The Open Court.

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UNPUBLISHED LETTER OF THOMAS PAINE.

TO JAMES MADISON, SECRETARY OF STATE, WASHINGTON.

"Broome Street, New York, May 3, 1807.

"Sir: When Mr. Monroe came Minister from the United States to the French government, I was still imprisoned in the Luxembourg by the Robespierrian party in the Convention. The fall of Robespierre took place a few days before Mr. Monroe reached Paris; and as soon as Mr. Monroe could make his own standing good, which required time on account of the ill conduct of his predecessor Gouverneur Morris, he reclaimed me as an American citizen; for the case was, I was excluded from the Convention as a foreigner and imprisoned as a foreigner. I was liberated immediately on Mr. Monroe's reclamation.

"Mr. Monroe made an official account of this to the then Secretary of State, Mr. [Edmund] Randolph, and also an account of what he had done for Madame la Feyette, who was also imprisoned, distinguishing the one to be done officially, and the other, that for Madame la Fayette, to be in friendship. In Mr. Randolph's official answer to Mr. Monroe's letter, he says, as nearly as I recollect the words, 'The President (Washington) approves what you have done in the case of Mr. Paine.' My own opinion on this matter is, that as I had not been guillotined, Washington thought it best to say what he did. I will be obliged to you for an attested copy of Mr. Monroe's letter, and also of Mr. Randolph's official answer, so far as any parts of them relate to me. The reason for this application is as follows:

"Last year, 1806, I lived on my farm at New Rochelle, State of New York. A man of the name of Elijah Ward was supervisor [of elections] that year. The father of this man, and all his brothers, joined the British in the war, but this one, being the youngest, and not at that time old enough to carry a musket, remained at home with his mother.

"When the election (at which the supervisor for the time being presides) came on at New Rochelle last year, for members of Congress and members of the State Assembly, I tendered my tickets separately, distinguishing which was which, as is the custom; each of which Ward refused, saying to me, '*you are not an American citizen.*' Upon my beginning to remonstrate with him, he replied 'Our Minister at Paris, Gouverneur Morris, would not reclaim you as an American citizen when you were imprisoned in the Luxembourg at Paris, and General Washington refused to do it.' Upon my telling him that the two cases he stated were falsehoods, and that if he did me injustice I would prosecute him, he got up and calling out for a constable said, 'I commit this man to prison.' He chose however to sit down and go no further with it. I accordingly commenced a prosecution against him last fall, and the court will sit the 20th of this May. Mr. Monroe's letter to the Secretary and the Secretary's official answer are both published by Mr. Monroe in his 'View of the Conduct of the Executive,' printed by Benj. Franklin Bache. But as a printed book is not sufficient evidence, an attested copy from your office will be necessary. As to Gouverneur Morris the fact is, that he did reclaim me on my application to him as Minister, but his reclamation of me did me no good, for he could hardly keep himself out of prison, neither did he do it out of any good will to me. Joel Barlow and other Americans in Paris had been in a body to the Convention to reclaim me, but their reclamation being unofficial was not regarded. I then applied to Mr. Morris, but I know not what he wrote to the French Minister, whatever it was he concealed it from me.

Yours in friendship,

Thomas Paine."

WAVES AND RAYS.*

BY PAUL SPIES.

[concluded.]

If now we undertake to ascertain whether the phenomena of electricity likewise can be brought under the same point of view which, as we have seen, dominates a great portion of mechanical phenomena generally, and all the phenomena of the departments of sound, heat, and light, the question next in order is: Do we have here occurrences which exhibit the first of the characteristics of wave-phenomena, the property

* Translated from *Himmel und Erde*.

namely of effecting actions at great distances through space? Have we in the province of electricity, action at a distance at all? I do not refer so much here to the possibility of carrying electrical effects along so-called conductors, along metal wires for instance; for this phenomenon affords obviously but a slight analogy to the processes now in question. The object here rather is, to establish the transmission of effects through air or through empty space,—that is, space filled only with ether. There are in this direction especially two effects which may be taken into consideration: effects well-known to you, and to which I may devote some experiments.

You see here a so-called electroscope, an instrument in which two thin metallic leaves are suspended near each other. I will project an image of these upon the screen. With the aid of the electroscope the presence of electricity may be shown, as the two leaves repel each other when they are both electrified in the same sense, as for instance positively electrified. I need only to stroke the knob of the instrument with a fine hair pencil and I generate by the friction electricity. You observe the effect—namely the divergence of the leaves. I touch the knob, draw off the electricity, and the leaves fall together again.

