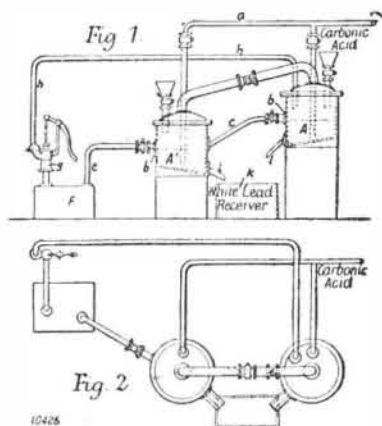


bisulphide of carbon affecting those who came in contact with it in India rubber works, he thought Mr. I. Frankenburg deserved great credit for covering over the channels conveying the bisulphide and other apparatus with glass, in order to prevent the fumes from affecting his workpeople. A slow draught was thus caused to circulate through the system, so that bisulphide vapors could not escape, though air might be slowly sucked in.

Mr. Singer, in reply, said he would rather use bisulphide of carbon than any other substance. It had the advantage of being heavier than water, and if fairly used, with proper apparatus, nothing was easier to handle.

#### IMPROVEMENT IN THE PRODUCTION OF WHITE LEAD.

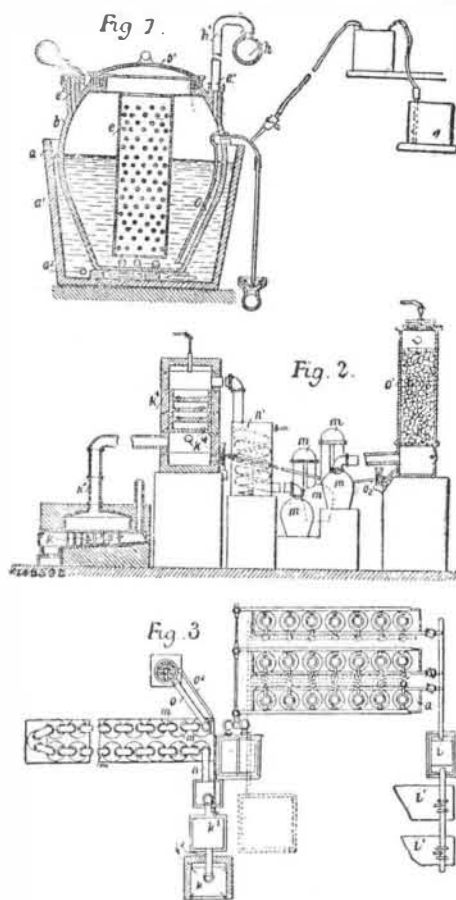
THE apparatus, by R. W. E. MacIvor, London, consists of a vat, A, into which is introduced a solution of acetate of ammonia or other alkaline acetate, and afterward oxide or other compound of lead, which is digested in the solution, with or without heat. Carbonic acid is subsequently introduced by a pipe, a, to vat, A.



When the mixture is carbonated, the solution is run off through filter, b, and pipe, c, into vat, A', where it acts upon a fresh quantity of oxide of lead in vat, A', and passes through filter, b', and pipe, c, to reservoir, f, where it is pumped by pump, g, through pipe, h, into vat A. This process is continuous, and the acetate of ammonia is used over and over again. The carbonate of lead resulting from this process is run into washing vat, k, through shoots, l, where it is washed and treated in the usual manner.

#### PRODUCTION OF CHLORINE.

THIS process is by J. A. Just, Syracuse, N. Y., U. S. A. A still or series of stills are connected in rows termed batteries, each of which is placed in a trough, a, of wood lined with sheet lead, a', and in the bottom of the troughs is a coil of steam pipes, a'', for heating the stills. Each still consists of an earthenware jar, b, having a gas-tight cover, b'. The perforated chamber, c, receives the charge, and c' is an opening for the entrance of the acid. c' is a nozzle connected to pipes, h

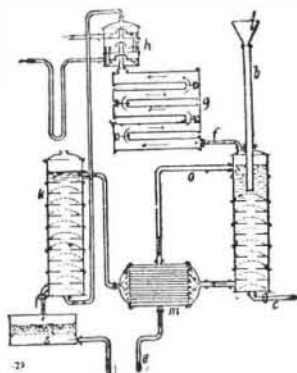


and h, for carrying off the gas formed. The main and branch gas main, h, into which the chlorine generated is discharged, leads to a washer, i, and thence to the chloride of lime chambers, i'. k is a furnace for the recovery of the acid and manganese used. The pipe, k', conducts the nitrous vapors to a tower, k'', through which they rise in zigzag course, a pipe, k'', admitting air to mingle with them, and at the top a spray of water is admitted which serves to condense the vapors. The vapors and water are carried off to the last jar of the series of condensers, and circulate in the opposite direction to the course of the uncondensed vapors. The uncondensed vapors then pass through a cooler, n', to the first of a double row of jars, m, from the last of which they are led by a pipe, o, to a tower, o', where they are condensed, and through a pipe, o'', again to the last jar of the series. All the manganese dioxide and the nitric acid is recovered and reused indefinitely.

The troughs in which the stills are placed are filled with a strong solution of calcium chloride, heated by the steam pipes, so as to drive from the stills all the chlorine contained in the hydrochloric acid.

