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ADMIRAL COLOMB ON THE SPANISH WAR.

Admiral Colomb, who is the literary Mahan of the British navy, has lately contributed a paper to the Royal United Service Institution, entitled "The Lessons of the Spanish-American War." The conclusions of the admiral are quoted and discussed at considerable length in a recent editorial in *Engineering*, which is reprinted in the current issue of the *SCIENTIFIC AMERICAN SUPPLEMENT*. We commend the article to our readers as forming a comprehensive expression of expert opinion on the part of the people who more than any other have reason to be interested in the technical results of the war.

The most important criticism is that which calls in question the wisdom of the defensive policy which largely characterized our naval campaign in the Atlantic. Admiral Colomb considers that our proper strategy was to send at once an adequate force to the coast of Spain. "The seizure of Minorca as a base would probably," he says, "have been an easy operation: and in any case it would have been morally certain that if this action had been taken, nothing offensive on the other side of the Atlantic could have been thought of by Spain." In view of the pitiful unpreparedness and incompetence of the Spanish navy, Admiral Colomb is undoubtedly correct; but no one knew at the outbreak of the war that the Spanish ships could not make half their trial speed or that Spanish gunners could not hit anything. It is easy to be wise after the event. The Spanish fleet on paper was too formidable in strength and numbers for our fleet to be able to seal it up in the home ports; and, by placing the theater of the war on this side of the Atlantic, we placed upon the enemy all the onus of the coal supply question—a consideration, by the way, that primarily led to Cervera's premature undoing.

Admiral Colomb is the father of the naval policy whose creed is that the best and most economical coast defense is a fleet of ships blockading the enemy's ports. Hence we are not surprised that he condemns the "sort of panic" which seized the people of the Atlantic coast and led to all the inconvenience of closed harbors and mined channels and waterways. While the panic was certainly uncalculated for, the wisdom of closing our harbors was undoubted; for, even if we had blockaded the Spanish coast, it was reasonable to suppose at the time that our ships were too few to absolutely prevent the escape of some of the faster cruisers, any one of which might have wrought havoc in unprotected harbors. We know now that, even if some Spanish ships had escaped, they would have been comparatively harmless; but we did not know it then, and our conservative plan of campaign was justified by existing circumstances.

Admiral Colomb believes that ships are better than batteries. Ships will be too much engaged in hunting ships to take the time and run the risks involved in entering harbors to bombard cities. Thus he says: "No naval officer with his hands free would, in war, proceed into New York Harbor in order to damage New York, even if he believed there were no batteries and no mines to prevent him." To this *Engineering* makes the pertinent reply that we find an instance of the effect of the possibility of bombardment in the Manila campaign, when Admiral Dewey silenced the batteries at Manila by a threat of bombarding, not the batteries, but the town, if his ships were molested.

Except in the case where a country has an enormous navy in proportion to the length of its coastline and the exposure of its seaboard cities, a certain amount of coast defenses is not only advisable but imperative—imperative if the navy is to be set free to do its legitimate work of hunting down and destroying the enemy's ships.

THE GREAT CENTRAL RAILWAY OF ENGLAND.

The Great Central Railway of England is an important engineering work which has just been completed, the first train starting on March 9. An important collection of railway lines in the center of England have now been combined and provided with a London terminus. Since 1868 no new railway from the north has entered into London, and in thirty years the

