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SYMMETRY.

A POPULAR SCIENTIFIC LECTURE.*

BY PROF. ERNST MACH.

AN ANCIENT philosopher once remarked that people who cudgelled their brains about the nature of the moon reminded him of men who discussed the laws and institutions of a distant city of which they had heard no more than the name. The true philosopher, he said, should turn his glance within, should study himself and his notions of right and wrong; only thence could he derive real profit.

This ancient receipt for happiness might be repeated in the familiar words of the Psalm:

"Dwell in the land, and verily thou shalt be fed."

To-day, if he could rise from the dead and walk about among us, this philosopher would marvel much at the different turn which matters have taken.

The motions of the moon and the other heavenly bodies are accurately known. Our knowledge of the motions of our own body is by far not so complete. The mountains and natural divisions of the moon have been accurately outlined on maps, but physiologists are just beginning to find their way in the geography of the brain. The chemical constitution of many fixed stars has already been investigated. The chemical processes of the animal body are questions of much greater difficulty and complexity. We have our *Mécanique celeste*. But a *Mécanique sociale* or a *Mécanique morale* of equal trustworthiness yet remains to be written.

Our philosopher would indeed admit that we have made great progress. But we have not followed his advice. The patient has recovered, but he took for his recovery exactly the opposite of what the doctor prescribed.

Humanity is now returned, much wiser, from its journey in celestial space, against which it was so

* Delivered before the German Casino of Prague, in the winter of 1871. Translated from the German by *μκκκ*.

A fuller treatment of the problems of this lecture will be found in my *Beiträge zur Analyse der Empfindungen* (Jena, 1886). J. P. Soret, *Sur la perception du beau* (Geneva, 1892), also regards repetition as a principle of aesthetics. His discussions of the *aesthetic* side of the subject are much more detailed than mine. But with respect to the psychological and physiological foundation of the principle, I am convinced that the *Beiträge zur Analyse der Empfindungen* go deeper.—MACH (1894).

solemnly warned. Men, after having become acquainted with the great and simple facts of the world without, are now beginning to examine critically the world within. It sounds absurd, but it is true, that only after we have thought about the moon are we able to take up ourselves. It was necessary that we should acquire simple and clear ideas in a less complicated domain, before we entered the more intricate one of psychology, and with these ideas astronomy principally furnished us.

To attempt any description of that stupendous movement, which, originally springing out of the physical sciences, went beyond the domain of physics and is now occupied with the problems of psychology, would be presumptuous in this place. I shall only attempt here, to illustrate to you by a few simple examples the methods by which the province of psychology can be reached from the facts of the physical world—especially the adjacent province of sense-perception. And I wish it to be remembered that my brief attempt is not to be taken as a measure of the present state of such scientific questions.

* * *

It is a well-known fact that some objects please us, while others do not. Generally speaking, anything which is constructed according to fixed and logically followed rules, is a product of tolerable beauty. We see thus nature itself, which always acts according to fixed rules, constantly producing such pretty things. Every day the physicist is confronted in his workshop with the most beautiful vibration-figures, tone-figures, phenomena of polarisation, and forms of diffraction.

A rule always presupposes a repetition. Repetitions, therefore, will probably be found to play some important part in the production of agreeable effects. Of course, the nature of agreeable effects is not exhausted by this. Furthermore, the repetition of a physical event becomes the source of agreeable effects only when it is connected with a repetition of sensations.

An excellent example that repetition of sensations is a source of agreeable effects is furnished by the copy-book of every schoolboy, which is usually a treasure-house of such things, and only in need of an Abbé Domenech to become celebrated. Any figure, no mat-

ter how crude or poor, if several times repeated, with the repetitions placed in line, will produce a tolerable frieze.



Fig. 1.

Also the pleasant effect of symmetry is due to a repetition of sensations. Let us devote ourselves a moment to this thought, yet not imagine when we have developed it, that we have fully exhausted the nature of the agreeable, much less of the beautiful.

First, let us get a clear conception of what symmetry is. And in preference to a definition let us take a living picture. You know that the reflexion of an object in a mirror has a great likeness to the object itself. All its proportions and outlines are the same. Yet there is a difference between the object and its reflexion in the mirror, which you will readily detect.