It will suffice, however, to bring an electrical body near to the knob, without direct contact. You see that as I bring the rubbed glass rod nearer to it a separation of the leaves takes place. As you know, this phenomenon is explained by the hypothesis that an unelectrified body possesses in reality two kinds of electricity, positive and negative, but in equal and mutually neutralising quantities. By the approach of the positive glass rod, the unlike, negative, electricity is, we imagine, drawn up into the knob while the similar, positive electricity is driven down into the leaves. This is the phenomenon of electrical distribution or of "influence" so-called, one of the simplest cases of electrical action at a distance.

Here the question intrudes itself: Have we here to deal with a direct and real action at a distance or is the effect that proceeds from the glass-rod transmitted from point to point through some intervening medium, the air or some other substance. In the latter case we should have to assume that the air in the vicinity of the rod, or the ether, assumes under the influence of the rod some definite condition, and that this condition is gradually disseminated farther and farther. You see that as a consequence of these thoughts the supposition naturally follows of a finite, definite, and perhaps ascertainable velocity of transmission of the influence (or inductive) effect. Such an assumption would plainly be much more satisfactory to the mind than that of direct action at a distance.

A second action at a distance, which we observe in connection with electrical currents, is the phenomenon of *induction*, discovered by Faraday. To select a special case from the multiplicity of this great series of phenomena, one of the laws of induction asserts, that in a wire conductor in no wise connected with any source of electricity an electric current is always set up whenever an electric current in the vicinity suffers an alteration, particularly when it starts or altogether stops. You may frequently observe this effect at your telephone. If you hold your telephone to your ear without previously having obtained connections, you will hear the talking which is being transmitted through the neighboring wire conductors. The rapidly alternating currents that flow through these neighboring conductors, cause currents to arise in your conductor which is not in any way connected with them and produce thus sounds in your telephone. You see that here again we have to do with an electrical action through space, respecting which we may again put the question that we proposed before in the case of influence.

And, now, compare this electrical percussion, if I may so express myself, which discharges itself through space whenever I cause a current to start or stop, with the shock which I before imparted to the stretched rope, and imagine furthermore that in the last instance I impart not only one impulse but a whole series of them one after the other. The possibility of waves being produced, is evident. The effect of the first impulse will have propagated itself a certain distance before the second takes its departure. We may therefore call this distance a wave-length, but must in so doing first of all modify our idea of a wave; for who will say to us that we are concerned here with a motion, for example with a vibration of the ether! In any event, though, changes of electrical condition actually are in the present case propagated through space. Or, viewed from another standpoint, we actually do observe when placed at a point in space that the electrical condition at that point fluctuates in regular alternation, and nothing prevents us from using the word wave to express this fact. Here again we generalise our motions in the same way we did before when we passed from transversal to longitudinal waves.

The idea might possibly suggest itself to us, now, of producing this kind of rapidly alternating inductions with the help of one of the well-known induction-apparatuses of which you see several in use in this room. By means of a self-acting mechanism the electric current might be opened and closed in rapid succession. This is effected by means of a vibrating elastic spring, and you may infer from the tone of the same that we have to deal here perhaps with several hundreds of vibrations per second. Several hundred times a second therefore is the current opened and shut in a

bundle of wires which is in this apparatus; and just as often is an induction-effect emitted from this bundle of wires. In the present instance you will observe this induction-effect by the sparks which dart back and forth in quick succession between these two metallic balls—two balls which are nothing more than the extremities of a second wire spiral which surrounds the first without in any wise touching it. If we imagine the second spiral removed; the induction-effect will be freely propagated in space. The velocity of the transmission of such induction-impacts is certainly extraordinarily great. As the following experiments will show it is a question of some thousands of kilometres per second. Now as we have assumed some hundreds of induction-impacts for this same interval of time, an appeal to the method of computation before employed will give a wave-length of more than ten kilometres; and it would hardly be possible to institute investigations on such undulations. We must get more rapid vibrations, and shorter wave-lengths. And for this purpose a different expedient presents itself.

About thirty years ago the physicist Feddersen furnished the experimental demonstration of a fact which Helmholtz had already surmised on the ground of theoretical considerations; namely, the proof that the spark discharge of a Leyden jar does not consist in the simple transfer of positive electricity to the one side and of negative to the other, but that for a short period an oscillation of the electricity, so to speak, takes place.