#### MANUFACTURE OF SODIUM BICARBONATE.

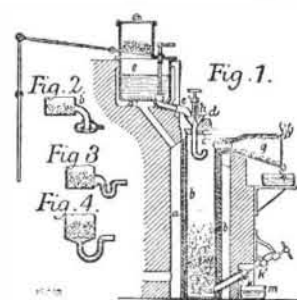
CRUDE bicarbonate of soda dissolved in water, or the mother liquor from previous operations, is clarified by decantation or filtration, and, after being cooled, is treated by carbonic acid. There is a vertical chamber provided with a pipe, b, for the introduction of the crude bicarbonate of soda. At the bottom of the chamber is a pipe, c, for the admission of steam, and near the top a pipe, o, for the admission of water or mother liquor. The gases resulting from the decomposition of the bicarbonate pass through a pipe, f, to a cooler, g, whence they pass through a washing apparatus, h, into a second chamber, k, in which the bicarbonate is reproduced. The liquor drawn off from the right hand vertical chamber passes through a filter, and is introduced into a refrigerator, m, whence it is conveyed to the top of chamber, k, and after being saturated with the carbonic acid therein, the bicarbonate of soda thus produced is drawn off through a filter, s, where the pure bicarbonate separates from the mother



liquor, which may be used again. The water or mother liquor is pumped into the refrigerator, m, through a pipe, e, and passes around tubes through which is conveyed the liquor discharged from the aforesaid chamber. The refrigerator, m, is thus used for cooling the liquors obtained in the first operation, and heating the water or mother liquor to be used for dissolving the crude bicarbonate. E. Solvay, Brussels, is the author of this process.

#### MANUFACTURE OF SODIUM, POTASSIUM, AND METALS OF THE ALKALINE EARTHS.

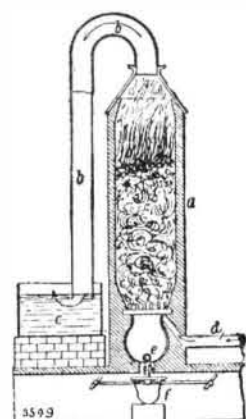
IN carrying out the process, which is by Professor Curt Netto, Dresden, Germany, the retort, b, being heated to bright redness by furnace, a, is partially filled with charcoal through openings, c', and molten caustic soda is admitted in a thin stream upon the glowing charcoal, and the flow of sodium and the metallic sodium appear at the mouth of a condenser, g. In commencing, the tube, k, is closed by a stopper, k', to keep out the air. After a short time the tube, k, may be



opened to allow the excess of slag or carbonate to flow out into vessel, m. Figs. 2, 3, and 4 show modifications of the device for the discharge of the carbonate. The discharge tube is cast with the retort. The vessel, e, contains the molten caustic alkali, and is arranged above a flue, a', whereby it is heated sufficiently to melt the caustic alkali, which flows down the passage, e', into a hopper, d, and thence into the retort, being regulated in its flow by a plug, h.

#### PROCESS FOR OBTAINING ALLOYS OF ALUMINUM, AND PARTICULARLY ALUMINUM BRONZE.

THE process by L. Q. Brin, Auteuil, Paris, consists in the direct employment of salts of alumina or hydrate of alumina, or of bauxite or clay rich in alumina. Copper, iron, or other metal in the form of sheets, lumps, etc., having been cleansed, is coated with a composi-



tion formed of clay, chloride of sodium, borax, and fluorspar, triturated with water to form a paste. a is the furnace, charged with coke and metal coated with the flux. The fire being lighted and blast admitted, the metal melts, and the salts of alumina are reduced to metallic aluminum, which combines with the copper

or other metal and forms an alloy. The furnace is provided with a chimney, b. The escaping gases may be passed into a muffle and utilized in plating metals with aluminum and forming aluminum alloys, or the tube, b, may be allowed to dip its mouth just under the surface of water or other fluid in a tank, c, wherein the products carried off by the blast will be condensed and retained as by-products. The low temperature at which these alloys melt enables a furnace without a blast to be used for alloying and melting iron and aluminum. d is the blast pipe, e is the running hole, and f a ladle or ingot mould.

#### THE LAW AND PHOTOGRAPHY.\*

By Mr. MORRIS COOPER.

WERE that venerable master of the law, Sir Matthew Hale, still among the blessed living, with what curious feelings would he not receive an invitation to hear a paper read on "The Law and Photography." In the exercise of a wise discretion, he might prefer to remain away altogether; but if he came, you may be sure that he would take a front seat, and woe to the presumptuous meddler who should attempt to erect any new idols in the temple of justice. But the times have changed since one of the noblest and wisest of England's judges thought it fit to preside over witches' trials. The art, which in those days would surely have invited the attention of the courts in a very unpleasant fashion, however, has become the helpmate of the law, and in the service of justice is destined to reach a degree of usefulness limited only by the skill and capacity of the artists themselves.

