freezing.	Maximum. Reduced to Freezing.	Maximum. Time.	Minimum. Reduced to Freezing.	Minimum. Time.	THERMOMETERS. Mean. Dry Bulb.	Mean. Wet Bulb.	Maximum. Dry Bulb.	Time.	Maximum. Wet Bulb.	Time.	Minimum. Dry Bulb.	Time.	Minimum. Wet Bulb.	Time.	Maxi'm In Sun.
Sunday, 18	30.094	30.228	0 a. m.	29.964	12 p. m.	68.3	60.6	78	3 p. m.	64	5 p. m.	53	6 a. m.	53	6 a. m.	142.
Monday, 19	29.831	29.964	0 a. m.	29 788	4 p. m.	75.0	65.3	84	3 p. m.	70	6 p. m.	64	6 a. m.	60	6 a. m.	140.
Tuesday, 20	29.869	29.898	9 a. m.	29.810	5 p. m.	73.3	63.3	83	4 p. m,	69	4 p. m.	63	6 a. m.	58	7 a. m.	134.
Wednesday, 21	29.999	30.068	12 p. m.	29.892	0 a. m.	60.7	59.3	73	4 p. m.	64	4 p. m.	62	12 p. m.	56	7 a. m.	130.
Thursday, 22	30.069	30.108	10 a. m.	30.012	5 p. m.	66.6	62.3	70	4 p. m.	65	4 p. m.	60	5 a. m.	59	5 a. m.	87.
Friday, 23	29.940	30.046	0 a. m.	29.882	4 p. m.	74.6	67.3	85	4 p. m.	70	2 p. m.	67	6 a. m.	64	6 a. m.	139.
Saturday, 24	29.985	30.004	9 a. m.	29.942	0 a. m.	77.3	68.3	85	4 p. m.	73	4 p. m.	68	6 a. m.	64	6 a. m.	141.

Mean for the week .... 29.969 inches.
Maximum for the week at 0 a. m., Sept. 18th .... 30.228 "
Minimum " at 4 p. m., Sept. 19th .... 29.788 "
Range .... .440 "

Dry. Wet.
Mean for the week .... 71.7 degrees .... 63.7 degrees.
Maximum for the week, at 4 pm. 24th 85. " at 4 pm 24th, 73. "
Minimum " " 6 am. 18th 53. " at 6 am 18th, 53. "
Range " " .... 32. " .... 20. "

SEPTEMBER	WIND. Direction. 7 a. m.	2 p. m.	9 p. m.	Velocity in miles. Distance for the Day.	Force in lbs. per sqr. feet. Max.	Time.	HYGROMETER. Force of vapor. 7 a. m.	2 p. m.	9 p. m.	Relative humidity. 7 a. m.	2 p. m.	9 p. m.	CLOUDS. Clear, 0 Overcast. 10 7 a. m	2 p. m.	9 p. m.	RAIN AND SNOW. Depth of rain and snow in inches. Time of Beginning.	Time of Ending.	Duration. h. m.	Amount of water	OZONE. 0 10
Sunday, 18	n. n. e.	n.	n. e.	60	1/4	9.00 am	.380	.436	.482	76	48	66	0	1 cir. s.	4 cir. cu.	-----	-----	-----	--	2
Monday, 19	n.	n. n. e.	n.	130	1 1/2	12.00 m	.425	.447	.628	64	39	72	2 cir. cu.	2 cir. s.	5 cu.	-----	-----	-----	--	8
Tuesday, 20	n. w.	n. n. w.	w.	90	1 3/4	2.00 am	.403	.438	.519	67	41	60	0	2 cir. cu.	3 cir. cu.	-----	-----	-----	--	8
Wednesday, 21	n. e.	e. s. e.	s. s. e.	152	1 1/4	7.30 am	.356	.390	.483	62	50	78	0	0	0	-----	-----	-----	--	0
Thursday, 22	s. s. e.	s.	s. s. w	153	2 1/4	7.20 pm	.447	.529	.543	77	74	79	3 cir. cu.	10	10	-----	-----	-----	--	0
Friday, 23	w. s. w.	s. w.	w. s. w.	236	7	1.40 pm	.556	.558	.604	84	49	72	10	6 cir. cu.	0	-----	-----	-----	--	0
Saturday, 24	w.	s.	s. s. w.	129	3/4	3.30 pm	.529	.583	.612	75	50	62	1 cir.	4 cir. cu.	0	-----	-----	-----	--	0

Distance traveled during the week .... 950 miles.
Maximum force .... 7 lbs.

Total amount of water for the week .... .00 inch.
Duration of rain .... 00 hours, 00 minutes.

DANIEL DRAPER, Ph. D.

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