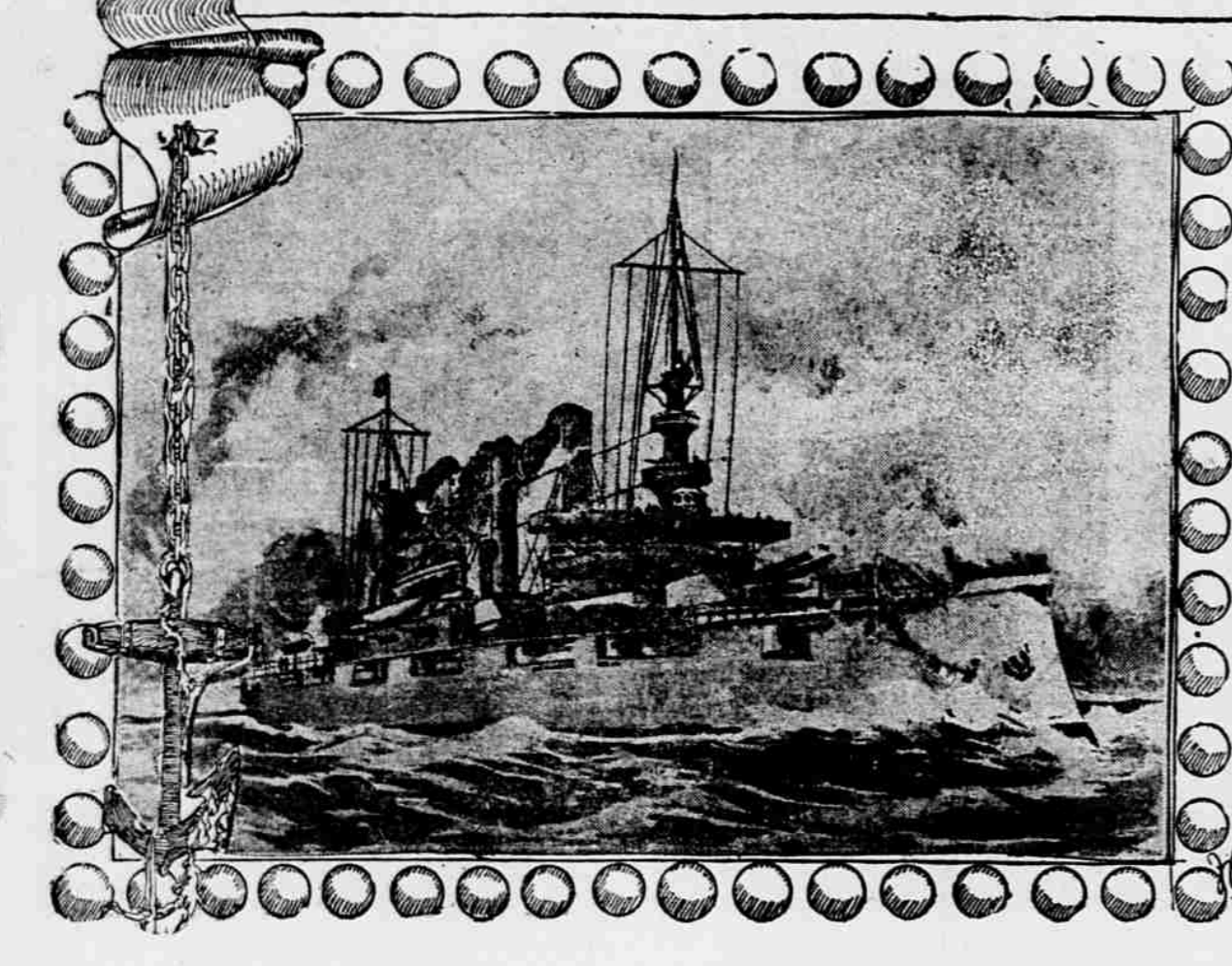


THE NEW GROUPS OF ARMORED WAR VESSELS PROGRESS IN GUNS, PLATES AND POWDER—GREATER DISPLACEMENTS



THE BATTLESHIP CONNECTICUT, AS SHE WILL APPEAR IN ACTION.