Hold your right hand before a mirror, and you will see in the mirror a left hand. Your right glove will produce its mate in the glass. For you could never use the reflexion of your right glove, if it were present to you as a real thing, for covering your right hand, but only for covering your left. Similarly, your right ear will give as its reflexion a left ear; and you will at once perceive that the left half of your body could very easily be substituted for the reflexion of your right half. Now just as in the place of a missing right ear a left ear cannot be put, unless the lobule of the ear be turned upwards, or the opening into the concha backwards, so, despite all similarity of form, the reflexion of an object can never take the place of the object itself.*

The reason of this difference between the object and its reflexion is simple. The reflexion appears as far behind the mirror as the object is before it. The parts of the object, accordingly, which are nearest the mirror will also be nearest the mirror in the reflexion. Consequently, the succession of the parts in the reflexion will be reversed, as may best be seen in the reflexion of the face of a watch or of a manuscript.

It will also be readily seen, that if a point of the object be joined with its reflexion in the image, the line of junction will cut the mirror at right angles and be bisected by it. This holds true of all corresponding points of object and image.

If, now, we can divide an object by a plane into two halves so that each half, as seen in the reflecting

plane of division, is a reproduction of the other half, such an object is termed symmetrical, and the plane of division is called the plane of symmetry.

If the plane of symmetry is vertical, we can say that the body is of vertical symmetry. An example of vertical symmetry is a Gothic cathedral.

If the plane of symmetry is horizontal, we may say that the object is horizontally symmetrical. A landscape on the shores of a lake with its reflexion in the water, is a system of horizontal symmetry.

Exactly here is a noticeable difference. The vertical symmetry of a Gothic cathedral strikes us at once, whereas we can travel up and down the whole length of the Rhine or the Hudson without becoming aware of the symmetry between objects and their reflexions in the water. Vertical symmetry pleases us, whilst horizontal symmetry is indifferent, and is noticed only by the experienced eye.

Whence arises this difference? I say from the fact that vertical symmetry produces a repetition of the same sensation, while horizontal symmetry does not. I shall now show that this is so.

Let us look at the following letters:

d b

q p

It is a fact known to all mothers and teachers, that children in their first attempts to read and write, constantly confound d and b, and q and p, but never d and q, or b and p. Now d and b and q and p are the two halves of a *vertically* symmetrical figure, while d and q, and b and p are two halves of a *horizontally* symmetrical figure. The first two are confounded; but confusion is only possible of things that excite in us the same or similar sensations.

Figures of two flower-girls are frequently seen on the decorations of gardens and of drawing-rooms, one of whom carries a flower-basket in her right hand and the other a flower-basket in her left. All know how apt we are, unless we are very careful, to confound these figures with one another.

While turning a thing round from right to left is scarcely noticed, the eye is not indifferent at all to the turning of a thing upside down. A human face which has been turned upside down is scarcely recognisable as a face, and makes an impression which is altogether strange. The reason of this is not to be sought in the unwontedness of the sight, for it is just as difficult to recognise an arabesque that has been inverted, where there can be no question of a habit. This curious fact is the foundation of the familiar jokes played with the portraits of unpopular personages, which are so drawn that in the upright position of the page an exact picture of the person is presented, but on being inverted some popular animal is shown.

* Kant, in his *Prolegomena zu jeder künftigen Metaphysik*, also refers to this fact, but for a different purpose.

It is a fact, then, that the two halves of a vertically symmetrical figure are easily confounded and that they therefore probably produce very nearly the same sensations. The question, accordingly, arises, *why* do the two halves of a vertically symmetrical figure produce the same or similar sensations? The answer is: Because our apparatus of vision, which consists of our eyes and of the accompanying muscular apparatus is itself vertically symmetrical.*

Whatever external resemblances one eye may have with another they are yet not alike. The right eye of a man cannot take the place of a left eye any more than a left ear or left hand can take the place of a right one. By artificial means, we can change the part which each of our eyes plays. (Wheatstone's pseudoscope.) But we then find ourselves in an entirely new and strange world. What is convex appears concave; what is concave, convex. What is distant appears near, and what is near appears far.

The left eye is the reflexion of the right. And the light-feeling retina of the left eye is a reflexion of the light-feeling retina of the right, in all its functions.

The lense of the eye, like a magic lantern, casts images of objects on the retina. And you may picture to yourself the light-feeling retina of the eye, with its countless nerves, as a hand with innumerable fingers, adapted to feeling light. The ends of the visual nerves, like our fingers, are endowed with varying degrees of sensitiveness. The two retinae act like a right and a left hand; the sensation of touch and the sensation of light in the two instances are similar.