growth and development of England, and even London itself, would really seem to necessitate the venture. The old Manchester, Sheffield and Lincolnshire system from a provincial east and west line now takes its place among the great north and south trunk systems, giving what, under existing conditions, would appear to be the last important through route which can be added to the railway facilities of the metropolis. The Great Central system quietly extended itself southward to meet the gradual northward progress of the Metropolitan Company. When Annesley was reached the directors boldly announced their intention of securing access to London independent of the Great Northern system, over which their southern traffic had hitherto been sent. With the exception of some heavy work at Nottingham, the extension to a junction with the Metropolitan system presented few engineering difficulties. The new railway comes into London by way of Willesden Green and St. John's Wood, and the terminal station, to be known as the Marylebone Station, is just west of Regent's Park, and is located on the Marylebone Road. Thirty-seven acres were required for the terminal. The passenger station site has an area of nine acres, and is 1,000 feet long and 435 feet wide. Of this, a section 180 feet in width will, for the present, be occupied by three platforms and five lines of tracks. No attempt has been made to produce a particularly expensive station, but it is in excellent taste, as it is purely an engineering work, and is not covered with sham architecture. The large terminal hotel is, however, very handsome. It is probable that the London extension of the Great Central Railway will cost altogether some \$50,000,000. The huge freight warehouse is 385 x 255 feet. The cars are run into it on the ground level, and they can then be lowered bodily by elevators into the basement, and the upper floors are provided with cranes. Hydraulic and electrical appliances are used throughout the yard for the rapid moving of freight.

NEW YORK TRUANT SCHOOL.

In New York city, or, more properly speaking, that portion of it termed the Borough of Manhattan, the rules of the Board of Education regarding truancy are strictly enforced, and education is truly compulsory. Those who persist in playing truant are sent to the Truant School, in East Twenty-first Street, where, for two or more weeks, the boy is detained as a prisoner; but he is a prisoner only in name, for, while it is true the door is locked, there are no bars nor anything else which suggests a reformatory. There are twenty-two men and two women employed in the borough as truant or attendance officers. They investigate the cases of truancy reported by the principals of the schools, and visit the parents of the children and try to get the parents to co-operate in seeing that the pupils attend school regularly. If this is unavailing, it is the duty of the attendance officer to take the little offender to the Truant School, where the acting superintendent decides whether or not he shall have another chance, for the boys are committed to the school only as a last resort. When a boy begins to absent himself from school, he is caught by the officer, asked the reason, and reprimanded. Then the attendance officer calls on his parents and reads them a copy of the compulsory education law. If this fails to make the boy a regular attendant, he and one of his parents are summoned to a private hearing before the superintendent. Every case is carefully considered, and if there seems to be an antipathy between the teacher and the boy, he is transferred to another school. Sometimes these persuasive tactics are not sufficient. Then the boy is put on probation for two weeks, and he must bring in a card to the superintendent, showing that he has been a regular attendant at school and his conduct has been good. If the small truant persists, however, in pursuing his rebellious career, there is nothing that can save him from incarceration in the Truant School.

The boy is kept in the Truant School at the expense of the city for two weeks or more, and this time can be extended to even six weeks if necessary. When a boy leaves the Truant School he is put for two months on parole. During that time he must report at regular intervals to the superintendent. If his conduct has been excellent, he is allowed to drill on Friday evenings with the truants. The work which has been done in the truancy school is very remarkable. The boy is taught by kindness and appeals to his moral nature, and there are no cases that sooner or later do not yield to all the influences to which they are subjected.

The building itself does not call for special attention. It was built originally for the Children's Aid Society, and is only fairly well adapted to the purpose. The boys sleep in dormitories, and to some of them it is their first experience in sleeping on a bed, for the pupils of the Truant School are cosmopolitan to the last degree. They include Americans, Italians, Poles, Russians, Jews, and Irish. They rise at 6 in the morning, dress and march downstairs, where they wash. Breakfast is eaten at 7 o'clock, then they make their own beds and do part of the kitchen work. At 8:30 they again wash and brush up for school. Then come

various studies until 12 o'clock. From 1 o'clock until 3 o'clock the school is in session again, and they are then allowed to walk up and down for an hour in the little courtyard, for, unfortunately, the school is shut in by high buildings. They have supper at 5:30, and at 6:45 they have a regular military drill. Promptly at 8 o'clock the boys go to bed on their little iron beds. So well are the boys treated that they very seldom think of escape, and if they do, a half hour in a dark but well ventilated closet will always bring them to terms. The work that has been done specially among the east side truants by the acting superintendent, Mrs. Alger, has been very remarkable, and shows what boys really need is a friend.