In order to illustrate this in a more palpable way I have placed these two tubes filled with colored water upon a stand, and joined the tubes beneath by a rubber pipe. The water would stand at the same level in both tubes if I did not hold the rubber pipe closed. As soon as I let go the difference of the levels equalises itself. But the adjustment you see is not quite perfect; the water by virtue of its inertia oscillates backwards and forwards a few times before coming to rest. Something similar, now, takes place under certain conditions in the production of the electric sparks; which consists in reality of several successive rapid discharges.

For the analysis of such phenomena a rapidly rotatable mirror is used in physics. When I contemplate the image of a candle in such a mirror, the image of course rotates when the mirror rotates; and upon more rapid rotation you see a closed circle of light. But when an object emits light not continuously but at interrupted intervals, the case is different. (Fig. 6.)

I have here an exhausted tube which I can illuminate in rapid succession by the aid of the alternating currents produced in the induction-apparatus. You will see the reflected image of the tube only at the instant in which it is illuminated. You will see no luminous band, as would be the case with a continuously acting source of light, but a star.

If I know the velocity of rotation of the mirror and at the same time the distances apart of the reflected

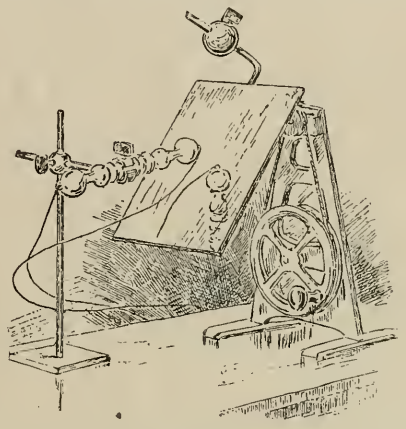

Fig. 6.

images, I can determine with facility how many times a second the tube is illuminated. Feddersen employed this method, and he found that when one single spark only was observed there was exhibited in the mirror a *whole series* of spark-images. The great number of the spark-images plainly furnishes one proof, although not the only one, of the oscillations of electricity. Such electric oscillations, however, follow one another with extraordinary rapidity—namely with a rapidity of about one hundred thousand oscillations in a second.

When you reflect now that every one of these Feddersenian single-discharges, each one of these brief-living currents, must diffuse its induction effects throughout space, you will understand that since the number of the vibrations is so large the wave-lengths must be considerably smaller.

The laws of these oscillations have been accurately investigated and especially has the dependence been determined in which the rapidity of their succession stands to various different conditions, particularly to the form and the size of the metallic bodies employed. When therefore Professor Hertz of Bonn, with a contrivance somewhat like the one I have here (Fig. 7), produced oscillations which were executed with considerably greater rapidity than those of Feddersen, he was able to calculate the number of the oscillations, numbers which ranged from about one million to ten millions per second, although in this case a measurement by means of the mirror was no longer possible. The apparatus which you see here consists of two plates to which are attached rods with balls. (The

figure, Fig. 7, shows the outlines of the apparatus, so that the plates standing vertically appear as lines.) By means of the induction-coil (J) we cause sparks to pass between the balls.

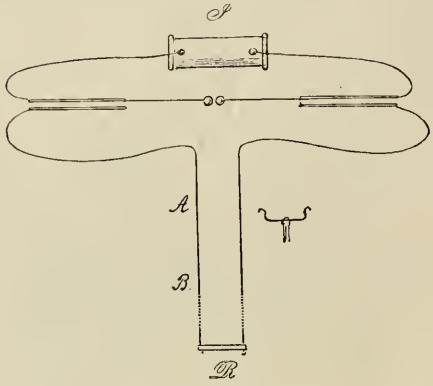

Fig. 7.