Examine the right-hand portion of this letter T: namely, Γ. Instead of the two retinae on which this image falls, imagine, feeling the object, my two hands. The Γ, grasped with the right hand, gives a different sensation from that which it gives when grasped with the left. But if we turn our character about from right to left, thus: 1, it will give the same sensation in the left hand that it gave before in the right. The sensation is repeated.

If we take a whole T, the right half will produce in the right hand the same sensation that the left half produces in the left, and *vice versa*.

The symmetrical figure gives the same sensation twice.

If we turn the T over thus: 4, or invert the half T thus: L, so long as we do not change the position of our hands we can make no use of the foregoing reasoning.

The retinae, in fact, are exactly like our two hands. They, too, have their thumbs and index fingers, though they are thousands in number; and we may say the thumbs are on the side of the eye near the nose, and the remaining fingers on the side away from the nose.

With this I hope to have made perfectly clear that the pleasing effect of symmetry is chiefly due to the repetition of sensations, and that the effect in question takes place in symmetrical figures, only where there is a repetition of sensation. The pleasing effect of regular figures, the preference which straight lines, especially vertical and horizontal straight lines, enjoy, is founded on a similar reason. A straight line, both in a horizontal and in a vertical position, can cast on the two retinae the same image, which falls more-over on symmetrically corresponding spots. This also, it would appear, is the reason of our psychological preference of straight to curved lines, and not their property of being the shortest distance between two points. The straight line is felt, to put the matter briefly, as symmetrical to itself, which is the case also with the plane. Curved lines are felt as deviations from straight lines, that is, as deviations from symmetry.* The presence of a sense for symmetry in people possessing only one eye from birth, is indeed a riddle. Of course, the sense of symmetry, although primarily acquired by means of the eyes, cannot be wholly limited to the visual organs. It must also be deeply rooted in other parts of the organism by ages of practice and can thus not be eliminated forthwith by the loss of one eye. Also, when an eye is lost, the symmetrical muscular apparatus is left, as is also the symmetrical apparatus of innervation.

It appears, however, unquestionable that the phenomena mentioned have, in the main, their origin in the peculiar structure of our eyes. It will therefore be seen at once that our notions of what is beautiful and ugly would undergo a change if our eyes were different. Also, if this view is correct, the theory of the so-called eternally beautiful is somewhat mistaken. It can scarcely be doubted that our culture, or form of civilisation, which stamps upon the human body its unmistakable traces, should not also modify our conceptions of the beautiful. Was not formerly the development of all musical beauty restricted to the narrow limits of a five-toned scale?

The fact that a repetition of sensations is productive of pleasant effects is not restricted to the realm of the visible. To-day, both the musician and the physicist know that the harmonic or the melodic addition of one tone to another affects us agreeably only when the added tone reproduces a part of the sensation which the first one excited. When I add an octave to a fundamental tone, I hear in the octave a part of what was heard in the fundamental tone. (Helm-

* The fact that the first and second differential coefficients of a curve are directly seen, but the higher coefficients not, is very simply explained. The first gives the position of the tangent, the declination of the straight line from the position of symmetry, the second the declination of the curve from the straight line. It is, perhaps, not unprofitable to remark here that the ordinary method of testing rulers and plane surfaces (by reversed applications) ascertains the deviation of the object from symmetry to itself.

* Compare Mach, *Fichte's Zeitschrift für Philosophie*, 1864, p. 1.

holtz.) But it is not my purpose to develop this idea fully here. We shall only ask to-day, whether there is anything similar to the symmetry of figures in the province of sounds.

Look at the reflexion of your piano in the mirror.

You will at once remark that you have never seen such a piano in the actual world, for it has its high keys to the left and its low ones to the right. Such pianos are not manufactured.

If you could sit down at such a piano and play in your usual manner, plainly every step which you imagined you were performing in the upward scale would be executed as a corresponding step in the downward scale. The effect would be not a little surprising.

For the practised musician who is always accustomed to hearing certain sounds produced when certain keys are struck, it is quite an anomalous spectacle to watch a player in the glass and to observe that he always does the opposite of what we hear.

But still more remarkable would be the effect of attempting to strike a harmony on such a piano. For a melody it is not indifferent whether we execute a step in an upward or a downward scale. But for a harmony, so great a difference is not produced by reversal. I always retain the same consonance whether I add to a fundamental note an upper or a lower third. Only the order of the intervals of the harmony is reversed. In point of fact, when we execute a movement in a major key on our reflected piano, we hear a sound in a minor key, and *vice versa*.

