

# The Open Court.

A WEEKLY JOURNAL

Devoted to the Work of Conciliating Religion with Science.

No. 274. (VOL. VI.—47.)

CHICAGO, NOVEMBER 24, 1892.

{ Two Dollars per Year.  
{ Single Copies, 5 Cents.

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## SIGNS AND SYMBOLS.

BY DR. ERNST SCHROEDER.

[CONCLUDED.]

The idea of a universal language or pasigraphy, was first conceived by Descartes, and further developed by Leibnitz; but the proposals advanced by both remained mere projects, were more sketches and promises than execution or performance.

In isolated provinces science has, for reasons due to its own needs, created the first beginnings of such an ideographic language. The formulæ of modern chemistry are such a beginning, and one of much promise. In one department, however, we find our ideal already realised in an exemplary manner, namely, in the province of numbers. Simultaneously with the demand of a scientifically rational ideographic tongue, the wish for a universal world language already begins to find its fulfilment in this province among all comparatively civilised peoples. So far as numbers are concerned, the Oriental stands upon a common ground of understanding with the people of the western skies, and the East Asiatic with the sons of the Occident. To *count* things, means, separately to associate with those things, other things that we always have ready at hand, (originally the fingers, then unit-strokes, and subsequently numerals,) with the view of repicturing and refiguring, so to speak, by these unit-strokes the things in question, in respect of their frequency.

That the ideal of a pasigraphy was first realised in the province of numbers, is unquestionably due to the fact of their economical functions and their fitness to prepare the way for and to effect the correspondence of our means of satisfying certain wants with their actual satisfaction. (When we think, for instance, of how many shots are to be fired on a given occasion, and calculate correctly that to so many shots so many cartridges are necessary, we subsequently have for every desired shot the necessary cartridge.) "The Arabian system of numerals," says Prof. H. Schubert, very appropriately, "which we absorbed in childhood as something which was self-evident, is not a self-evident thing at all, but is the highest blossom of a civilising process that had its beginning when man became man; that is to say, when he began to speak and

to write." The well-known procedure by which our numeral constructions, in their progression according to the decimal law, are expressed by means of the ten numeral characters "is one of the most beautiful fruits of human ingenuity, and one of the most important inventions in the whole history of civilisation." In the domain of counting, measuring, and computation, our numeral system has realised the ideal of an ideographic language or pasigraphy, and it is the most conspicuous example we possess of how immeasurably great the increase of our power over things, of human insight and art, is rendered when appropriate signs are at our disposal—evidence of which arithmetic and the higher analysis with all its applications will abundantly supply.

As the result of repeated extensions of the idea of number, by means of which fractional and irrational quantities have been incorporated into the numeral system, these disciplines have developed the astounding power of expressing or of describing by the simple help of the ten numeral characters, 0, 1, 2, . . . 9, any magnitude whatsoever which is homogeneous with the unit. The Ludolphian number  $\pi$ , for example,

$$\pi = 3.141592653589793238. . . ,$$

which denotes the ratio of the circumference of a circle to its diameter, which measures the first by means of the second, has been computed to over seven hundred decimal places. To obtain some idea of the exactness of this statement of the circumference of a circle, we may say, without any fear of mistake, that if we were to describe a circle with a radius extending from the earth to the farthest telescopic object in the heavens, a radius, if we please, equal to a distance of a thousand billion light-years, that the inexactness which might arise in the statement of the length of the circumference of such a circle, or the error of such a statement magnified some millions of times, would still be very far from being perceptible by the best microscopes which we possess!

It is a fact less generally known that we may effect perfectly well, only with somewhat greater circumstantiality, the very same objects, namely, systematic numeral statement, with only two figures, 0 and 1. To

render this more plain, I will express here in the "dyadic" or "binary" system the number of the year 1890, viz:

$$1890 = 11101100010$$

which says, that the number in question is made up of: no One; one Two; no Four, Eight, and Sixteen; one Thirty-two; one Sixty-four; no One Hundred and Twenty-eight; but one Two Hundred and Fifty-six; one Five Hundred and Twelve; and one Ten Hundred and Twenty-four. Beneath I will write, after the same manner, the number  $\pi$  to fifty places:

$$\pi = 11.001001000011111101101010100010001000010110100011. \dots$$

according to which, therefore,  $\pi = 1\text{Two} + 1\text{One} + \text{no One-Half} + \text{no One-Fourth} + 1\text{One-Eighth} + \text{etc.}$