If with every spark oscillations take place, the plates become electrified positively and negatively in rapid succession. Just opposite these plates stands a second pair which are not in any way connected with the first but upon which the previously mentioned influence (or inductive) effect will be exercised; and hence these plates likewise become positively and negatively electrified in rapid succession. We have, further, two wires, about seven metres long, leading off from the last-mentioned plates. Upon this wire also must the electrical condition continuously fall and rise. The effect will, however, reach the more distant point later than it does the nearer ones. If the oscillations, then, succeed one another rapidly enough, the conditions will be given for the production of stationary electrical *undulations;* at least if we are allowed to suppose that at the ends of the wires a reflection of the electrical effect takes place. We will make this assumption for the moment. Each of the wires must, then, behave just as our spiral spring did when we fastened it at one end and caused the other to vibrate in some regular time. At the end of a wire a node therefore must be produced—a point, if I may so express myself, of strongest electric condensation and rarefaction—and be produced, furthermore, simultaneously in both wires, yet in such a way that when in the one positive electricity is concentrated, in the other wire end it is lacking, or more correctly speaking a concentration of negative electricity takes place there. If we bridge over the ends of the wires by means of a vacuum tube (R), the tube will be illuminated in consequence of this electrical action; as you see. And now we will explore the two wires, just as we did before the pipes, with a pressure-indicator so to speak. Such an instrument is here supplied by a piece of copper-wire. If we bridge over the wires with this contrivance, the equalisation of the two electricities takes place through it and the tube remains dark. Only when we bring the wire to a place where there is a loop of vibration, where therefore the electricity oscillates so to speak without condensation or rarefaction will its presence remain ineffectual.

You see that I have now found such a place (A). The tube is again illuminated. The distance from this point to the tube—a length of five metres—is therefore the distance apart of the nodes and loops of vibration and is consequently equal to a quarter of a wave-length.

We will lengthen the wave by hanging two strips of metal to the ends of the wires. This corresponds to the experiment in which I blew a different note upon the organ-pipe. The distribution of the nodes and loops of vibration is now a different one; the curved copper-wire no longer lies in a loop of vibration and is consequently effectual again: the tube is no longer lighted. But it will light up again when I bring the curved wire somewhat nearer to the tube, as at (B).

You see thus how closely these experiments agree with the ones we performed in the first part of this lecture.

I will but observe that this form of the arrangement of the plates is in all essentials principally due to Hertz, but that the method of investigation by means of Geissler tubes originated with Dr. Lecher, a physicist of Vienna; and, not to be inaccurate, I must also observe that the explanation of the phenomenon as I have here given it turns out upon closer examination to be not in every respect satisfactory. For our purpose it is nevertheless sufficiently complete.

On the basis of the calculations of which I before spoke, the number of vibrations for the foregoing experiment was determined to be about 15 millions per second. As our wave-length was found to be 20 metres you are easily in a position to determine by the multiplication of these two numbers the velocity of the transmission of such a wave; you will find it to be 300,000 kilometres, a number which you probably already know. It is the velocity of transmission of light. Electrical waves, therefore, are transmitted with the same velocity as the light-waves!

But this is only one of the surprising experimental results of Hertz, which we must follow still farther. Hertz sought first of all to obtain evidence of the propagation of these electric oscillations through *free* space. This is not a problem so essentially different from the one just above discussed as might appear; for in the foregoing experiment the air, or other sub-

stance between the wires, to which we attribute no other function than that of isolating the wires from each other, plays a very essential part. The salient point of the researches of Hertz is this, that by them the real arena of electrical oscillations is placed in these insulators, while the conductor simply plays the part of an impenetrable bounding surface to the medium in which the electric oscillations are produced. Hertz accordingly placed a metallic partition in the path of the electric waves which he had produced in a pair of plates of this kind, and demonstrated that the waves were reflected therefrom so as to produce stationary waves.

Since, now, as I intimated to you, the rapidity of the oscillations is dependent upon the nature of the metallic body in which they are produced, you can easily imagine that two bodies may be attuned to each other. If therefore we pace off the region of action of the stationary waves with some such properly arranged resonator, which is nothing more than a metallic substance with a break in it, we shall find that at certain points of the region sparks appear in the break and at others not. What conclusion we are to draw from this, is very evident. We have fixed the position of the nodes and loops of vibration.

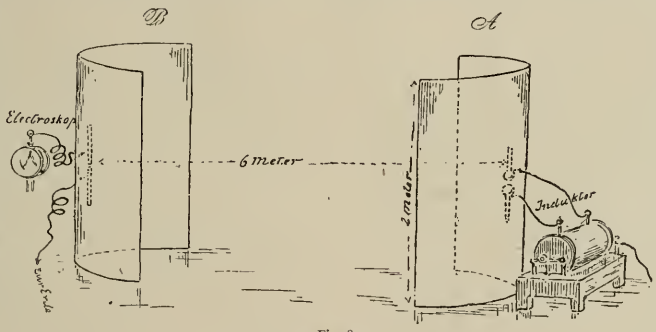

Fig. 8.