Until comparatively recent times, recorded history consisted of the doings of soldiers, priests, and politicians; may we not hope, however, that in the history of the future, the man or woman who can relieve his or her fellows from useless drudgery, give them better food to eat, warmer clothes to wear, sweeter surroundings to live in, in a word, make this earthly life more human, and therefore more humane, will receive a place at least equally honorable with those whom the world has hitherto been pleased to call its heroes? I venture the opinion that the man, or probably woman, who first used soap and taught others how to use it, conferred as great a benefit on the human race, if not much greater, than the boldest warrior that ever lived, though the latter's deeds may have been sung in a hundred liads. A few inventions during the latter end of the preceding and in the early part of the present century, and behold! not only a revolution in the industrial world, but almost a new civilization. The tales of the Arabian Nights are indeed a childish affair compared with the wonderful story of human progress in the present age. It is not my purpose to tell this fascinating story to-night, but in the consideration of the subject before us to emphasize the fact that no one, not even the wildest dreamer, can foretell the uses to which an industrial discovery or invention may eventually be put. It is said that the Bible and Shakespeare have most powerfully affected the Anglo-Saxon race, because they have been so absorbed by that race as to have become a part of its mental habit. Has anyone ever reflected how great an influence in the mental make-up of the same race its great mechanical inventions have played? To-day, our thinking, living, love-making, marrying, church-going, and even dying, pre-suppose railroads, printing, steam, applied to a thousand forms of industry, and numberless inventions, processes, and discoveries. Simply remember that there was a time when none of these was known, and you can at once see what a part they must have played in the development of the human mind. Not one of the well-known inventions but has introduced a whole series of new problems and new relations, requiring restatement and rearrangement, from time to time. Of the art of photography it may justly be said that its ways are "ways of peace." Unlike most other great arts, it is not applied to the destruction of life or property. Whether its paths are "paths of pleasantness," you, who are so thoroughly familiar with its technical details, are the best judges. To the courts of justice we must look for authoritative expressions upon the questions to which the art has given rise in commerce and society. I propose this evening to discuss some of the problems relating to photography which, in one way or another, have received the attention of the courts.

Let me say at the outset that the law moves with somewhat measured and cautious steps. This is but natural when we remember that the perfection which the law may have attained in any community is simply an index to the development of that community. More accurately speaking, it is a mirror, in which all the intricacies and complexities of society are seen reflected. At the threshold of our investigation, let us consider

#### THE RIGHT TO PHOTOGRAPH AT ALL.

On this question there is as yet very little judicial opinion. Clearly, every one who sees fit may make pictures of natural scenery. The sky, the ocean, the forests, and the hills are no man's property. So a person could not be prevented from taking pictures of buildings erected upon land, provided he could get his view without going upon private property. There are objects, however, which cannot be photographed without the consent of the owner; that is to say, conceding an abstract right to photograph, a publication of the pictures, or even of the negatives (and a publication would be complete by exhibiting them to a single person other than the one who took them), would be unauthorized. Suppose the rejected suitor of the fair Amanda, by means of a detective camera, succeeds in obtaining a picture of his adored one in the very act of being kissed by his hated rival. Would he be allowed to exhibit such a picture? We think that no photograph exposing others to scorn, disgrace, humiliation, or contempt would be tolerated. The fact that the photograph depicted a scene which actually took place would be no excuse; on the contrary, that very fact would be all the more reason for not countenancing so ungallant a proceeding. Works in which a lawful copyright subsists cannot be photographed without permission. Thus photographs cannot be taken of paintings, drawings, or engravings without consent. An interesting litigation illustrating this phase of the subject arose out of the picture called "The Death of Chatterton." Henry Wallis, the artist of this famous painting, sold it

\* Read before the Photographic Section of the American Institute.

to a gentleman who, for a valuable consideration, agreed to sell to one Robert Turner the sole right to make and publish an engraving of the picture, and to exhibit it for short periods at any of the principal towns in Great Britain and Ireland, in order that Turner might obtain subscribers and otherwise derive profit. The picture being thus exhibited by Turner, one James Robinson arranged in his own studio a group which bore an exact resemblance to the picture, and took photographs for the stereoscope, colored them so as to correspond with the picture, and sold them. What did Turner do? Let Robinson have it all his own way and spoil his anticipated profits? Well, not much; he was not constructed that way. He obtained an injunction against Mr. Robinson, and the court sustained him. This brings us to another very interesting query.

Who owns the property in a photographic portrait, the sitter or the photographer? This point has been several times discussed in the public journals, but only once, as far as I can ascertain, in court. One able writer took the view that the property was vested in the artist, and consequently that he could multiply and sell copies at will. Other able writers have combated this notion, and declare that the right to multiply and distribute copies of the picture belongs to the sitter. The only actual decision which I have seen reported was given in the New York *Herald* of January 6, 1889, in the form of an editorial. Here it is: "Mrs. Pollard sat for her photograph at the gallery of the photographic company. Subsequently she learned that the company had prepared copies for Christmas cards, and was offering them for sale. She thereupon applied for an injunction to restrain this liberty. The company contended that the negative was their property, and that they had a right to print copies from it for sale. Mr. Justice North decides that a photographer has no such right unless he is expressly or by clear implication authorized to do so by the sitter. He accordingly granted the injunction. Here are the reasons: The object for which a photographer is employed and paid is to supply his customer with the required number of printed photographs of a given subject. For this purpose the negative is taken by the photographer on glass, and from this negative copies can be printed in much larger numbers than are generally required by the customer. The customer who sits for the negative thus puts the power of reproducing the object in the hands of the photographer, and in my opinion the photographer who uses the negative to produce other copies for his own use without authority is abusing the power confidentially placed in his hands merely for the purpose of supplying the customer. And further, I hold that the bargain between the customer and photographer includes by implication an agreement that the prints taken from the negative are to be appropriated to the use of the customer only."

This decision, it seems to me, expresses the right view upon the subject. A woman's face is her fortune, and why a photographer should without her permission be allowed to distribute her photographs is difficult to understand. The mere fact that the photographer owns the negative, and has in his power the means of doing the injury, no more gives him the right to do so than the fact that a printer who owns the type from which a book has been printed affords the latter the privilege to multiply copies of the book without the author's permission.