So far now as the ideal of a pasigraphy in other domains is concerned, Descartes went so far as to demand that some such natural disposition as exists among numbers, should also be constituted among all the ideas of thought. Just as any one can learn in a single day how to name and to write all the numbers up to infinity, although they are designated by an infinitely different number of words, so the same thing could be brought about with all the other words necessary to the expression of human thought. The invention of such a language will depend upon a true philosophy; for without such a philosophy it is impossible to enumerate or arrange, and so to distinguish all the ideas of men, that they shall be distinct and simple. Not until we shall have clearly developed and established what our simple conceptions are and out of what elements our thoughts are composed, and not until this has been generally recognised in the world, can there be any hope of a universal language which shall be easy to learn, to pronounce, and to write, and which also—and this is the main thing—shall aid our powers of judgment by presenting everything so plainly and distinctly that deception will be rendered impossible. At present, things are just the opposite; our words have only confused significances, to which the human mind has been accustomed for so long a time that it now possesses a perfect insight into hardly anything. Descartes adds that he deems such a language and the science on which it should be based as possible; by its means a peasant could then form better judgments on the truth of things than now a philosopher can. However, no one should entertain the hope of living to see such a thing accomplished, for such a result presupposes tremendous changes, and to accomplish it, it would be necessary that the world should be transformed into a paradise(?).

A much bolder confidence in the success of efforts in this direction was possessed by Leibnitz. The very names that he bestows upon the project are evidence of its significance in his mind. Now he calls it *Lingua*

*characteristica universalis*, now *The alphabet of human thought*, and again the *Calculus philosophicus* or *Calculus ratiocinator*; the project should be accomplished as a *combinatoria characteristica, characteribus et calculo*.

He entertained the hope of deriving from such a language a comprehensiveness of view, by which, in the very midst of the constantly increasing range of knowledge, the sciences should nevertheless be abbreviated; he hoped that the strengthening of our judgment would be effected, and also the avoidance of disputes brought about: where differences of opinion might arise, we should simply have to say, Let us compute the thing itself!

And of truth there is a need to develop to the widest extent possible the judgments of man: that reason may retain the mastery in the world and everywhere a correct view of things obtain; that passions may never acquire the upper hand; that nations may not fall a prey to infatuation and be constrained, when all other means of agreement have failed, to speak with one another in that symbolic tongue which not only is the "ultima ratio regum,"\* but is also the ultimate argument *populorum et hominum*, and whose symbols imprint themselves with skull-crushing force into human heads. The blows and thrusts of weapons and the roar of cannons are not simply matter in motion, but are in a true and literal sense the "signs" of our opponent's intentions, of their purpose and decisions.

It will be a surprise to some when I assure you that the Descartes-Leibnitzian ideal of a pasigraphy has within the last twenty-five years approached its realisation with giant strides.

Since the publication of Boole's "Laws of Thought" a "calculus ratiocinator" of the kind described has really been created by the co-operation of mathematicians and philosophers of different nationalities, among whom, next to Boole, are especially deserving of mention the Englishman McColl, the American Charles S. Peirce, and also a lady, Miss Caroline Ladd, afterwards Mrs. Franklin, who has done much commendable work.

In this province, too, the experimental fact has again been verified that a difficult problem is already half solved as soon as a proper notation for the things to be investigated has been discovered. The fundamental sign in the present case was the symbol of inclusion or *subsumption*; viz., the symbol of the relation of a part to its whole, of the subject to the predicate, of a judgment, in other words, a symbol for the copula "is" or "are" of a judgment.

If  $a$  and  $b$  represent quantities, then  $a \subseteq b$  means:  $a$  is either an actual part of  $b$  or the whole of  $b$ .

But if the letters used represent ideas, then  $a \subseteq b$  means: " $a$  is  $b$ ," or, if we will, also: "all  $a$  are  $b$ ."

\* The favorite inscription on bronze cannons down to the present century.

As a fact it is equally correct to say:

"Gold is a metal," and "salt is chloride of sodium," although, *vice versa*, metal is not always gold, but chloride of sodium is always salt; that is to say, notwithstanding the fact that the relation between subject and predicate, in the two cases, is actually a different one, that is to say, in the first judgment practically amounts to a subsumption, and in the second, to an identification or equalisation (a distinction which we have indicated by distinctive symbols of relation).

The symbol of subsumption, however, leaves open the choice between the two different relations and consequently fully corresponds to the agreement-copula "is" of both judgments.

The same sign, placed between the judgments or statements *a* and *b*, admits of the following interpretations; "if *a* obtains, then *b* obtains," "*a* conditions *b*," "brings it in its train"; as a fact then, the class of occasions, of circumstances, in which the statement *a* is admissible, is contained in, is a part of, the class of circumstances or occasions, in which the statement *b* is true or admissible. The sign supplies the place therefore in syntax of the conjunctions "ergo," "consequently," "because" and "therefore" of general inference.