We will here repeat another, the most noted, of the experiments of Hertz. In the focal line of this large parabolic mirror (A., Fig. 8) we will produce oscillations by causing sparks to pass between two metallic bodies in connection with an inductorium. The ray of electrical energy thus produced will, in close analogy to our earlier experiment on the radiation of heat, be concentrated in the focal line of the second mirror (B). At that place is a metallic body with a break in it, at which a little spark will appear as soon as oscillations are produced at (A).

The question now is, how can I make visible to you this little spark, which despite the size of the apparatus is only about $\frac{1}{100}$ of a mm. long. To do this I proceed as follows: With one part of the metallic body in the second mirror I connect an electroscope whose leaves I project in visible form upon this screen; the other part of the metallic body I connect with the earth. If now I charge the electroscope, it will, it is evident, retain that charge, because its connection with the earth is interrupted by the break in the metallic body. But when a spark passes across the break, the connection is restored for the moment and the electroscope is discharged. The electrical ray which is here transmitted from the one mirror to the other will be made manifest to you by an instantaneous collapse of the leaves. Of course, the discharge of the electroscope does not stand in any intimate connection with the original phenomenon, but it affords us a convenient means for observing the latter.

You see now that the apparatus performs all that I have promised. Non-conducting bodies are penetrable to such a ray—for example, this board-partition which I have erected here admits its passage. Conducting substances are impenetrable to the ray, or are not "transparent"—for example, the human body. I and my assistant place ourselves in the path of the ray. You see that the electroscope retains its position. Now we step aside and at once the leaves collapse, a proof that we two are in this sense not "transparent." And, furthermore, the ray which we produce here is necessarily polarised. The electrical action is not distributed uniformly about the axis of the ray; in a vertical plane it is different from what it is in a horizontal plane. I set up here, vertically, a grating which consists of a wooden frame strung with copper wire. You will not wonder that now the effect ceases; for we have interposed here a wall of conducting-substance which is impervious to electrical oscillations. I now turn the grating so that the wires are horizontal and as you see the effect reappears.

We may express this result as follows: If an induction-effect can take place in a body (the wires first were vertical, in a line with the path of the sparks), the body will behave like a metal, it will allow no ray of electric force to pass through it. If on the other hand no induction-effect can take place (as when the wires are horizontal) the body is for such rays "transparent." Without entering further into the discussion of these rays, it will be evident to you that an agreement with the experiments performed with light-rays exists here in the minutest details.

I will still mention that Hertz beside these experiments on reflection and polarisation also made similar experiments with regard to the refraction of electrical

rays. He employed for this purpose a prism made of an insulating substance, namely pitch.

I have already alluded to one significant aspect of the experiments of Hertz. But much more important is the perception which we last attained. These experiments furnish the experimental proof of a connection long previously suspected between electricity and light. According to the electromagnetic theory of light, which was principally elaborated by Maxwell and afterwards by Poynting and Hertz, light-vibrations are nothing else than the electric oscillations which we have here produced. Only the number of the vibrations is somewhat greater for heat and light undulations. Every phenomenon of light, according to Hertz, is of an electric nature, not merely the light of the incandescent lamp which is produced immediately by the electric current but also the light of a candle and of a glow-worm.

I should like in conclusion to show you a final experiment, which points from another side to the relations between electricity and light. Hertz also gave the impulse to this series of investigations. The researches were especially conducted by the Messrs. Hallwachs, Elster, and Geitel. It was found that certain kinds of light,—especially those invisible to our eyes, the ultra-violet rays, were able to influence considerably the phenomenon of electrical discharge. Their action on negative electricity is different from what it is on positive electricity.

Thus, I so place the electroscope, that the rays of the light from the lamp shall strike it without passing through the lenses. I do this because although glass transmits all visible rays, it does not transmit ultra-violet rays. The rays fall for the most part upon a particular part of the electroscope, namely upon the amalgamated zinc ball which you see here.* I now let the rays of light pass through a glass plate. I charge the electroscope with negative electricity. You see that the leaves fly apart. I remove the glass plate and at once the leaves collapse. I need not, perhaps, call your attention especially to the fact that in this case the discharge is the essential part of the occurrence, and not, as formerly, simply an adventitious accompaniment. We are very far from having found a final explanation for this phenomenon. The foregoing attempts at explanation would rank the occurrence as a phenomenon of electrical resonance.