Allied to this part of the subject is the question of

#### COPYRIGHT IN PHOTOGRAPHS.

Under the American statute of 1861, which provided that any person or persons being a citizen or citizens of the United States, or resident therein, who should invent, design, etch, engrave, work, or cause to be engraved, etched, or worked, from his own design, any print or engraving, and the executors, etc., of such persons, should have the sole right of printing, publishing, and vending such print, cut, or engraving, in whole or in part, for the term of twenty-eight years from the time of recording the title thereof, etc., it was decided that no copyright was conferred in photographs, on the ground that photography was not a method of printing within the spirit of the law. In 1865, however, Congress extended the copyright laws to embrace photographs and negatives. Under the present act, the law of July 8, 1870 (U. S. R. S., Sec. 4,952), any citizen of the United States, or residing therein, who is the author, inventor, designer, or proprietor of a photograph or negative thereof, may obtain copyright therein. The term of years for which copyright may be granted is twenty-eight, with a renewal, on complying with certain conditions, of fourteen years more. The matter is in charge of the Librarian of Congress. In a suit brought by Mr. Sarony against a lithographing company for infringement of copyright, one of the questions to be decided was, Has Congress the constitutional power to confer copyright in photographs? The facts were that Mr. Sarony, under an agreement about the month of January, 1882, with Oscar Wilde, made a photograph of that person, which he designated "Oscar Wilde, No. 18." The defendant copied the photographs by means of chromolithography. It was contended in court that a photograph was not a writing nor the production of an author, but the court sustained the power of Congress to give copyright in photographs, making it, however, a criterion that the photograph should be the embodiment of original conception and intellectual production. The claimant, therefore, of a copyright in a photograph under the American law, must, in case his right thereto is disputed, be prepared to show that this work, like that of a successful patentee, is a work of originality, intellectual production, thought, and labor of his own. In the Sarony case it was shown in respect to the photograph in question that it was a useful, new, harmonious, characteristic, and graceful picture, and that plaintiff made the same entirely from his own original mental conception, to which he gave visible form by posing Oscar Wilde in front of the camera, selecting and arranging the costume, draperies, and other various accessories, arranging the subject so as to present graceful outlines, arranging and disposing the light and shade, suggesting and evoking the desired expression, and from such disposition, arrangement, or representations, made entirely by plaintiff, he produced the picture in suit. The plaintiff succeeded in both the lower and higher courts.

An interesting case arose in England in 1883. The English statute allowed copyright to the "author" of an original photograph, for the term of the natural life

of such author and seven years after his death. The Australian Cricket Team being in England, the manager of Messrs. Nottage & Kennard, a firm of photographers called the London Stereoscopic and Photographic Company, by appointment with the team, directed an assistant to go and photograph them. This the assistant did; thereafter Nottage & Kennard in the usual way prepared and sold the photographs, having previously taken out copyright in their names as proprietors and authors. But the inevitable infringer was abroad. A Mr. Jackson pirated the photographs, and Nottage & Kennard endeavored by injunction to restrain him. This Jackson, however, must have been a good deal like our famous "Old Hickory," of solid and tough fiber. No injunction for him, indeed! He raised the ingenious point that Nottage & Kennard were not and could not be the authors of the photographs. And now the broad foreheads of the English judges were to be wrinkled in wrestling with the knotty problem of who is the author of a photograph. They did wrestle, and this is the result of their wrestling: Jackson bore off the palm. The author, the court held, was the person who took the picture, the person who was most nearly the effective cause of the representation when completed. Justice Field said: "The author of a photograph is the person who most effectively contributed to the result; that is, the person who directed his mind toward and superintended the particular arrangements which have actually resulted in the formation of the pictures, and who that person is, is a question of fact in each particular case." To show how the judges arrived at this judgment, let me quote from the opinion delivered in the case of Brett, Master of the Rolls. He said: "I confess I have the greatest difficulty in construing this act of Parliament. Persons who draw acts of Parliament will sometimes use phrases that nobody else uses. I am speaking for myself only, as to the strangeness of the phraseology; it says 'the author,' and so on, 'of every original painting.' Whoever in ordinary life talks of the author of a painting? We talk of an artist or a painter. Then it says the author of a drawing. One can easily make out who is the author of a painting. The author of a painting is the man who paints it, and the author of a drawing is the man who draws it. Here we have the 'author' of a photograph. I should like to know whether the person who drew this act of Parliament was clear in his mind as to who can be the author of a photograph. We understand that all the photographers have come to the conclusion that they are the authors of a photograph; that is, the people who own the machinery, the people who keep the shop, the people who pay the servants; that they are the only persons who are interested in the photograph at the time it is done; they think they are the authors of the photograph because the photograph is made and formed by the work of their mere servants. I cannot tell whether the person who drew this act of Parliament had that idea or not; but I am not satisfied in my mind that he had, because it is full of difficulties. Here you have merely two gentlemen stated to be the authors. Can two people be the authors of a photograph? It is difficult to say; but if they are, for whose life is it to last—for the life of one of them, or for the life of the longer liver, or what? They are the owners of everything about the place, the machinery and everything else, but they may live in Scotland and their photographic shop may be carried on in London. They may live two hundred miles off—can they be called the authors of a photograph of which they know nothing? It is done by their servants; they may go to the shop once a week, and when they are there, they may superintend the operations, though they seldom do, I suppose. At all events, they cannot superintend the taking of all the photographs in their shop. They may have half a dozen studios; they may superintend the taking of a photograph in one place, and they may have a skilled person who superintends the taking of photographs in another place. It would be obvious that they are the authors of a photograph where they are, but are they the authors of a photograph where they are not? Take this very case: It is not pretended that these gentlemen were at the place where the photograph was taken. They were either in London, or fifty miles, perhaps, the other side of London. They send a man to the place. The idea of photographing the Australian cricketers may have been the idea of one of these gentlemen, and he, if he saw the other, may have put it into the head of that other. The man who went was the man who took the photograph. What had he to do? He had to arrange the group, to put them in the right position and the right focus. But he does not do it all, because there is another man who gets the plate ready, I suppose; and there is another man who, when the thing is ready, takes the cap off. Neither of them forms the picture, because, after all, that is done by the sun. As I say, I wonder whether the gentleman who drew this act of Parliament was clear in his own mind. I do not think he was, and confess I cannot myself be very clear about it. All I can do is to see who is the person who most nearly answers the description of the other things, or the author of a painting, or the author of a drawing. All I can say is, it is not the man who simply had the idea of a picture, because the proprietor may say, 'You go and draw Mrs. So-and-so, with a dog at her feet, and holding a flower in one hand.' He may be two miles away from the place, and he may have given the instructions by letter. The nearest I can come to it is that it is the person who effectively is as near as he can be the cause of the picture which is produced—that is, the person who has superintended the arrangement, who has actually formed the picture by putting the people into position, and arranging the place in which the people are to be. Although he may only have done it by standing in the room and giving orders about it, still it is his mind and action, so far as anybody's mind and action are concerned, which are the effective cause of the picture, such as it is, when it is produced. Therefore, it will be a question in every case who that man is. That would be a question of evidence. That would be what my learned brother would call a question of fact. We have not to say in this case who was that man. I suppose it was the principal who was sent down to the place. At all events, it was neither of these two gentlemen who are described as authors, and it was certainly not both of them. Therefore, the author here is wrongly described, and the registration is bad and the copyright does not exist."