Subsequently signs were introduced for the conjunctions "and" and "or," and for the particle of negation "not," for "nothing" and for "all," and coincidentally with the latter, also for "wrong" and "right." When this was once done, interesting questions were rendered answerable which hitherto had remained inaccessible. For instance the question, How many different judgments, different with respect to contents, are constructible with two ideas? If we simply limit ourselves to the six words that occur in the following fragment of a sentence:

"... and all or some *a* are not *b*,"

the number of possible statements constructible with such a small number of words will be found to be 32767! Likewise, a peculiar symbolic tongue had in this manner grown up, competent to free the human mind from the bondage in which the word-tongues, by the power of habit, had involved it, and which, by enabling logicians to apply to the languages of words the criterion of an absolutely logical system of designation, also rendered it possible plainly to disclose and reveal the weaknesses and defects of languages of words.

The Italian Peano, Professor at the Military Academy and University of Turin, has transcribed the principles of arithmetic and of geometry into this symbolic tongue. We have in his performance, for example, a copious collection of geometrical definitions, propositions, and demonstrations continued generally

from line to line for page after page without a syllable of text, and which are rendered decipherable by means of a key a few lines in length placed at the beginning.

In illustration I will place here beneath, the definition of a mathematical point as it is written in our symbolic language. It is as follows:

$$(i \neq o) \Pi \{ (i \subseteq x) + (i \subseteq x) \}$$

and means, expressed in words this: a point is a portion of space *i* to be named then and then only, when, without being nothing (that is to say, without vanishing), it stands to every portion of space *x* in this relation, that it either is incident wholly in this portion of space or wholly in that portion of space's external space (not-*x*).

The only respect in which investigators are not yet agreed is that concerning the external form of the signs universally recognised as the necessary ones. Great care will have to be devoted to the solution of this question. For when once an improperly shaped sign has secured a firm footing, its removal will be accompanied with tremendous difficulties.

It will be seen from the preceding, to what extent—at least for the purposes of exact science—Leibnitz's ideal has already been realised.

Of course we are not yet in a position to translate a fable of La Fontaine's into our ideographic language. For such a purpose, as well as for being spoken generally, it is not yet adapted; and from all that has been said it will be perceived that a great difference exists between the logical ideal of the investigators active in this department, and the linguistic ideal of the modern societies for the introduction of universal languages.

The architects of the Volapük tongue incorporate in their artificial products, if not all the logical defects of the word-languages, yet the most important of them.

One example of such a defect is this: the conjunction "and" possesses, unknown to most of us, in the subject of a sentence an entirely different logical significance from what it does in the predicate. If we say, for instance, "deceiver and deceived are deserving of reprimand, or punishment, or the like," this means both that deceivers are deserving of reprimand, and that the deceived also are deserving of reprimand. If we say, "these men are deceivers and deceived," this statement signifies both that these men are deceivers, and that these men are the deceived. But the very same words "deceiver and deceived," in the first case denoted persons who are either the one or the other, deceiver or deceived (or both at the same time), while in the last case they denoted only those who are both, deceiver as well as deceived. The first case, therefore, would have been expressed in our ideographic language by  $a + b$  and in the second by  $a \cdot b$ !



It would be easy to cite a great number of such instances if our time were not limited.

With respect to the efforts of the promulgators of the Volapük tongue, I join in my opinion the ranks of the great majority, and believe that all such endeavors are an idle waste of time, and that their promotors would do better to devote their activity to the acquisition of the English language.

On the other hand, I place the logical endeavors of the investigators I have mentioned so high, and have such great confidence in the future of these inquiries, that to have been allowed to contribute but a mite to the same, forms the greatest pride of my life.

In concluding I shall not omit to refer briefly to a very interesting problem in the field of sign invention, which our great grandchildren will be confronted with. I mean the problem of intelligible communication with the inhabitants of neighboring planets.

As we all know, a meritorious astronomer and physician, Professor Gruithuisen, once made the much ridiculed proposition to set up a correspondence with the inhabitants of the Moon by erecting, in enormous proportions, over some great area of land, the figure of the Pythagorean theorem, a right-angled triangle with three squares on its sides, for example, by sowing sunflowers in the required shape; whereupon, the inhabitants of the Moon would answer by means of other geometrical figures. We now know that our moon is a barren globe without air and water, and that it scarcely offers the possibility of the fulfilment of a single one of the conditions of organic life known to us. We have also fortunately recovered from our belief in the fantastic and baseless inventions concerning the inhabitants of remote worlds, such as were rife during the first decades of the present century (as in Littrow's "Wonders of the Heavens").

But in recent times these conjectures have very unexpectedly acquired a foundation of reality and an almost palpable form, as the result of the Milan astronomer Schiaparelli's carefully conducted and clearly established discoveries concerning our neighboring planets, and particularly so by his discoveries of the state of our first exterior planet, Mars. The facts\* of these discoveries have, during the recent proximity of Mars, been so fully discussed in the press, that it would now be superfluous for me to dwell on them. All I will say is that they point to the existence of conscious beings on Mars; and I personally deem it only a matter of a few hundred years before we shall enter into a correspondence with the inhabitants of this planet.