If finally we gather together the results of these new and, as you see, most remarkable researches, they will appear at first sight to be wholly negative. For it would seem as if the existing theory of light, which had passed as incontestable, must be cast aside as worthless. And, moreover, the considerations here supplied do not tell us anything about the real nature of such an electric wave and consequently also nothing about the real nature of electricity. "Can we then," we ask, "this being so, trace everything back to that simplest and most comprehensive of all processes, motion?" As to the first point, however, the case is not so bad; we need not really abandon the wave-theory of light. Everything it has told us concerning waves, their length, their interference, etc.; the surprising inferences which it has drawn;—all that remains. Our conception only of a wave has been altered. We speak no longer of the disturbance of the elastic equilibrium of the ether, but of electrical and of the therewith inseparably connected magnetic disturbances. If we are not yet in a position to give a satisfactory answer to the second question, we at least have the advantage of knowing that there exist for us now only two provinces of natural processes. Namely, first, that of the mechanical and acoustical phenomena. And, secondly, the phenomena of that other province which now forms a kingdom by itself, but which is nevertheless a kingdom in which no chasms exist, but in which the mind may freely roam without its aspiration after a monistic comprehension of nature remaining at every movement unsatisfied.

*The zinc ball was fastened to the rod of the electroscope by means of a strong wire and hung between the lamp and the gold leaves of the electroscope, a little below them. The rays of the light influenced the ball and at the same time illuminated the electroscope, so that a projection on the screen was possible.

CURRENT TOPICS.

"Is Misther Murphy in?" said an Irishman, inquiring for a friend. "No," was the answer, "there is no Murphy in the building; the nearest we have to Murphy is O'Brien." "Well," said the visitor, "Its O'Brien I want." A like blunder, lacking the wit, was perpetrated the other day in Chicago, when a "Detective," accosting a lady on the street, inquired, "Is this Miss White?" "No," said the lady, "my name is Robinson." "Well," replied the Detective, "You are the woman I want. I arrest you for forgery, grand larceny, and breaking jail at Elmira, New York." In vain the lady assured her captor that she had never been in the state of New York. In vain she implored him to take her back to the office she had just left, where she would convince him that he had arrested the wrong person. Wooden and dull as his club, he marched her triumphantly through the streets up to the castle of his "Chief"; and that potentate, lawless as his vassal, committed her to prison as Miss White, of Elmira, although she offered to prove by her mother, her aunt, her cousin, her employer, and other witnesses that she was Mrs. Robinson, of Chicago. "Away with her," was the sentence, "to the deepest dungeon beneath the castle moat," and the kidnapped lady was escorted by those gallant men to a prison cell, there to be tortured by the inmates of adjoining cells, an insane woman on one side of her, and a drunken man on the other. At midnight her mother was allowed to take her home, under the espionage of two detectives, who "shadowed" her until next day, when she was taken out of their valorous guardianship, and brought before Judge Clifford on a writ of Habeas Corpus. Here, it having been conclusively shown that she was not Miss White, of Elmira, Mrs. Robinson, of Chicago, was discharged.

* * *

I see by Tuesday's paper that Mrs. Robinson has begun a civil action against the kidnappers who without any warrant either

from the state of New York or from the state of Illinois, seized her in the public streets and dragged her to a prison cell under the stubborn delusion that she was Miss White, of Elmira, in the state of New York, although they had no warrant even for the arrest of Miss White. Mrs. Robinson ought to file a criminal information against the whole syndicate of persecutors, and especially against the "Chief," the most hardened and unintelligent of the lot. Dogberry had more conscience and more sense. On Sunday morning one of the leading dailies, commenting on the unlawful arrest and imprisonment of Mrs. Robinson, exclaimed with editorial indignation, "Are we living in St. Petersburg?" as if a Cossack police was an exotic in Chicago, although congenial to the government of Russia. The innuendo lurking in the question contains an unjust imputation on the Russian system, for in St. Petersburg no such oppression would be permitted as is habitually practiced in Chicago. If imprisonment of the wrong person, or of the right person either, without warrant, without evidence, and without hearing the accused, should be tolerated in St. Petersburg, the alarmed citizens there might properly exclaim, "Are we living in Chicago?" If a wrong like that suffered by Mrs. Robinson were done in St. Petersburg, all the participators in it would be punished, and the "Chief" would be ignominiously dismissed from office. The only exception to this rule would be in the case of arbitrary arrests directly ordered by the government itself There is but one Czar in Russia; there are hundreds of him in America.