It is appropriate here to speak of

#### THE CONTRACT TO PHOTOGRAPH.

What does the photographer undertake to do when he engages to supply photographs? Does he contract to furnish artistic, pleasing, beautiful pictures or accurate and faithful likenesses? I would not for a moment be understood as saying that the idea of the one excludes the other. But the point is, what does the customer expect, and what is he entitled to receive? It seems to me that the customer has a right to expect a good likeness, finished in as artistic a manner as the contract calls for. But this opens the door to a sea of controversy. What is a good likeness? Perhaps the sitter belongs to that unfortunate class in the community who cannot show you the family album without remarking that "they really never take a good picture, but that So-and-so always does." And then there are one's friends, cousins, and aunts, whose opinion is of vital importance on the subject. A certain Mrs. Pearson, of London, was sued for the price of some photographs she had ordered. The photographer admitted that the negative had been touched up, but alleged that it was necessary in order to make customers look their best. The judge thought the photographs made the lady look younger than she appeared to be, but she, strange to say, protested against a flattering likeness. She wanted it perfectly natural. The case was submitted to the jury, and they, probably unable to comprehend so unusual a defense, brought in a verdict against her. Whether a painting or photograph is executed in the most artistic manner possible, only an artist or photographer can tell; but ordinary witnesses, the courts have held, are competent to say whether a photograph is a good likeness. In short, whether a photograph is a good likeness or not, will have to depend upon the particular jury before whom the picture is exhibited. As to the price of pictures, it has been held that if no special contract is made fixing his compensation, the artist is entitled to such pay as, taking all the circumstances together, his work is reasonably worth. The market price of such work would have to be determined from the evidence of photographers doing the same class of work. But a very important circumstance to be considered on such an inquiry is, not only the real standing of such artist, but also his apparent worth as shown by his appearance, surroundings, and general bearing. A case illustrative of this point recently arose in Michigan. The plaintiff was an artist, and from photographs, painted pictures of defendant's children. No agreement seems to have been made fixing the price for the work. The plaintiff demanded that the court should recognize as an element of his charges the expense and preparation necessary to make a first-class artist, but the court did not see things just that way. It decided that if a man has really become eminent in his profession, and has a recognized standing, his compensation may by a customer be fairly presumed to be in the line of what eminent artists charge, but an obscure and unknown artist, getting a job for perhaps the first time, cannot demand from the customer so great a fee, for the reason that the customer has a right to expect that the charges will be in keeping with the artist's surroundings and general appearance. I confess that I am not in sympathy with this decision. I believe that it holds up a wrong standard. It seems to me that the principle which deems every laborer worthy of his hire is as applicable to art as to any other kind of work. A man should be paid for what he can and does do, and not for what he seems to be able to do. For improper and immoral pictures no compensation could be recovered. And this brings me to consider

#### IMMORAL AND OBSCENE PHOTOGRAPHS.

The manufacture and circulation of these is not only culpable legally, but is equally odious and detestable from the standpoint of true art. It is sometimes said that, in reference to this subject, the law is too strait-laced and prudish; but that this is not so, and that sound and sensible views are entertained by the judges before whom such matters have come for consideration, I shall endeavor to show by reference to a case recently decided in our own Court of Appeals. A man whose name need not be mentioned was convicted under our Penal Code for selling obscene and indecent photographs. It appeared that the photographs represented nude females, and were photographic paintings which had been exhibited in the Salon in Paris and one of them at the Centennial Exhibition in Philadelphia. It was decided that it was immaterial whether the pictures had been exhibited in these galleries or not. Now follow carefully the reasoning of the court. Judge Andrews, an exceedingly clear-headed judge, said: "It is to be observed that the statute does not undertake to define obscene or indecent pictures or publications. But the words in the statute are themselves descriptive. They are words in common use, and every person of ordinary intelligence understands their meaning, and readily and in most cases accurately applies them to any object or thing brought to his attention which involves a judgment as to the quality indicated. It does not require an expert in art or literature to determine whether a picture is obscene or whether printed words are offensive to decency and good morals."