As soon as it has been brought about that one single sign can be sent backwards and forwards in any way between the two planets, for instance, in clear

nights by means of the simultaneous illumination of great numbers of electric arc-lights, thickly distributed over great areas of ground, as soon as this has been effected, the interruption of such a signal will form a second sign; and we shall then soon be able mutually to inform each other that on both planets analysts and algebraists versed in mathematics, live, by our announcing, for example, from this side the dyadic representation of  $\pi$ , and our receiving, perhaps, from the other side in answer the irrational number which plays so important a rôle in analysis, the number

$e = 10.10110111110000101010001011000101000. \dots$

The further development of such intellectual intercourse will be of the greatest logical interest.

Notwithstanding the great peril associated with speculations like the preceding, I have not hesitated to risk the venture of such an outlook. For true intellectual life means that we shall embrace as much as possible of reality, both in the direction of that which is past as in the direction of that which is to come.

#### POSITIVIST FAITH.

BY JOHN SANDISON.

IT CANNOT be denied that the works of Auguste Comte have influenced very largely the current thought of the present day; he possessed in no small degree that powerful and lucid expression of thought which has ever been the distinctive characteristic of his countrymen, and, however true it is that the principles which he emphasised had been brought to light by others who dwelt beyond the Rhine, still, he is entitled to the credit of having first stated these principles in definite and unmistakable language.

Comte had a strong aversion to everything which savored of metaphysics, and his great desire was to have his reasoning on a scientific foundation which would be free from all the mists of philosophic speculation, and he was thus impelled to start from an individualistic standpoint. Probably if he had studied more deeply the development of philosophic thought in other countries, he would have built upon a more sure foundation; but his very desire to free himself from entanglement in doubtful theories led to other and more serious difficulties.

There is a considerable resemblance between Comte and David Hume, the latter in the eighteenth century published his "Treatise on Human Nature," in which he adopted the standpoint of the subjective individual, and assumed a sceptical attitude towards all experience, and referred it to custom and merely subjective association without any rational foundation; and yet in a subsequent work he built up a theory of morals which was inconsistent with and quite opposed to his early principles.

\* These facts were set forth in detail in Professor Schubert's address.—*Trans.*

"Hume," Hegel says, "stated that experience is the foundation of what is known or perception contains all that happens, but nevertheless universality and necessity are not contained in, nor given us by experience . . . Custom obtains as well in our perception as in reference to law and morality. These mainly rest on instinct, a subjective, but very often deceptive moral feeling . . . We have the custom by regard one thing as just and moral, others have other customs. If then truth depends on experience, the element of universality of objectivity comes from elsewhere or is not verified by experience. Hume has accordingly declared this species of universality and necessity to be only subjectively, not objectively existing, for custom is just such a subjective universality."

Comte in like manner started with a subjective principle,—which suggested a connection between the individual and the race, but the synthesis which he proceeded to develop was inconsistent with his individualistic principle. Comte, however, did not investigate the principles of experience, as Hume and other philosophers did, but proceeding from his subjective principle, which was similar to that adopted by the leaders of the French Revolution, he developed it by emphasising the great fact of what might be called social immortality, our dependence upon the past and our relationship to the future of humanity—the essential organic unity existing in the race. According to him all the highest thoughts and ideals of the individuals forming society ought to be consecrated to one great end, namely, the advancement of society. "The individual can only attain satisfaction and happiness in so far as he contributes to the welfare of the race." There is here a departure from mere subjectivity to a life incorporated in humanity. It is owing to his recognition of the social bond that Comte's chief merit consists, it reveals a partial reaction from the one-sided individualistic principle of last century, and is a step towards the higher organic ideas of the present day. While Comte was right regarding the relationship of the individual to society, he assumed an agnostic attitude towards the objective world; he did not observe that the same principle which binds together all the individuals in an organic unity must at the same time unite humanity with the Universe: the categories must be the same in both cases.

Regarding the "religion of humanity," he informs us that it arises out of a love and devotion to mankind, and which love he desired to develop into a complete system, so that men would "constitute a real providence for themselves in all departments, moral, intellectual, and material." One defect of Comte's religious teaching is, that he demands from men an absolute faith in the continuous advancement and development

of humanity, while utter ignorance is professed regarding the course of the world. If there is not a reasonable faith in the world-order, is it not absolutely futile to preach a faith in humanity alone?