BY COMMANDER J. D. JERROLD KEEL, U. S. N.
WRITTEN FOR THE SUNDAY REPUBLIC.

The development of offense and defense in war constructions finds its highest expression in the battleships of the Connecticut type.

This is attributable mainly to the large displacement, in which the various elements have found room for greater extension, and to the improvements made in structural material.

In the earliest battleships most of the essential qualities had to be defined, their greatest value owing to the compromise that was forced by the necessary association of such antagonistic factors as speed, battery, armor, protection, coal capacity, ammunition supply, habitability and sea-going and seakeeping powers.

What had to be produced was not the best attainable, but the best all-round efficiency.

The principles of all constructive design are controlled by considerations of "weight" and by its scientific distribution, wherein the total available weight must be unduly favored, through the assignment of extra weights to motive power, this would be at the expense of some other quality, such as protection, battery, or coal capacity. In special types, of course, such a highly favored distribution is often adopted, in order to satisfy the particular employment for which the type is intended.

But in a battleship it is impossible; there must be room, and margin for many qualities, as it is a rounded production, wherein the total available weight must be distributed to produce not the very best, but the best possible, results.

Lieutenant Commander Niblack, U. S. N., has put this question in a paper read at the last meeting of the Society of Naval Architects and Marine Engineers. "The battleship," he said, "is the epitome of sea-going. Reducing to its simplest terms, it is a floating gun platform.

As a unit of defense it contains on the gun displacement of concentrated destructive power—first, for battle on the high seas, for which it is principally designed; second, for coast attack, which is its secondary and seldom-used purpose.

"The difference between the tactical value of battleships and of cruisers, torpedo boats, submarines and rams are those of degree rather than of kind, for each merely chooses some weapon or some quality of the battleship and sacrifices everything else to it. The special tactics suited to each are then from the character of the weapon.

Hence it may be profitable to inquire into the considerations that have governed our

designers of their treatment of the battleship question, especially as the question of displacement—whether large or moderate—is still in dispute.

The first-class battleships of the navy may be separated into six groups, according to the period in which they were authorized, or into four groups if displacements and speed be taken. If, however, the latter standard be accepted, the grouping would be inaccurate, as the gun energies and battery disposition thus assembled vary so greatly.

To the first group belong the Indiana, Massachusetts and Oregon, of 10,500 tons, authorized in 1893; the same class may be assigned the Iowa, of 11,500 tons, authorized in 1892. Antedating these were the two well-known ships, the Texas, now rated as a second-class battleship, and the first Maine, intended originally as an armored cruiser, but later classed as a battleship.

In the second group (1895) are the Kentucky and Kearsarge, of 11,500 tons; in the third (1896), the Alabama, Wisconsin and Illinois, of 11,500 tons; and in the fourth (1898), the Missouri, Maine and Ohio, of 12,200 tons.

Excluding the Missouri and Ohio, the above-named ships are in commission—the Kearsarge and Kentucky in Atlantic waters and the others on the North Atlantic station.

NEW ONES PROVIDED FOR BY CONGRESS.

The fifth group (1899) consists of the Georgia and Nebraska, and (1900) of the Virginia, Rhode Island and New Jersey, each of about 11,500 tons. Finally, we have the Connecticut and Louisiana and the new ones as yet unnamed, all provided for by the present Congress.

The growth of displacement between the Oregon and the Connecticut periods amounts to 5,700 tons, and the increase of the mean speed amounts to nearly two knots. Should the 1899 and 1900 constructions be taken as the standard for speed, the difference is nearly three knots.

A very radical difference of opinion exists among naval officers on the question of battleship displacement. A majority seem to favor displacement just as large as may, without diminishing any other essential element, be handled without difficulty and able with safety to enter the year around, the principal ports of our seaboard.