It now remains to execute the experiments indicated. Instead of playing upon the piano in the mirror, which is impossible, or of having a piano of this kind built, which would be somewhat expensive, we may perform our experiments in a simpler manner, as follows:

1) We play on our own piano in our usual manner, look into the mirror, and then repeat on our real piano what we see in the mirror. In this way we transform all steps upwards into corresponding steps downwards. We play a movement, and then another movement, which, with respect to the key-board, is symmetrical to the first.

2) We place a mirror beneath the music in which the notes are reflected as in a body of water, and play according to the notes in the mirror. In this way also, all steps upwards are changed into corresponding, equal steps downwards.

3) We turn the music upside down and read the notes from right to left and from below upwards. In doing this, we must regard all sharps as flats and all flats as sharps, because they correspond to half lines and spaces. Besides, in this use of the music we can

only employ the bass clef, as only in this clef are the notes not changed by symmetrical reversal.

You can judge of the effect of these experiments from the examples which appear in the annexed musical cut. The movement which appears in the upper lines is symmetrically reversed in the lower.

The effect of the experiments may be briefly formulated. The melody is rendered unrecognisable. The harmony suffers a transposition from a major into a minor key and *vice versa*. The study of these pretty

Fig. 2.

effects, which have long been familiar to physicists and musicians, was revived some years ago by Von Otettingen.*

Now, although in all the preceding examples I have transposed steps upward into equal and similar steps downward, that is, as we may justly say, have played for every movement the movement which is symmetrical to it, yet the ear notices either little or nothing of symmetry. The transposition from a major to a minor key is the sole indication of symmetry remaining. The symmetry is there for the mind, but is wanting for

* A. von Otettingen, *Harmoniesystem in dualer Entwicklung*. Leipzig and Dorpat, 1866.

sensation. No symmetry exists for the ear, because a reversal of musical sounds conditions no repetition of sensations. If we had an ear for height and an ear for depth, just as we have an eye for the right and an eye for the left, we should also find that symmetrical sound-structures existed for our auditory organs. The contrast of major and minor for the ear corresponds to inversion for the eye, which is also only symmetry for the mind, but not for sensation.

By way of supplement to what I have said, I will add a brief remark for my mathematical readers.

Our musical notation is essentially a graphical representation of a piece of music in the form of curves, where the time is the abscissæ, and the logarithms of the number of vibrations the ordinates. The deviations of musical notation from this principle are only such as facilitate interpretation, or are due to historical accidents.

If, now, it be further observed that the sensation of pitch also is proportional to the logarithm of the number of vibrations, and that the intervals between the notes correspond to the differences of the logarithms of the numbers of vibrations, the justification will be found in these facts of calling the harmonies and melodies which appear in the mirror, symmetrical to the original ones.

* * *

I simply wish to bring home to your minds by these fragmentary remarks that the progress of the physical sciences has been of great help to those branches of psychology that have not scorned to consider the results of physical research. On the other hand, psychology is beginning to return, as it were, in a spirit of thankfulness, the powerful stimulus which it received from physics.

The theories of physics which reduce all phenomena to the motion and equilibrium of smallest particles, the so-called molecular theories, have been gravely threatened by the progress of the theory of the senses and of space, and we may say that their days are numbered.

I have shown elsewhere* that the musical scale is simply a species of space—a space, however, of only one dimension, and that, a one-sided one. If, now, a person who could only hear, should attempt to develop a conception of the world in this, his linear space, he would become involved in many difficulties, as his space would be incompetent to comprehend the many sides of the relations of reality. But is it any more justifiable for us, to attempt to force the whole world into the space of our eye, in aspects in which it is not accessible to the eye? Yet this is the dilemma of all molecular theories.

We possess, however, a sense, which, with respect

to the scope of the relations which it can comprehend, is richer than any other. It is our reason. This stands above the senses. It alone is competent to found a permanent and sufficient view of the world. The mechanical conception of the world has performed wonders since Galileo's time. But it must now yield to a broader view of things. A further development of this idea is beyond the limits of my present purpose.