Monistic positivism on the other hand is a distinct advance upon Comtist principles, for besides clearly recognising the unity of the individual with the race, it also shows the organic relationship subsisting between both and the world-order. It has a scientific faith in the formative principle which animates all things; it is a philosophy based on objective facts which can be investigated by science. In considering the development of humanity too much importance cannot be given to the influence exercised by nature, with which there is a vital unity. In economic laws and in all the surrounding circumstances of his daily life man finds factors which he cannot dispense with, nay, to which he owes his very existence. Oliver Wendell Holmes, in "Elsie Venner," refers to the action of nature as the "Centrifugal principle which grows out of the antipathy of like to like, as only the repetition in character of the arrangement we see expressed materially in certain seed-capsules which burst and throw the seeds to all points of the compass. A house is a large pod with a human germ or two in each of its cells or chambers, it opens by dehiscence of the front door by and bye, and projects one of its germs to Kansas, another to San Francisco, another to Chicago, and so on, and this that Smith may not be smothered to death, and Brown may not be browned into a mad-house, but mix in with the world again and struggle back to average humanity."

Monistic positivism offers an ethical theory by which conduct can be regulated. We are told "that the possibility of all higher life, all ethical existence, and all ethical aspiration depends upon the evolution of forms," and again "that the practicability of ideas rests upon the feasibility of a new arrangement of things—upon the possibility of a re-formation of ourselves as well as the world around us."

Now admitting that this philosophy gives a satisfactory explanation of the working of religious principles and ethical ideals, still it appears to me doubtful whether the scientific faith of monistic positivism, although much superior to the position occupied by Comte, will prove a continuing impulse for religious aspirations or a sufficient "working hypothesis" for the regulation of conduct through more than one generation unless it is reinforced by a rational faith in an immanent, all-embracing world-consciousness.

The weakness of the religious faith of positivism, whether Comtist or monistic, seems to me to lie in a deficiency of impulse. It is not certain that knowledge of the fact that man's highest thoughts will live

in future humanity, or that when he endeavors to act according to his noblest ideals, that he is on the side of the world-order, considered as an unconscious principle, is a sufficient or will ever be a sufficient incentive for him to continue so to think and act. It is true that a man may continue to act on ethical impulses derived from an early faith which in later life he may have abandoned, but it is extremely doubtful whether his children would follow in his footsteps; most probably they would discard both the father's early faith and his subsequent ethics. Are not the higher ideals of positivism founded on a sustaining impulse derived from another and an older religion? \*

#### CURRENT TOPICS.

In the early part of the present century it was my good fortune to know a statesman who went by the name of "Timber," or more familiarly "Old Timber," a playful parody on "Woods," which was his real name. He was a loyal partisan, and his political morality was never higher or lower than the Democratic standard of the time. Once, after having eloquently advocated a certain doctrine, he was reminded of an inconsistent opinion which he had proclaimed a year or two before. Not at all confused, in a tone of resolute integrity he replied, "Was the Democratic party in power or out when I said that?" The impudent spirit of Old Timber directs the party press just now. His genius animates both sides. Ancient inconsistencies fall into musical harmony at the touch of his magic formula, "Was our party in power or out, when we said that?" "Were we in power or out when we advocated Civil Service Reform, and condemned the gerrymander?" "Our party was in power," say the Republicans, "when we approved and practised what we censure now." "Our party was out of power," say the Democrats, "when we condemned the policy which we now adopt." When Sam Weller inquired of Mr. Brooks, the pie-man, how it was possible for him to make all sorts of pies, mutton, mince, or chicken, out of one kind of meat, he was told that the art was in the seasoning. In like manner, the Democrats and the Republicans, can make all sorts of policies out of one principle, according to the seasoning imparted by the elections.

Scarcely was the preceding note in type, when I found that I could show the meaning of it by living illustrations from the *Inter Ocean* and the *Herald*, representative and leading papers of the two great antagonistic parties of Chicago. The returns having made it certain that the Illinois legislature will be Democratic in both houses, the *Inter Ocean* points its moral finger at the apparition of a gerrymander, and tries to exorcise it; while the *Herald* with counter incantations bids it come. Solemn as Jonah, the *Inter Ocean* warns the Democrats of the wrath in store for them if in the intoxication of triumph they gerrymander Illinois. "The American people," says the *Inter Ocean*, "may be somewhat fickle and freaky in their politics, but there is one thing certain, they have a strong and dominant sense of fairness. The politicians cannot afford to trifle with or disregard this national characteristic. In nothing has it asserted itself more plainly and rebukingly than in resenting, rebuking, and defeating gerrymanders." I am sorry to think that the contrary of that is true, although there is high pretension in the claim, as there was in that of the candidate who said, "I flatter myself on my honesty," when he found that nobody else would flatter him. Self-approbation certainly is a very "national characteristic," and we carry it sometimes to the extreme of egotistical flattery, as the *Inter Ocean* does in that quotation;