An influential minority believe that ships should not be allowed to exceed 11,000 tons. It bases this conservatism on several grounds, the principal of which is, that other things being equal, or nearly equal, a great number of units must be more effective than a smaller number of larger units. Hence it may be profitable to inquire into the considerations that have governed our

of numbers that, in its opinion, enables the work to be done.

Formerly we heard a great deal of dismal prophecy from this minority. It feared and proclaimed that, with large displacement, we were putting all our eggs in one basket, and that the loss of a ship meant the destruction of an army corps. Fairly considered, the objections cited by the minority are more fanciful than real.

Indeed, when the two types are submitted to the test of comparative battle efficiency what opposition could the imperfectly protected four 6-inch guns of the Oregon offer to the heavily protected armor, single casemated twelve 7-inch guns of the Connecticut class?

And at the end of this fight, which should prove to be the cheaper group? ALL BATTLESHIPS UNHANDY ON OCCASIONS.

It is usually claimed that the 16,000-ton ship must be less handy than the latest craft; that its maneuvering qualities must be inferior; but, then, all battleships can be unhandy on occasion, and if the model tank experiments can be relied upon, the Connecticut promises, through its proportions and adjustments, to be at least equal in handiness to the earlier ships.

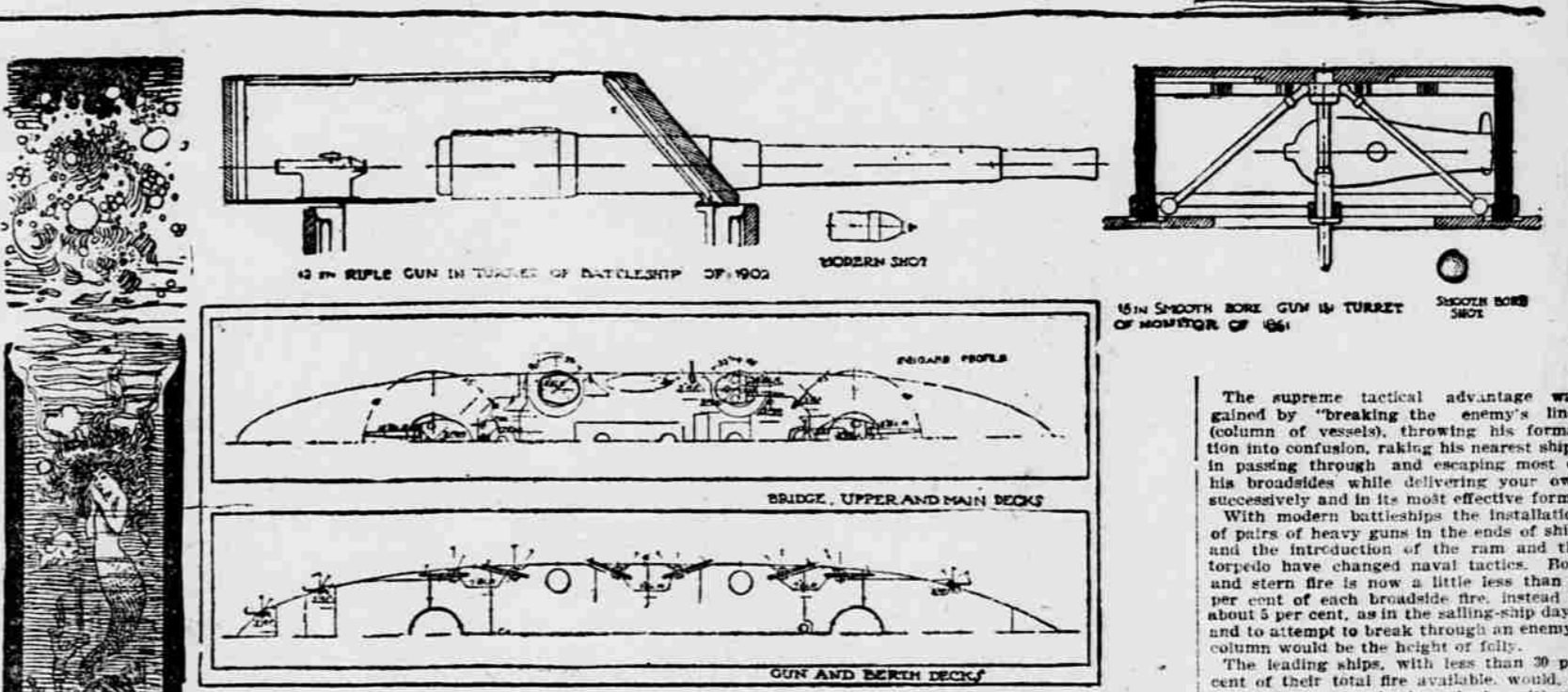
Its draft will certainly be greater, but this will not forbid its entering an American harbor on the same stage of the tide that the Oregon or any other of our battleships, so far designed, will have to use.