One more point and I have done. The advice of our philosopher to restrict ourselves to what is near at hand and useful in our researches, which finds a kind of exemplification in the present cry of inquirers for limitation and division of labor, must not be too slavishly followed. In the seclusion of our closets, we often rack our brains in vain to fulfil a work, the means of accomplishing which lies before our very doors. If the inquirer must be perforce a shoemaker, tapping constantly at his last, it may perhaps be permitted him to be a shoemaker of the type of Hans Sachs, who did not deem it beneath him to take a look now and then at his neighbor's doings and make his comments on the latter's work.

Let this be my apology, therefore, if I have forsaken for a moment to-day the last of my specialty.

"THE GOSPEL OF JESUS CHRIST."*

BY JOHN SANDISON.

THE Jewish religion was a religion of hope in a future time, in which God was to glorify Himself in His people and redeem them from evil. This hope was the ground of the preaching of John the Baptist and what he begun was continued in another way and with another result by Jesus of Nazareth. He had been one of those who, moved by John's announcement to repent for the kingdom of God was at hand, had hurried to John to be prepared for the kingdom by baptism, and there was nothing that would justify us in holding the view that Jesus had from the beginning already connected another sense with these words than the sense in which they were understood by the people. Rather was it extremely probable that Jesus understood the conception of the kingdom of God exactly in the same sense as all others before Him—namely in the apocalyptic sense of redemption of the oppressed people and a revelation of all things on earth brought about by divine omnipotence.

Yet were the manner and appearance of Jesus entirely different from those of the Baptist from the beginning. His preaching became glad tidings for the consolation and the raising up of the souls that were bowed down. The ground of this difference lay in the religious personality of Jesus himself, in His spirit of child-like trust in God and inward love of God. God was not to him a far-off, unapproachable power and a

* Compare Mach's *Zur Theorie des Gehörorgans*, Vienna Academy, 1863.

* Report of Professor Pfeleiderer's "Gifford Lecture" No. 13.

stern judge, but a Father with whom He knew Himself to be connected in the most inward and confidential way; and with this view was connected His love of men, which led Him to communicate His belief and hope for them to share in. Between this inward love of God and the abiding love of men there was in Jesus no discordance, but entire oneness. God who lovingly revealed Himself in the world, guided man and educated him for the eternal life. The pious man did not serve God by turning away from the world, which was to be the sphere of the kingdom of God, nor could he be indifferent to men who were to be God's children. Thus inmost piety became not a motive for flying from the world, but heartfelt brotherly love, labor for the kingdom of God, and service for humanity.

In the view of Jesus the love of God was not a thing existing for itself. It had the root of its power and purity in religious faith. Nor was His brotherly love mere visionary optimism. He saw that men were evil, but with all this sober knowledge He had a faith in the capability of the saving and redeeming of those who were sunk and lost in the sin and pleasures of the world. This view was possible, because He recognised in man the germ of the child of God, that spiritual impulse which sprang from the Father of Spirits and strove back to Him, and yearned for life, and light, and freedom.

This message He wished to communicate to His unhappy brethren in order that they might be what they were capable of being—sons of the Heavenly Father. This task of Jesus had become a task quite other than it had been for the Baptist. However much He might think with the Baptist of the nearness of the kingdom of God it was not enough for Him to proclaim the summons to repent. His task was rather beginning the work of saving and educating love in the individual, and the carrying of it out in constant patience and gentleness. In this consisted what was specifically new in the work of Jesus, that He did not merely tell of the coming of the kingdom of God as a future event, but that He made its realisation a task for human endeavor, which might be designated as the work of the religious and moral education of man. Therefore, had He become the founder and head not merely of a new religion, but of a new religious world whose abiding task was to educate the natural man to be the child of God.

From our standpoint this work was the beginning of the actually existing kingdom of God and not merely of preparation for the future kingdom of God, but Christ's view of the kingdom of God was that of John the Baptist himself. "There be some here that shall not taste of death till they see the kingdom of God come with power." But while among the Jews the belief that God would come and take actively into His

own hands the government of the world, took a political significance, with Jesus this view passed completely into the background the more His passionate soul was moved by the immediate distresses of the people and the more His attention was concentrated on the remedies for this distress, which had to begin in the individual. What we recognised as new in the work of Jesus was that He perceived His task began in saving work among the individuals. To Him the coming consisted in the overcoming of the universal dominion of Satan by the coming of the kingdom of God. He did not seek it in a national catastrophe, but in the experience of individual souls. What was more natural than that, in the daily multiplied results of His work, he should perceive the beginning of the realisation of God's universal dominion in the world?