"These are matters which fall within the range of ordinary intelligence, and a jury does not require to be informed by an expert before pronouncing upon them."

"It is evident that mere nudity in painting or sculpture is not obscenity. Some of the greatest works in painting and sculpture, as all know, represent nude human forms. It is a false delicacy and mere prudery which would condemn and banish from sight all such objects as obscene, simply on account of their nudity. If the test of obscenity or indecency in a picture or statue is its capability of suggesting impure thoughts, then, indeed, all such representations might be considered as indecent or obscene. . . . The test of an obscene book was stated in Reg. v. Hicklin, L. R. 3 Q. B. 369, to be whether the tendency of the matter charged as obscenity is to deprave or corrupt those whose minds are open to such immoral influences, and who might come in contact with it. We think it would also be a proper test of obscenity in a painting or statue whether the motive of the painting or statue, so to speak, as indicated by it, is pure or impure; whether it is naturally calculated to excite in a spectator impure imagination, and whether the other incidents and qualities, however attractive, were merely accessory to this as the primary or main purposes of the representation." I think the language of the court in



this case is in harmony with the views of the majority of cultivated people on the subject.

#### PHOTOGRAPHS AS EVIDENCE IN COURTS OF JUSTICE.

The photograph is beginning to play an important role in judicial proceedings. It is a species of what is called secondary evidence. That is to say, it is to be resorted to in explanation and support of other evidence, or when no other evidence is available. It has been introduced in both civil and criminal trials. I shall cite a few typical cases. In the Buddensieck case, which, as you remember, was a prosecution for manslaughter caused by the falling of a building negligently constructed, a photograph of the premises showing the defective construction was used and exerted great influence in securing a conviction. In the celebrated Ruloff murder trial, an important link in the chain of evidence against the accused was forged by means of photographs which identified his confederates. On the trial of the Shepherd's Fold case, which was a prosecution for starving and ill-treating a boy who was an inmate of the "Fold," photographs of the boy, showing the effect of the "Shepherd's" shepherding, landed the shepherd into the penitentiary.

An Iowa case presents some curious features. It was an action for damages for assault and battery. On the trial, which took place nearly two years after the assault, the defendant exhibited to the jury the plaintiff's back and shoulders, which of course, after that lapse of time since the injury, could not exhibit any very great marks thereof. But the plaintiff, not to be outdone, then triumphantly exhibited photographs of the same back and shoulders taken three days after the assault. This must have been a case of diamond cut diamond. The plaintiff, however, was a sharper diamond, and was victorious in the suit. There is also the case of a Canadian lady whose husband was lynched in Alabama by a mob. He had sent her a photograph of himself, taken shortly after his arrival in that State. She brought a suit against the county where the little "accident" occurred, for damages for the loss of her husband's life; and her whole case, which I am glad to say she won, depended upon the photograph, for her husband had been a stranger in the community, and by means of the likeness he was identified. In suits growing out of defects in highways, railroad accidents, forgery of commercial paper, disputed signatures, photographs have become valuable aids. But it must not be supposed that every photograph is received with open arms in a court of justice. The liability of photographers to err, to present partial, inaccurate, distorted, and even downright dishonest views, is well known to the courts and has often been commented on. In the Tichborne case, a photographer represented a place as a *grotto* which in reality was nothing else than a path about a hundred feet long, shadowed by trees, having a public way on one side and a public towing path upon the other. The Lord Chief Justice (Cockburn) presiding at the trial handled it without gloves. He said: "I must add that it reflects the greatest discredit on the man who concocted that photograph." That is not with any disparagement to the art itself, for in the same case the art of photography rendered most valuable help. "The principal documents in the case," says the *London Times*, "the pocket-book of the defendant, his letters and those of Roger Tichborne, were photographed by the Stereoscopic Company, under the auspices of Mr. Nottage, their manager, and the *fac-similes* thus produced were of immense value in facilitating the comparison of handwriting, to which the lord chief justice attached much importance as one of the great tests of identity." A very valuable aid which the photograph is enabled to render in courts is to make copies of documents which, from their value, inaccessibility, or other peculiar features, cannot be produced in court. In several such cases the courts have directed the making of photographic copies.

It must be borne in mind, from the considerations to which we have before alluded, that photographs are very carefully scrutinized in courts of justice, and that the party desiring to use them must always be prepared fully to show all the circumstances under which they were taken—who the artist was, with what apparatus, in what light, from what point of view, at what distance, at what angle; in fact, must be prepared with all the details. He should also produce the negative, so that that also can be subjected to rigid examination. Not until a photograph is "proved," as it is termed, is it competent to be admitted in evidence.