* * *

The illegal arrest of Mrs. Robinson, leads me to consider the nomination of Judge Altgeld for Governor of Illinois. I am glad that he was nominated; not on political grounds, for as to them I care nothing, but because he wrote a book, which his political opponents now declare shall be made a part of his platform. It is not often, in these days, that either party, in any state, has the courage to nominate a man for Governor who has enough sense to write a book; and when such a rarity is nominated, it is only fair that the other side should pelt him with his book until the end of the campaign. As soon as Judge Altgeld was nominated by the Democrats, the leading Republican organ exultingly quoted this bit of ancient wisdom, "Oh, that mine adversary would write a book"; and it said, "Judge Altgeld has done that, and we will now circulate his book among the people and expose his dangerous doctrines." That is a legitimate act of political war, and I hope to see the threat carried liberally into execution. Judge Altgeld's political fate is a small matter, but his book is of supreme interest. It will now be generally read, and therein lies the importance of his nomination. It brings the book into notoriety, and the reading of it will put an end to such Police rioting as the lawless arrest of Mrs. Robinson. It will abolish all the other "fantastic tricks" played by Jonathan Wild in the petty monarchy of Chicago. Through decay of public spirit, the topics discussed by Judge Altgeld in his book have become torpid, but under the excitement of an election they will become "Live Questions" in reality, especially those relating to "Our Penal Machinery" and "The Administration of Justice in Chicago." Under those headings we are shown how magisterial and ministerial policemen dislocate the Constitution, and trample down the statutes under the pretense of administering the law; throwing the social system into moral confusion under the plea of preserving order, and breaking nine commandments to enforce one.

* * *

Lest it may appear that the importance given to Judge Altgeld by his nomination for Governor, had magnified in my imagination the importance of his book, I may be pardoned for saying that I reviewed "Live Questions," nearly two years ago, as may be seen by *The Open Court* for September 18, 1890. At that time I really did not know whether Judge Altgeld's party label was "Republican" or "Democrat," but I did know that he was a judge, and I did think that his official position would compel public attention to the judicial malpractice then, as now, so common in our courts; and in that review I said: "Here from the bench itself comes a cry that in the days of our fathers would have moved the very stones to 'rise and mutiny.' That cry has been heard before but it rose to the sky unheeded, because it came from the halls of unrest, where labor pleads its cause. It came from the platform of discontent, where passionate invective shakes our social system like a storm. This appeal for justice was unheeded when it came from the 'lower classes,' and the men who made it were outlawed by 'society' as the enemies of social order; but a warning from the court house, a charge from a judge on the bench, will be heard above the jingle of coin in the bank, or the clamor of trade." My over confident expectation failed. The appeal of the book was not heard, but it will be otherwise now. The book becomes a "campaign document" because its author is a candidate, and therefore the dark story of our Courts of Injustice will be read. When a man becomes a candidate, that character, by the law of party spirit, attaches to everything he ever said or ever did, and his writings are tattooed all over him in the form of praise from his friends and censure from his enemies. Judge Altgeld could not now hide his book if he would, for his opponents will not allow that. His enemies cannot hide it either for his partisans will not allow that; and so "Our Penal Machinery," and "The Administration of Justice" become "Live Questions," and issues of the campaign.

M. M. TRUMBULL.

LIFE.

BY A. COX.

COULD grain of sand o'er-see its own advance,
From rock,—through flower or fire,—to ether skies,
Despair and Death, to its unreasoning eyes,
Would mark each change of seeming fate or chance.

To thought of man; with high and god-like glance,
The world endures; whate'er the passing guise
Eternal, indestructible it lies,
The plastic slave of Life and circumstance.

And shall the spark, the atom of All-Life,
The cause of Form and Motion in the clod,
Decay or Die?—Annihilate the Soul!—
The fiends of sin and darkness wield no knife
With power to cut from man the germ of God
Or hurl him forth from His Eternal Whole.

BOOK REVIEWS.

PRINCIPLES OF NATURAL AND SUPERNATURAL MORALS. By the Rev. *Henry Hughes*, M A. 2 Volumes. London: Kegan Paul, Trench, Trübner, & Co., Limited. 1890.