The idea of the development of the kingdom of God was set forth again and again in the parables and stood in contradiction to the apocalyptic idea of catastrophe; but it was a fact of history that the old ideas were not set aside by the new at once, but continued to exist alongside of the new ideas, while they gradually lost their significance, and so the idea of the kingdom of God, begun in the individual, did not do away at once with the apocalyptic idea, and while the view of the future lost its apocalyptic eudæmonistic aspect, that of the religious and moral conquest of the world became prominent. As the preaching of the Baptist had awakened in Jesus the consciousness of His life task, so now He also again in His preaching made the nearness of the kingdom of God the motive of His moral demands, which were all summed up in one sentence—"Seek ye first the kingdom of God and His righteousness." This righteousness consisted in doing the will of God, and in His demand He opposed moral conduct to the ceremonial observances of the Pharisees. Jesus in this demand did not destroy the law, but fulfilled it by carrying it back to the absolute ideal of God-like perfection. To become like God was to fulfil our most proper designation—to be that which we were already in the groundwork of our being as children of God.

With this view there was given an entirely new estimation of ritualistic action. It was no longer a service by which man could purchase merit with God, but it was the satisfaction of man's need to give expression to his pious sentiments. The external performances of asceticism alone were worthless hypocrisy. The consecration of one's self and means was true service to God. In the view of Jesus the denial of the world and self was not to lose the world, but was merely a means of gaining oneself and a better world. The ascetic demand in Jesus did not rest on a radical dualism between the finite and the infinite. From the error of abstract pantheistic mysticism Jesus

had been kept by His faith in the loving Father whose nature it was to communicate Himself to His children, and therefore to preserve and not annihilate their lives. What was to be denied was the false view of life that was at enmity with God. This dying and living again was the deep core in the ethics of Jesus beyond which neither science nor culture would ever pass.

CURRENT TOPICS.

THE defeat of the Government on Mr. Labouchere's motion to abolish the House of Lords is ominous of disaster to Lord Rosebery and his administration. It is a beginning full of evil auguries, and Lord Rosebery is justified in showing vexation and even wrath. If he should resign and let the cabinet break up he would not be without excuse. It is true, the decision was reversed the next day, but it was reversed by the consent of the opposition, who did not care to triumph on such a radical issue, and Mr. Labouchere himself declared that he did not intend by his motion to express a "want of confidence" in the prime minister. This was well enough, but still, no subsequent proceedings could reverse the fact that the Government had suffered a defeat. Lord Rosebery could not help feeling that he had been ill used, and that had Mr. Gladstone been in office, or had he himself been in the House of Commons, the disaster would never have occurred. Of course it is a consolation that when the troops got ready they regained the field of battle, that such a vote was not expected, that the captains were at dinner, that the whips were asleep on post, and all the rest of it, but the disagreeable fact remains that Mr. Labouchere was not asleep, and that he outnumbered his enemy at the point of attack, which is good strategy in war. Mr. Labouchere has been consistent all the time. At the very beginning he protested as a member of the Liberal party that a peer ought not to be prime minister, and he has convinced Lord Rosebery that many members of Parliament, including, perhaps, a few cabinet ministers, are of opinion that the prime minister ought to be, and must be, a member of the House of Commons, where he can be got at.

Speaking last week of senatorial stock-jobbing, I said that unless the accused Senators, or some not accused, should ask for a committee of investigation, suspicion would settle down upon the whole body of the Senate. Jealous of his own personal honor, and in deference to public sentiment, Mr. Peffer, a Senator from Kansas, moved for the appointment of a committee to investigate the charges made by the newspapers. His resolution was defiantly laid upon the table, and the proposed investigation smothered by a vote of 33 to 27. Questions of this kind, involving personal character and official opportunities, reveal the close affinity existing between "the two great parties" in the Senate. In the majority were twenty Democrats and thirteen Republicans; in the minority were eleven Democrats and thirteen Republicans, while thirteen Democrats and twelve Republicans abstained from voting, or, in the rude language of the reporter, "dodged the vote." The Populist party voted unanimously for the investigation, but, unfortunately, only three of the Populist men said "Here!" to the muster-roll. However, like the widow mentioned in the Bible, they gave all they had, three mites, and they shall have more credit than the Democrats who gave eleven, or the Republicans who gave thirteen. It is not surprising that the investigation was refused, because an investigation, when it explodes, is apt to scatter like a dynamite bomb and hit somebody far beyond its probable range. A piece of it may shatter a secret panel and reveal some collateral corruption that was never dreamed of by the mover of the resolution, nor suspected by the people. The *Crédit Mobilier* investigation was an awful warning; and some of the Senators remember that.