\* We hope to discuss the subject in a future number.—Ed.

but it is nobler to tell the truth, and confess that politically, at least, the "sense of fairness" has been driven out of the American people by the tyranny of party spirit. It is notorious that contested seats in congress are awarded according to the requirements of party; and for nearly a hundred years, the apportionment of districts has been made on that principle. In these matters, it is the sense of unfairness that is "dominant in the American people." The unfair contrivance called a gerrymander is adopted by both parties; and the majority on either side will divide a state into districts by fantastic lines that baffle the definitions of geometry. Only the minority complains. Hence those tears. Explaining the position of the Democratic party on the tariff, and gerrymandering the question, Senator Hill said, "The Democratic platform does not say that protection is a fraud; it says merely that Republican protection is a fraud;" the inference being that the Democratic article will be entirely free from guile. So, when a Republican or a Democrat condemns a gerrymander, he means the gerrymander of the other side. Should he condemn a gerrymander made by his own side, he would rise to the eminence of a mugwump, and be read out of the party.

Once, in a time of great political excitement, there was a very animated election in Ireland; and it so happened that thirty or forty gentlemen of the Protestant party, going to the county town to vote, stopped at a village ten miles away to get some dinner. While they were dining, an orator of the opposite party was making a speech to the village patriots outside, and in that speech he said, "Those gentlemen at the tavern are going to Limerick to vote; and suppose they are Protestants, they are your fellow Christians just the same, and entitled to hospitality. It would be wrong for any spalpeen to steal the linchpins from their carriages, because in that case the wheels might come off, the carriages might break down, and the gentlemen might lose their votes." By a queer coincidence, the linchpins were stolen, the wheels did come off, the carriages did break down, and the gentlemen were disfranchised, at least for that election. The warning of the orator might be called advice by negative innuendo, the style adopted by the *Chicago Herald* in giving directions to the legislature on the subject of reapportioning the state. The *Herald* thinks it would be wrong to steal the linchpins, or in other words, to gerrymander, because "a political victory is valuable only as it is applied to good and honest usages." This lofty moral sentiment is qualified a little farther on, and the legislature is advised that "if just as good a district can be made with a Democratic majority, all things considered, or a district comparatively as good, it is right and political that a Democratic district should be made." To make this hint more definite, which, by the way was not necessary, the *Herald* continues thus, "Even to stretch a point, not beyond reason, but to the extent allowed in what is usually recognised as fair politics, is not to be greatly censured." Certainly not, but "fair politics" is a well known apologetic phrase for tricks that would be unfair in any social business; and the *Herald* may rely upon it that the majority will not fail to "stretch a point" if a political advantage is to be gained by stretching it. Fortunately, we may review the gerrymander without giving offense to either side, for if there is one blessed institution in this land, which is the ready and most obedient servant of both parties, it is the gerrymander.

Early in the war, the regiment in which I was, made a sudden charge at break of day upon a rebel camp near Florida, in Missouri. Our enemies having been driven out, we sat upon the grass and ate their breakfast. We were tired and hungry, for we had marched all night, and instead of pursuing our foes we feasted on the beef, and bread, and vegetables which they had left behind. Mark Twain was in that camp, and I rejoice that he got away, for since then he has given me a thousand intellectual breakfasts com-



posed of delicious humor and very delicate pathos, so that, upon the whole, I am rather glad than otherwise that I did not kill him in that fight. That war incident is used merely as a text for a few remarks on the political situation at this time. The Democrats have driven the Republicans from camp, and being very tired and hungry, they propose to do nothing but recline on the beautiful grassy slopes and enjoy the captured rations which their enemies had provided for themselves. They want not work, but wages. Terrified as a tramp at the sight of a cord of wood and a bucksaw, and fearing that Mr. Cleveland may call an extra session to give them a job, they exclaim, "The spoils of the camp are ours, let us enjoy them in *conservative* repose. The Republican party must go, but its policy must remain. The McKinley bill ought never to have been passed, but it must not be repealed." I think that a confidence man, who has made a little money by some ingenious deception, must indulge in a good deal of quiet laughter when he thinks about the credulity of his victim; and in imagination I can almost hear the merry chuckle of Mr. Vest, the Senator from Missouri, now that the election is over, and the warble of the oratorical mocking bird is heard no more in the land. I can almost hear the rippling of his laughter when he says in reference to the impending extra session, "Mr. Cleveland is too level headed for any such nonsense. He does not believe in a cavalry charge upon the existing system of taxation. He is firm, but also conservative."