#### LEGAL USES OF PHOTOGRAPHY.

There have been numerous applications of photography to the purposes of justice. The rogues' gallery is familiar to you all—not in any invidious sense, of course. Some suggestions which are of value, and some which are not, have from time to time been made respecting further applications of the art. One ingenious gentleman has invented an apparatus for recording deeds by photography. One has suggested that by photographing the impressions made upon the retina of the eyes of a murdered person, a possible clew might be obtained as to who the murderer was. Another proposition is to appoint a public photographer, whose duty it should be to take and preserve the likeness of all persons residing in England every five years, and also likenesses of all persons leaving the country. This is what, in politics, would be called a "fat" job. So it has been proposed that naturalized persons should have photographs of themselves attached to their papers, certified by an omniscient individual to be styled the "official photographer." Another idea is to photograph the witnesses deposing in trials, so that the pictures will be before the appellate court when it passes upon their testimony, and it could then see the witnesses both in tranquil and in excited moods. Still another proposition is to photograph riotous assemblies at various stages, and then subsequently prosecute the persons taking part. The difficulty, however, about this is that there is a very decided danger that the photographer and his apparatus might, perhaps, perish in the riot long before he succeeded in getting a focus. The most practicable suggestion of this kind which I have met with is one to appoint a public photographer who, in all cases of homicide, shall immediately repair to the scene of the crime and photograph it and the body. In this way very valuable evidence might be elicited. For the other suggestions and plans I do not think that legal machinery is at yet sufficiently advanced.

January 16, 1889.

#### ALTERNATIVE DESIGNS FOR FIRST CLASS BATTLE SHIPS.\*

ON August 17, 1888, a special meeting of the Board of Admiralty took place at Devonport—during the annual inspection of the yard—for the purpose of discussing the principal features to be embodied in the designs of first class battle ships proposed to be laid down in 1889-90. The members of the board had before them the particulars of the designs of the most recent battle ships constructed, or in course of construction, for the Royal Navy and for foreign navies, and passed in review the systems of armament and protection embodied in various types. The questions of speed, coal endurance, freeboard, principal and secondary armament, armor protection, etc., were all separately con-

sidered, and a provisional decision arrived at for the guidance of the director of naval construction in preparing alternative outline designs to be subsequently submitted to the board. After contrasting and comparing the various dispositions of armament illustrated in different types of battle ships, it was unanimously agreed that the following principles should be complied with in disposing the armament of the new battle ships: (1) That there should be four heavy guns placed in two protected stations situated at a considerable distance apart, each pair of guns having an arc of training of about 260 deg., equally divided on each side of the line of keel. All four of these guns are to be available on each broadside. (2) That the greater portion of the auxiliary—or secondary—armament should be placed in a long central battery situated between the two heavy gun stations, and so disposed that there should be practically no interference with the fire of any one gun by that of any other. (3) That in view of the development of high explosives it was desirable to secure the widest possible distribution of the guns in the auxiliary armament, and

principle of a very much greater weight of armor for a given thickness than was involved in the construction of two stations, each containing two guns. Other plans for carrying the heavy guns in positions where their comparative concentration would enable a reduced area of protective armor to suffice, also came under review. Many illustrations of the general idea of concentrated heavy armaments were considered, including "central citadels" with the heavy guns carried in turrets or barbetstes, and placed either abreast one another or *en echelon*, central batteries with broadside armaments, or citadels placed high above water and isolated from the hull armor.

It was considered that the objections to all these plans were too serious to permit of their adoption, and that these objections might be grouped under two

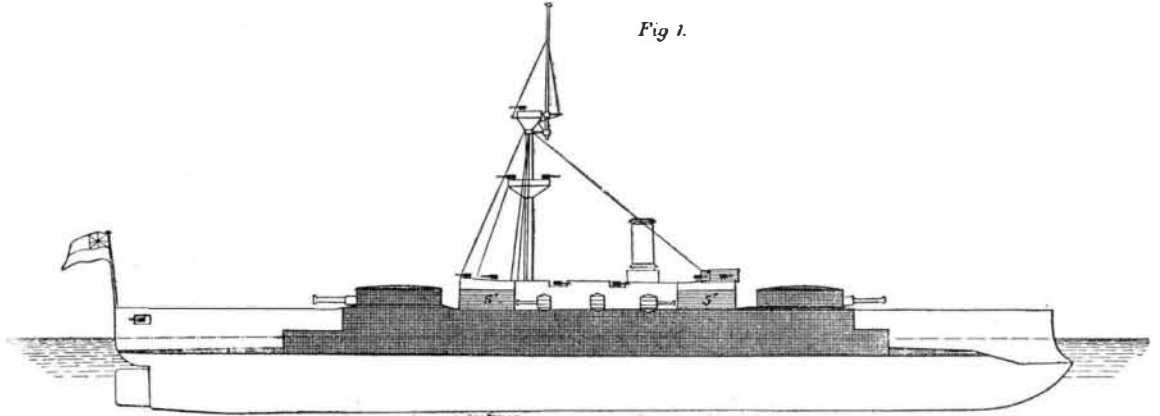


FIG. 1.—TURRET SHIP (CITADEL), TRAFALGAR TYPE.