A GROSS VIOLATION OF PRINCIPLE.

At a conference of the diplomatic representatives of the Latin-American countries which compose, with the United States, the International Union of American Republics, recently held at the State Department, it was decided that the admission of advertisements in the publications of the bureau should be continued, and that all moneys received by the bureau from advertising, etc., should be paid to the Secretary of State for deposit in the Treasury of the United States to the credit of the bureau fund. It was also decided that the Executive Committee should have power to specifically authorize, if it saw fit, the solicitation of advertisements and the sale of the bureau publications by agents working on a commission.

It is impossible to mistake the purpose and effect of this compact. Its purpose is to increase the funds of the bureau by lending all the "drawing power" of the government to the advertising columns of what is practically a trade journal, and its effect is to set up the government in the publishing and advertising business in direct and disastrous competition with the interests of a certain number of its own citizens. In other words, the publishing and advertising interests find themselves in the anomalous and vexatious position of contributing to the support of a government which is using its powerful influence to capture the very trade upon which those interests subsist.

Now, anything more unconstitutional than this action of the bureau, or aiming more directly at the rights of the individual citizen, it would be difficult to imagine. In the first place, it is a flagrant abuse of the functions of a popular and representative government that the interests of one section of the community should be sacrificed for the enriching of another section.

The bureau already receives an appropriation to cover the expense of printing and publishing its literature, as do the other bureaus of the United States government. By what special favor, then, is this particular bureau allowed to enter into commercial enterprise and use the government name to fill its own coffers at the expense of the legitimate trade publications?

The violation of principle is extremely dangerous as a precedent for further legislation of the kind. If the Bureau of American Republics is justified in filling its coffers by dabbling in trade, why not the other bureaus? And if we had all the bureaus similarly engaged and reaping the inevitable profits, we should have the ridiculous spectacle of a trading and manufacturing people supporting a great rival concern (their own government), whose operations were eating the very heart and life out of their own industries.

We were willing to believe that the parties who have been responsible for this miserable piece of business had acted without looking at the question in all its aspects; and we fully expected that when its injustice had been pointed out, as it has been, in our own and many other journals, the bureau would act on the suggestion and discontinue its insertion of paid advertisements. It seems we were mistaken. The gentlemen who control the bureau find the ill-gotten gains too profitable to be so readily let go, and the recent compact at the State Department shows that we are still to be subjected to one of the most unblushing and extraordinary abuses that ever brought discredit upon a popular government.

GEOGRAPHICAL NAMES AS LEGITIMATE TRADE MARKS.

An interesting decision has recently been rendered, touching the protection obtainable at common law on the use, as a trade mark, of a geographical name pure and simple. The difficulty of procuring the registration of trade marks for this class of names is well known, and the difficulty has increased in recent years, the Patent Office protecting itself in the position it assumes in refusing to register trade marks coming under this denomination, under the claim that it has no option, owing to the statutory regulations. Many instances arise, however, in which the geographical significance of a term is remote or far-fetched, and in many cases some obscure town or place is cited as a reason for refusing the registration of a trade mark, which name is entirely unknown to the applicant, and almost entirely so to the public at large. Such a strict application of the statute often works hardship, and doubtless leads to many anomalous con-

sequences. It sometimes places the department in the position of refusing registration for trade names which have been in use for many years, and which are so far recognized as commercial property as to be readily sustained in courts of law. All this leads one to hope for many radical changes in this feature of patent practice, and it is understood that remedial measures, with a view to unifying the statutory and common law practice, will be recommended in the bill which is being prepared with so much care by the commission having charge of the revision of patent and trade mark laws. No doubt any change in this direction will be welcomed by the officials in the trade mark department of the Patent Office and will enable them to follow in their ministerial duties the best rulings of our highest courts of law.