The political enterprise known as the "Christian Citizenship" movement is in a state of activity still, but up to the hour of going to press the results of it are not encouraging. A Sunday or two ago, the Rev. Dr. Gifford, of the Immanuel Baptist Church, in an eloquent sermon on the administration of Joseph in Egypt, exhorted Christian citizens to turn out and vote for men like Joseph, and he called upon them to rally, not only at the polls, but also at the primaries. "Go to the primaries," he said, "and see that good men are nominated. When a prayer-meeting and a primary come the same night, go to the primary." The advice appears to have had some effect, if we may judge by the Democratic primaries held yesterday, March 13, in the Twenty-fourth Ward, the account of which I find in the *Chicago Record*, a paper entirely non-partisan and independent. According to that, the two rival candidates for alderman were Fred Griesheimer and Watson Ruddy, and, as is usual in these cases, they and their several factions "were at swords' points all day." The convention was appointed for the North Side Turner Hall, but when the Democrats arrived there, they found the hall in possession of the Republicans, and in order to prevent a riot fifteen policemen were sent over from the neighboring station, whereupon the Democrats adjourned their convention to Brand's Hall, at the corner of Clark and Erie Streets; but, unfortunately, they had to pass through a saloon to get there, a feat never accomplished by a Democratic convention. The aroma of whiskey, beer, and tobacco was too delicious; and so, as the *Record* informs us, "the crowd stopped in the saloon below and soon became boisterous"; then they proceeded to nominate an alderman like Joseph, after a fashion probably not known to the uncivilised people in the land of Egypt.

The moral influence of the Christian Citizenship Reform will appear from the account of the proceedings had at the convention in Brand's Hall and the beer-saloon below. The delegates having reached the saloon, "trouble began to show itself," and, as the *Record* goes on to say, "while the two parties were talking, 'Broad' McAbee and W. W. Wells jumped up on beer-tables and called for order." Instead of order they got chaos, which was probably what they wanted, for Wells nominated McAbee for chairman. At this there were "howls of disapproval from the Griesheimerites, but McAbee kept his position upon the beer-table. Cries for 'Murphy' brought out Frank Murphy, who called the delegates to come forward, and then 'Broad' McAbee made another speech." The police had hard work to keep the peace, but all the better for that, amid "howls of delight from the Ruddy faction and groans from the Griesheimer men," a man named Cassidy moved that Ruddy be the nominee. This was declared carried by the man on the beer-table, and then Ruddy was "lifted" to a table and made a short speech. Meanwhile Griesheimer's men had gone up-stairs and begun a contradictory convention of their own. At the six polling places the *Record* says the contest all the afternoon was "hot," and hottest at the polling place 165 North Clark Street. There, just before the polls closed, a crowd collected in the alley and broke into the polling-place. A number of ballots were taken out of the box by some person and scattered all along the alley. The judges secured "what was left," and, after looking over the situation,—not the ballots, but the "situation,"—declared the Griesheimer delegates elected. This interesting report concludes by saying: "The fight will probably be fought out this afternoon in the Democratic headquarters." And the puzzle of it all is that the members of both factions were Christian citizens.

Five hundred years ago, Wat Tyler's hungry army marched on London, captured it, and very nearly made a revolution; the reincarnation of it now threatens to march on Washington. The American Wat Tyler is a man of substance by the name of Coxey, and he proposes to review the nucleus of his army, two or three

thousand men, on Easter Sunday at Masillon, Ohio, and begin his march from there, preceded by a brass band in the legitimate circus way. At Pittsburg he is to be reinforced by a corps numbering twenty thousand men, and marching through Pennsylvania, picking up recruits along the road as Tyler marched through Kent, General Coxe expects to have an army of a hundred thousand men by the time he reaches Washington, which curiously enough is the number Wat Tyler had behind him when he stood upon Blackheath and gazed upon the great city three or four miles away. Wat Tyler's insurrection was a tragedy for him and for his army, but it was a step forward in that invincible rebellion against wrong that in some form or other will never cease until justice is done. Happily, we can look upon Coxe's imitation of Tyler, and anticipate nothing more serious than comedy. One of the easiest achievements for any man in this country is to "raise a ridget." I have tried it, and I know. We are a marching people, and we like to be in the procession. Ask a man to walk a half a mile and he will respond like a log of wood, but invite him to "march" twenty miles or five hundred, and he is ready in an instant for the trip. I remember a thousand of my neighbors who would not walk with me ten rods, but when I invited them to "march" they eagerly "fell in," and tramped with me all over the Southern States. So it will be with Mr. Coxe; he will find a large number of recruits who would not walk the length of a street for wages, who will "march" with him any distance, and as to the trifling matter of subsistence, they will cheerfully put up with whatever the market affords. They will forage on the country, and there's where the trouble will begin, for the country will very likely refuse to be foraged upon, and the army will dissolve before it reaches Pittsburg.