We are reminded by the title of this work that a large proportion of the English reading world is still, professedly at least, Christian. By those who have progressed beyond this standpoint, the word *supernatural* will be regarded as irrational, and the second volume of this work, which treats of so-called "supernatural morals" may be deemed a superfluity. As a fact, however, this phrase might be used as indicative of classification rather than as having reference to origin; seeing that it is employed to express the distinctive features of Jewish and Christian morals. Under the former head is included "the phenomena of the moral life of all persons to whom, not being Christians, God has in some way revealed himself as the Moral Ruler of the universe." According to this view the Jews and Christians, together with certain individuals whose moral sense is highly developed, form a class, distinguished by its supernatural morality, apart from all the rest of mankind who are "pagans." The first volume of this present work exhibits a system of "natural morals" applicable to the

case of the second class, whose representative writer, according to the author, is Aristotle.

We are told that Aristotle speaks "with high authority on the subject of man's moral constitution as it then was." We have here a distinct recognition of the fact of moral development in the human race, a fact which is admitted by Christian *scholars*, although they affirm that the development of the phases of morals spoken of as Jewish and Christian is due to supernatural revelation. Thus, according to Mr. Hughes, who divides ethics into three branches, natural, Jewish, and Christian, the phenomena which distinguish Jewish morality from that of "pagan or non-religious" man, arise from man being brought into conscious relations with God. Such is also the origin ascribed to the special phenomena of Christian morality.

The whole argument in favor of "supernaturalism" is to be found in the assertion that "in order to arrive at anything like a correct understanding of moral processes in the present day, it seems necessary to discriminate carefully between those that have their origin in the constitution of man's ordinary nature, and those that are dependent upon his being brought into personal relations with God." We are little interested in inquiries that assume the existence of supernatural facts. So the author will excuse us for neglecting this part of his work.

The first volume embodies the author's special views in relation to "natural morality." He ascribes moral obligation to the action of life-force which contains certain "currents of constraint." Thus man is impelled to adopt such modes of conduct "as appear to him to be suitable to his position as a constituent part of the world of nature." To this principle of conformity to nature is added the principle of law, which constrains to the adoption of conduct characterised by uniformity. Moreover, as a member of society, man is under constraint to adopt certain modes of conduct which are essential to intercourse and coöperation with his fellow men, and to act for the common good, as well as to help others and to seek help from them. But further, he is impelled, generally to satisfy his several desires in such a degree as tends to the maintenance and promotion of harmony among them; but sometimes, so as to develop new relations of harmony among his desires. Here we have the source of the ideals which present themselves to the mind, and exert a constraining influence on the conduct; being thus intimately connected with the sense of individuality. The end which nature has in view in sometimes urging man to the encouragement of some desires and to the restraint of others is the growth towards a "fuller harmony in the system of desires and of more complete uniformity with natural rules." Ω.

THE DISTRIBUTION OF THE PRODUCE. By *James C. Smith*, Fellow of the Royal Colonial Institute. Charing Cross Road, London: Kegan Paul, Trench, Trübner, & Co. 1892. 77 pages.

This is a plea for the "wage co-operative system" as against the "wage competitive system," and the ethical reasons for it are supported by economic explanations as to where the produce comes from and where it goes to under the complicated machinery of our present industrial system. In the language of the author it is an attempt to show "that employés representing the element labor, should participate in profits equally with employers representing the element capital, as a matter of justice, not as a matter of benevolence; and that such equal participation in profits by employers and employés is mutually beneficial and practically possible." In the author appears to be more successful on the sentimental than on the scientific side.

The proposed change from the wage competitive system to the wage co-operative system is a desirable one if it can be accomplished, but this can only be done under the persuasive eloquence of mutual interest, and that it would be for the advantage of all parties is not at all made clear by the argument of Mr. Smith. In fact, the difficulties in the way of it are presented by him when he says, "With these limitations there is nothing in the nature of things to prevent the wage co-operative system from being adapted and applied to the work of the world to-day; all that is really necessary is the agreement freely entered into between employers and employés."

Certainly, anything can be done by "an agreement fairly entered into," but the plan must be profitable to both parties in the opinion of both parties before an agreement will be made. Mr. Smith's co-operative system is the wage system still. The workman is not a partner in the business; he is merely a sharer in the profits. Now, unless the workman be a part owner of the factory, profit sharing must always be a gift from the capitalist, because the laborers would not accept the factory as a Christmas present, and bind themselves to share the losses as well as the profits. They require that their wages must be a certain sure sum whether the business wins or not.

At the same time, Mr. Smith's book is instructive and useful for the skilful manner in which he separates our industrial system into its various elements, and shows how the produce is distributed, and the moral reasons why the shares of the producers are or ought to be so much for capital and so much for labor in proportion to the contribution made by each to the total product.

M. M. T.

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