The case cited herewith is the American Waltham Watch Company vs. United States Watch Company. MASSACHUSETTS: Supreme Judicial Court, March, 1899.

Holmes, J.: "This is a bill brought to enjoin the defendant from advertising its watches as the 'Waltham Watch' or 'Waltham Watches,' and from marking its watches in such a way that the word 'Waltham' is conspicuous. The plaintiff was the first manufacturer of watches in Waltham, and had acquired a great reputation before the defendant began to do business. It was found at the hearing that the word 'Waltham,' which originally was used by the plaintiff in a merely geographical sense, now, by long use in connection with the plaintiff's watches, has come to have a secondary meaning as a designation of the watches which the public has become accustomed to associate with the name. This is recognized by the defendant so far that it agrees that the preliminary injunction granted in 1890 against using the combined words 'Waltham Watch' or 'Waltham Watches' in advertising its watches shall stand and shall be embodied in the final decree.

"The question raised at the hearing and now before us is whether the defendant shall be enjoined further against using the word 'Waltham' or 'Waltham, Mass.,' upon plates of its watches without some accompanying statement which shall distinguish clearly its watches from those made by the plaintiff. The judge who heard the case found that it is of considerable commercial importance to indicate where the defendant's business of manufacturing is carried on, as it is the custom of watch manufacturers so to mark their watches, but, nevertheless, found that such an injunction ought to issue. He also found that the use of the word 'Waltham' in its geographical sense upon the dial is not important, and should be enjoined.

"The defendant's position is that, whatever its intent, and whatever the effect in diverting a part of the plaintiff's business, it has a right to put its name and address upon its watches; that to require it to add words which will distinguish its watches from the plaintiff's in the mind of the general public, is to require it to discredit them in advance, and that if the plaintiff, by its method of advertisements, has associated the fame of its merits with the city where it makes its wares, instead of with its own name, that is the plaintiff's folly, and cannot give it a monopoly of a geographical name, or entitle it to increase the defendant's burdens in advertising the place of its works.

"In cases of this sort, as in so many others, what ultimately is to be worked out is a point or line between conflicting claims, each of which has meritorious grounds, and would be extended further were it not for the other. (Boston Ferrule Company vs. Hills, 159 Mass., 147, 149, 150.) It is desirable that the plaintiff should not lose custom by reason of the public mistaking another manufacturer for it. It is desirable that the defendant should be free to manufacture watches at Waltham, and to tell the world that it does so. The two desiderata cannot both be had to their full extent, and we have to fix the boundaries as best we can. On the one hand, the defendant must be allowed to accomplish its desideratum in some way, whatever the loss to the plaintiff. On the other, we think the cases show that the defendant fairly may be required to avoid deceiving the public to the plaintiff's harm, so far as is practicable in a commercial sense.

"Whatever might have been the doubts some years ago, we think that now it is pretty well settled that the plaintiff, merely on the strength of having been first in the field, may put later comers to the trouble of taking such reasonable precautions as are commercially practicable to prevent their lawful names and advertisements from deceitfully diverting the plaintiff's custom.

"We cannot go behind the finding that such a deceitful diversion is the effect, and intended effect, of the marks in question. We cannot go behind the finding that it is practicable to distinguish the defendant's watches from those of the plaintiff, and that it ought to be done. The elements of the precise issue before us are the importance of indicating the place of manufacture, and the discrediting effect of distinguishing words on the one side, and the importance of preventing the inferences which the public will draw from the defendant's plates as they now are on the other. It

is not possible to weigh them against each other by abstractions or general propositions. The question is specific and concrete. The judge who heard the evidence has answered it, and we cannot say that he was wrong." Decree for plaintiff.

William A. Munroe, Frederic P. Fish, and Frank L. Crawford for plaintiff; Oliver R. Mitchell and Caus-ton Browne for defendant.