* * *

In spite of all the precautions taken by the authorities to arrest him and prevent his landing, I have to record the humiliating fact that "one Charles Templeton," a determined and dangerous foreigner, eluding the vigilance of the officers and the detectives, defiantly walked into the overcrowded United States of America last Thursday night from the steamer *Majestic*, and he is now actually at large. It is charged against this man Templeton that he has come to this country with the desperate intention to earn an honest living as assistant secretary of the Young Men's Christian Association, and that he had already secured the situation before he left his native country to invade this land. This is the crime for which Mr. Templeton has been advertised as a fugitive malefactor in the following proclamation issued by an American potentate named Stump, a dignity holding the imperialistic office of Superintendent of Immigration: "To Inspectors and Interpreters:—You will keep a careful lookout for one Charles Templeton of Liverpool, England, who is reported as coming to this country under contract, having been engaged as assistant secretary to the Young Men's Christian Association. Detain him, if found, and report to me immediately." To "detain" a passenger is to imprison him, and the reasons given by Mr. Stump in his order to "detain" Mr. Templeton are insufficient, and contrary to all enlightened law. The American Government would not for a moment allow them to be good enough to "detain" an American citizen at Liverpool, or Bremen, or St. Petersburg. Mr. Templeton came over in the second cabin of the *Majestic* and made no effort to conceal himself or his business; and the reason why he was not arrested I assume to be that the "Inspectors and Interpreters" thought they were called upon to perform an ignominious duty, and so, instead of searching the second cabin where Mr. Templeton was, they looked in the first cabin and in the steerage, and in every part of the ship where Mr. Templeton was not.

* * *

It seems that the true character and constitution of the American Senate will be made plain through the columns of *The Open Court*, and Mr. Conway's contribution in the last number is of

great historic interest. He shows what I have always contended for, that the United States Senate is the toriyism of George the Third's reign embalmed in the American Constitution. I presented a similar view of it in a contribution to the *Nineteenth Century*, London, August, 1885, and in that article I maintained that the Senate with its aristocratic prerogatives was a close imitation of the House of Lords as the House of Lords was at the time our Constitution was adopted. In that instrument an additional protection was given to the Senate through a provision borrowed from the Medes and Persians by which the "rotten borough" system was made perpetual and the Senate itself preserved from reformation except by the impossible consent of all the States expressed in a unanimous vote. I also showed that although the House of Lords had been compelled to surrender some of its prerogatives to the democratic spirit of the time, the Senate had relatively gone backward, for in a progressive age like this, to stand still is to go back. I repeat what I have said before, that there was a conservative party strong enough to enforce its will in the convention that framed the Constitution of the United States; this faction determined that in one branch of Congress the minority should rule, and its plan was carried out in the constitution of the Senate. If we put eccentrics in a machine we must not expect them to work in the way concentrics do; the Senate is what it was intended to be.

M. M. TRUMBULL.

NOTES.

Baron Tauchnitz, the distinguished Leipsic publisher, whose large book exhibit in the German House at Jackson Park will be remembered by many visitors to the World's Fair, has sent to the Cornell University, at Ithaca, N. Y., some of the more solid works of that collection. Among the authors represented are such scholars as Baer, Delitzsch, Fuerst, Tischendorf, Gebhardt, Stabl, Haase, Lipsius, Schanz, Berner, etc.; and among the works Davidson's edition of Fuerst's large "Hebrew and Chaldee Lexicon," Theile's "Biblia Hebraica," Salkowski's "Lehrbuch der Institutionen," and Friedberg's "Lehrbuch des Kirchenrechts." Baron Tauchnitz has received a letter from Mr. George W. Harris, Librarian of Cornell University, thanking him warmly for his very generous gift.

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