\* \* \*

I am authorised to say that there will not be an extra session of congress, unless to avert national insolvency. My authority comes not from Mr. Cleveland, but from the very genius of regal power. Rulers never convoke parliaments to help the people, but always "to relieve the government." Should congress be convened in extra session, it will be "to vote supplies." Kings never yield prerogative, nor do Presidents. Under our law, the congress is hired and paid to begin work on the 4th of March, but the same law illogically declares that the legislature shall do nothing until December, unless convened in extra session by the President. For the first eight months of his term, the President of the United States is free from the criticism or the advice of congress. During that part of his official service he holds in his hands Imperial power, while the House of Representatives, the Democratic element in the government, holding its commission directly from the people, "stands like a cipher in the great account." After more than six hundred years of struggle, the Commons of England have clipped prerogatives from the royal tree, until the crown has been reduced to such political poverty that "the Queen reigns but does not govern." Not so here. While congress is in abeyance, the President of the United States both reigns and governs. He is practically Kaiser. While congress is in session the President serves; when it is in suspension, he rules. In military phrase, Congress when in session "ranks" the President, but when Congress is dispersed, the President outranks every other political power in his own country. It is the lesson of all history that the ruler of a nation will never willingly summon a parliament or a council to direct him, to curb him, or to contradict him. Nor is this always for despotic reasons, or for lust of power. It is often prompted by patriotic ambition, and a desire for honorable fame. The temptation to do some valuable service to the country without the assistance of the legislature, is very strong; and when that service wins approval and acclamations, the glory of saying, "Alone, I did it," rewards a vanity that is very near to greatness. For those reasons, I think that I am authorised by History to say that there will not be an extra session.

M. M. TRUMBULL.

#### BOOK REVIEWS.

PSYCHOLOGIE DU PEINTRE. By Lucien Arrât. I Vol. in 8° de la Bibl. de philosophie contemporaine. Paris: F. Alcan. 1892.

M. Arrât, the accomplished correspondent of *The Monist* and the author of a number of well-known works, has just offered to

the French public a translation of the *Physiologie de l'Art*, by Georg Hirth of Munich. Several months previously he gave to the world a work entitled *Psychologie du Peintre*, which has attracted much attention.

These two works, composed at the same time, have not the same end in view; but nevertheless they are in accord in certain points.

M. Hirth has considered certain questions from a special point of view and elaborated a theory, partly original, as to the faculty of memory and the power of observation. M. Arrât set himself the task, which as yet had not been attempted, of finding and describing a psychologic species, a professional type, deriving it from the sum total of the physical, mental, emotional, and social qualities of the individuals characteristic of the type. The former studies in preference the implement, the latter the workman. Their subject-matter, apart from this, would necessarily lead them into the same field in the discussion of the memory, of heredity, and of pathology. Their conclusions on these points are about identical. Both, for example, and each from his own point of view, have put to the test of a searching inquiry the celebrated thesis of Lombroso regarding the relations between genius and insanity, and they do not find that this thesis is proven, at least as regards artists as a class.

But we will confine ourselves to the work of M. Arrât. In how much do anatomy and physiology aid him in his establishment of a painter type? Very little indeed. That might have been expected, but it was well to ask the question. The physical and physiological characteristics (First Part) appear to be blended together among painters as a class, as they are in the social groups. Moreover, it is probable that the study of the cerebral cortex, if it is ever undertaken in connection with a sufficiently large number of cases, could instruct us in regard to this. Still, all the combinations of temperaments are undoubtedly found in this class; only they exhibit marked nervous traits and are accompanied with varying physiognomical features and a great fineness of perception.

As regards heredity, M. Arrât has divided the question. It is necessary to show, says he, the transmission of partial or elementary faculties of memory, the different combinations of which produce ability. In default of sufficiently precise sources of information he has directed his efforts at least to classing artists: as, firstly, painters who are sons of painters; secondly, painters who are sons of art workers; thirdly, painters, sons of mechanics, laborers, and of plain people generally. Now, this simple and natural classification has furnished him statistics showing a considerable majority in favor of heredity; for example, among about three hundred names almost two-thirds of the painters were sons of painters or of art workers. Such a high per cent., and one calculated upon so many individuals, had as a result, up to that time, not been demonstrated. Galton and Ribot cite but a few cases and without sufficiently critical observations upon them.

Under the heading of "Talent" (Second Part) M. Arrât investigates the æsthetic characteristics—appreciation, curiosity, precocity, etc., with particular reference to letters and confidential communications of artists themselves. But the implement of the talent is the faculty of memory; the memory of the eyes and of the hand. The question of artistic conceptions, lifelike as if seen by the eye, is treated here in an interesting manner, and one can no longer doubt, after having read these chapters, that genius in the individual is truly a gift of nature.

If, however, one considers the evolution of an artistic genius "in bygone times" one will be impressed with the very simple law which M. Arrât shows that it obeys. He holds up to view the leading object of research all through the discussion: at first as to exact outline, then as to the design, and finally as to the coloring; and he shows clearly the principal stages of this inquiry which

corresponds to a psychological work of analysis and of synthesis of artistic conceptions.