TESTING ACETYLENE GENERATORS.

There are four villages in this country lighted in part or entirely by acetylene gas, and a number of stores, factories, and hotels have installed plants having a capacity of about two hundred lights each, but nevertheless the principal development to-day is with that type of generator that is adapted and intended for the lighting of such places as dwelling houses, small stores, offices, or shops, in localities where the ordinary city gas is not to be had or is supplied at an excessive price.

Up to the present, the development in generator design and construction has rather tended toward multiplicity, rendered possible by the simplicity with which the gas can be generated, and inventors find that it requires very little ingenuity to devise a satisfactory apparatus for the purpose.

This multiplicity of apparatus is instructive as a study, but when they are actually to be introduced into communities where their faulty action, especially in the hands of careless or ignorant persons, may cause loss of life or property, the idea at once suggests itself: How are we to know whether any generator of the host offered for sale is safe?

To this question there is but one answer—test it, have some one else test it, or inspect it at some place where the generator has been in use for a long time. There are other considerations to be reckoned upon than the simple possibility of the apparatus being able to supply gas. Among these may be mentioned the possibility of the gas igniting through the generation of excessive heat in a generator which contains some air, and consequent explosion of the apparatus, although this is liable to occur only in the drip or dip types. Gas may escape into the generator room and be accidentally ignited. The apparatus may be so made that emptying or charging it fills the apparatus with too much air—a fact which soon becomes evident when the careless or ignorant operator brings a flame near it. Deposits of lime, tar and water in the house pipes caused by lack of filters and condensers, too much heating or violent generation, or an overproduction of gas may burst the apparatus or blow out the seals and fill the neighborhood with an evil-smelling gas. Many other inconveniences may be noted, but these are sufficient to show how important it is to have the apparatus tested or a satisfactory assurance that this has been done by competent persons.

In this connection the tests made by W. W. Duffield under the direction of Prof. Lewes* and Boverton Redwood, a sub-committee appointed by the London Society of Arts to test the generators submitted for the Imperial Institute Exhibition (opened June 15, 1898), may be of interest. It was decided that no apparatus should be admitted until tested and shown to be safe. They first adopted the following classification of generators:

1. Those in which the gas is generated by water being allowed to drip or flow in a small stream onto the top of the carbide.

2. Those in which water rises round the carbide.

3. Those in which the carbide falls into the water.

Automatic.—Those having storage capacity less than the volume of gas generated from the carbide charge and a regulating device to stop contact of carbide and water.

Non-Automatic.—Those having a holder large enough to take all the gas given off by the maximum charge of carbide.

This classification differs somewhat from previous ones, and is interesting for that reason. They then laid down the conditions for the admission of apparatus to the exhibition, of which the following is the substance:

Automatic Generators.—1. Working pressures must not exceed that of 100 inches of water (3.6 pounds per square inch). 2. When charged, less air must be inclosed than one-fifth the capacity of the apparatus. 3. Shutting off gas must stop generation in a seasonable time, and a pipe must lead any accidental overproduction outside the building. 4. Gas generation should not cause excessive heating.

Non-Automatic Generators.—1. Working pressure must not exceed that of 100 inches of water. 2. Air spaces should be as small as possible and generation should not be accompanied by excessive heating. 3. If pipe between generator and holder becomes choked, a blow-off seal must be provided or water may be allowed to escape through the water supply pipe.

Mr. Duffield was given a set of rules to govern him in his tests, of which the following is an abstract:

* An interesting series of lectures delivered by Prof. Lewes before the Society of Arts was published in the SCIENTIFIC AMERICAN SUPPLEMENT, Nos. 1203, 1204, 1206, and 1209.

1. No generator to be tested until a sectional drawing is submitted with the signed statement that the apparatus is in proper working condition.