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After contrasting and comparing the various dispositions of armament illustrated in different types of battle ships, it was unanimously agreed that the following principles should be complied with in disposing the armament of the new battle ships: (1) That there should be four heavy guns placed in two protected stations situated at a considerable distance apart, each pair of guns having an arc of training of about 260 deg., equally divided on each side of the line of keel. All four of these guns are to be available on each broadside. (2) That the greater portion of the auxiliary—or secondary—armament should be placed in a long central battery situated between the two heavy gun stations, and so disposed that there should be practically no interference with the fire of any one gun by that of any other. (3) That in view of the development of high explosives it was desirable to secure the widest possible distribution of the guns in the auxiliary armament, and

principal heads, viz.: (1) The great risk of the principal armaments being placed *hors de combat* by the explosion of a single heavy shell within or under the armored inclosure; (2) the enormous difficulties which this disposition of the main armament introduced into the efficient working of a powerful and numerous auxiliary armament. It was also noted before recording the decision above mentioned, that in some of the most important foreign navies, where one or other of these modes of disposing the armament had been adopted, and the principles either of extreme distribution or of relative concentration had been carried out, the latest designs had contained arrangements similar to those decided upon as best for future battle ships in the Royal Navy, which disposition is also to be found represented in plan—in vessels like the Trafalgar and in the Admiral class.

This decision of the board respecting the best disposition of the armament necessarily exercised a preponderating influence upon the preparation of all the designs in which it should be embodied. But it left open the question of the extent and character of the pro-

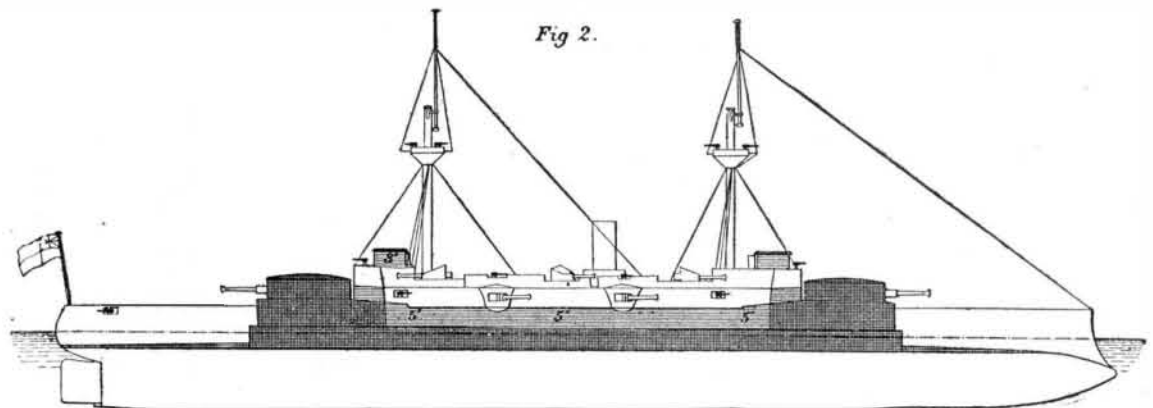


FIG. 2.—TURRET SHIP WITH REDOUBTS.

tection to be given to the ships by means of vertical and deck armor, as well as the protection of the armament, and the adoption of the turret or barbet system. It was desired to base a decision on these features upon the consideration of alternative designs for ships of about the same size and cost, which should provide for either the barbet or the turret system of mounting the heavy guns, and for moderate or high freeboard at the extremities. After full consideration, the board came to the conclusion that each first class battle ship should carry four 13½ in. 67 ton breech-loading guns as the principal armament, thus corresponding to that carried by the Trafalgar and other recent battle ships. Further, that the auxiliary armament should include ten 6 in. guns—preferably of the quick-firing type—and a considerable number of 3-pounder or 6-pounder quick-firing and machine guns. It was provisionally decided also that the length of the armor belt in the region of the water line in the new ships should bear the same ratio to the total length of the ship as in the Trafalgar.

On these and other instructions received subsequently

\* Parliamentary paper, from the *Engineer*.

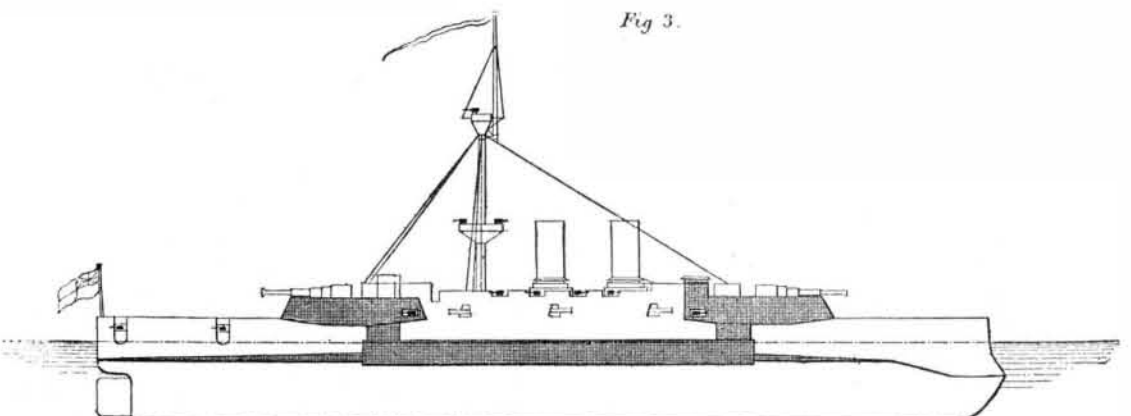


FIG. 3.—BARBETTE SHIP, ADMIRAL TYPE.