In the third part, "The Capacity of the Intellect," M. Arréat makes a study of the intellectual characteristics of the painter, his faculty of memory, and of his various abilities. He was guided in this investigation by the thought of discovering, whether, when a certain faculty of memory is the dominant one, that is to say a certain group of artistic representations, the other faculties of memory do not tend to adjust themselves, to fall into line, as it were, in an order uniformly constant. To tell the truth it does indeed seem that this is the case as regards painters. They often possess musical talent (not indeed, however, the analytical power of memory of the true musician); also literary talent; rarely or even never scientific ability. They are men of intelligence, not intellectual ones. This entire third part of the book is rich in facts and sketches.

In the fourth part, "On Individuality," one conjectures that the type separates easily into varieties. M. Arréat does not dissemble this fact. He succeeds, however, in showing that by reason of a natural inclination or through the influence of their profession, painters, with regard to either egotistic or unselfish characteristics, self-will or docility, still exhibit some features in common, and that a certain arrangement of radical tendencies has a chance to prevail among them. In this part anecdotes abound, instructive or piquant in turn, and moralists could here gather many a dainty morsel.

The author successfully demonstrates in the fifth part, "On Pathology," that artists are no more pathological monstrosities than they are psychological ones. Their average longevity, which M. Arréat has had the patience to calculate, shows them indeed as being privileged in that respect. Men of talent, he says in substance, are no more subject to mental alienation than mediocre ones, and usually show no more eccentricities than any man may be expected to indulge in. "Derangement does not create genius, and if sometimes it accompanies it, it proceeds in that case from the abuse of one's faculties or because of the exercise of them under unfavorable conditions, rather than because of their presence merely." Genius, moreover, M. Arréat shows clearly, when considered in the fullest sense of the word, is an exception among painters themselves, and in genius itself there is nothing exceptional other than the union in the same individual of several felicitous gifts of nature. The ultimate deduction is that it is made up of faculties which are common to almost all men even though they are unequally developed and are distributed in different ways in each individual.

Here are conclusions worthy of being thought over. The author's object has been, not to make a display of learning, but to write an agreeable and readable book; and its perusal will not on this account be attended with less instruction.  $\chi^2$ .

As It Is To Be. By Cora Lynn Daniels, Franklin, Mass. 1892. Price \$1.00.

This is a strange little book; it is not for everybody; on the contrary it will be a puzzle to many sober-minded men, but will be fascinating, at least, to people of a spiritualistic penchant. A reviewer might easily push the book aside; but it comes highly recommended by Prof. F. M. Hoppin of Yale, Ignatius Donnelly, Edward Gordon Clark, formerly editor of the *North American Review*, Elliott Coues, F. L. Burr, editor of the *Hartford Daily Times*, Richard Hodgson, Secretary of the "Psychical Research Society," and Edward Youmans, late editor of the *Popular Science Monthly*. All these men read the book in manuscript and encouraged its publication in flattering terms. So it will be interesting to see what ideas these men regarded as worthy of their authoritative endorsement.

The author does not claim to have written it herself: she

simply wrote down the questions presented to and answered by "the voices." But what or who these "voices" are, she does not pretend to tell, simply stating "They appear to me as *thought*." The contents of the book is a modern apocalypse, only longer and more explicit than that of St. John. We are told in Chap. II that there is no pain in dying. Our conditions and surroundings after death are revealed in Chap. VII, and the concluding chapter describes a day in heaven.

The philosophy of the booklet is in one sense dualistic, for we are told: "You are the clasp between and the lock which holds the material to the spiritual. In you both are united, and the purpose of thus linking spirit with material in the union seen in the human or intelligent being, is to produce individualised consciousness, which, like our Father Himself, is unlimited in power, and capable of perfection, which is bliss. This is why man is born." This dualism however is interwoven with a spiritual monism, as can be seen in the following passage: "You have no selfhood, really. You are you, only because He has permitted a part of Himself to enter an individual form. Your selfhood consists in being endowed with an individuality of thought different from other individualities of thought, but should He recall that endowment you would become no longer a self, but selfless in Him."

The book is profusely illustrated with allegorical and ornamental pictures. The student who loves the *terra firma* of facts will have no use for it, but those who on the light wings of fancy love to soar into the realms of symbols and spiritual visions will not be disappointed. kps.

## THE OPEN COURT.

PUBLISHED EVERY THURSDAY BY

THE OPEN COURT PUBLISHING CO.

EDWARD C. HEGELER, PRES.

Dr. PAUL CARUS, EDITOR.

TERMS THROUGHOUT THE POSTAL UNION:

\$2.00 PER YEAR.

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