2. Details to be noted before testing: *a.* Dimensions of generating chambers. *b.* Charge carbide. *c.* Cubic capacity of gas holder or storage chambers. *d.* Vapor condensers. The cubic capacity of generating chambers determines the air introduced when charging.

3. Details to be noted during working: *a.* Pressure in generating and storage chambers. *b.* Temperature in generating chamber; the latter is determined by rods of tin (melts 434° Fahr.), lead (melts 629° Fahr.), and zinc (melts 790° Fahr.), placed in the carbide, and examined after generation for fusion. *c.* Weight carbide charged, and time until necessary to recharge in regular working. *d.* After removing residue, throw it into pail of water, noting whether gas is given off. Although all generators used the same grade of carbide, the yield in gas per pound varied from 3.55 to 5 cubic feet; this undecomposed carbide in the residue may cause annoyance and be dangerous. *e.* If the gas does not leave the generator cool, a Liebig's condenser may be used to cool the gas before testing.

The generator building was open at all sides, and each apparatus was connected to its own burners inside the exhibition building, forming a separate plant. A meter and mercury pressure governor was attached to each machine, and drip cocks provided for pipe condensation.

Every day a weighed quantity of carbide was supplied to each exhibitor and a printed record blank filled out. This blank contained the items: Name of apparatus, date, charge carbide, gas generated (by meter), equivalent in cubic feet per pound, number of burners supplied and hours lighted, kind of burner, pressure in generator and in supply pipe, cubic feet of gas used per burner hour, volume liquid removed from drips, condition of lime residue, water flowing to waste during run, and notes as to the general behavior of the apparatus.

"The generators which combine the largest yield of gas with strength of material and simplicity in charging the carbide, and in emptying the residue, are those which will recommend themselves to the public."

When manufacturers are trying to make good exaggerated claims for their apparatus, as to the number of lights it can supply, they are liable to overheat the gas and be pursued by a consequent long train of evils. The committee found that many of the machines submitted had to have their rating cut down before they would work satisfactorily. The temperature in these cases sometimes was sufficient to melt tin. They think that portable lamps may be dangerous, and should be handled with care. They are led to believe from their tests that generators can be made which are absolutely safe with ordinary precautions, as much so as any other method of lighting.

The concluding paragraphs of this report are worth giving in extenso, as they are authoritative. The committee includes such men as Professors Dewar, Lewes, Roberts-Austen, and Thomson, Sir Henry Wood, and others, all men of world-wide reputation, and it is worth while knowing what they think of generator types. They say:

"We consider that non-automatic generators, with a holder capable of taking the gas generated from the largest charge of carbide the generator will hold, are free from objections attending all automatic generators examined by us, and we are of opinion that every generator should be fitted with an arrangement by which all air can be rinsed out of the generating chamber by acetylene or some inert gas before action is allowed to commence between the water and carbide.

"We are also strongly of opinion that every generator should be fitted with a purifying chamber or chambers in which the acetylene is purified from ammonia and sulphureted and phosphureted hydrogen and from other impurities."

A point not touched upon as yet is insufficient construction. Some cheap generators are built of thin galvanized iron riveted and soldered and dignified by the name of gas machine. These generators soon become dented, and rust through in a comparatively short time; in some cases the temperature of generation becomes so great with the dip or drip type that the solder begins to melt, and it is not long before the apparatus leaks and must be thrown out. If generator manufacturers were more careful and insurance companies or city officials more vigilant in inspection, these and other evils would not be possible. In many cases the generator maker and his representatives are the worst enemies of acetylene lighting.

As the multiplicity of apparatus increases, the public good demands that some guarantee of safety be provided and that each type be tested thoroughly before it is put upon the market.

FOR many years it has been a much disputed point whether Molière died at No. 34 or No. 40 Rue de Richelieu, Paris, and whether 34 or 40 should bear the bronze tablet. Both houses had their partisans, which caused many quarrels. At last it has been decided it was in No. 40 that the great writer of comedies died.