II.

This increase in size of warships has been common to all navies in recent years and is coincident with the increase in merchant vessels. Such increase in size may involve decrease in handiness and it may not—there is no compelling necessity—but it surely involves practice in an increase in cost.

In comparing the Connecticut with the latest American design, with her predecessors, Chief Constructor Bolles, United States Navy, draws instructive and illuminating parallels, some of which may be paraphrased here. He declares that, first of all, the problem of the naval architect should be to produce the best military unit for the least cost. A guard was stationed in the rear of those who command naval vessels to say what limit of military power shall be placed upon the individual unit of the fleet.

A distinguished foreigner recently asked why our battleships were so large or of so great displacement, and was told that the conditions of our service seemed to make it necessary for them to go anywhere and be ready to fight when they get there. While our recent battleships are undoubtedly large, the Virginia class of five vessels being 14,800 tons normal displacement, and



portion of hull and machinery weights than the smaller for equal results in strength and speed.

ADVANTAGES OF THE INCREASE IN SIZE.

The advantages of the increase in size and length of the Connecticut are clearly shown with reference to the elements of speed and power.

Model basin trials prove that at a speed of eighteen knots the power required for the Connecticut is about 5 per cent less than that required for the Maine; whereas at nineteen knots the power required for the Connecticut is nearly 30 per cent less than that of the Maine.

III.

The gun is still the supreme sea weapon, for, though it may not be able to destroy, it can render a ship helpless by putting out of action its battery and personnel. "The individual gun," writes Lieutenant Commander Niblack, "is the unit of offense in one sense; but the combined fire of as many guns as possible, directed according to a definite scheme by means of a well-organized fire control, alone means victory.

"The key to modern fleet actions is concentration of gun fire. To achieve this we must install our guns properly, and Fleet formations should be based on gun fire, and in battle we should limit tactical movements to those which least distribute it."

The difference between the heaviest naval ordnance of 1882 and 1902 is shown in the diagrams, which were among the illustrations of a paper read by Rear Admiral Charles O'Neil, chief of naval ordnance, before the Society of Naval Architects. The sketches tell their own story; but it may contribute to a more definite appreciation of the revolution in shape and in power if the data of the guns be compared.

In the old ordnance, of which we were justly so proud, the weights of the projectile and charges are not the normal ones, but are those authorized for extraordinary circumstances—"at ironclads at short range."

Fifteen-Inch Cast Iron Smooth Bore Muzzle Loading Rifle—Weight, 18.7 tons; length, 15 feet 1 inch; powder and charge, 100 pounds black powder; projectile, 450 spherical; velocity, 1,100 foot seconds; muzzle energy, 7,957 foot tons.

Twelve-Inch Steel Bull Up Breech Loading Rifle—Weight, 12 tons; length, 12 feet 1 inch; powder and charge, 100 pounds; projectile, 850 armor piercing; velocity, 2,800 foot seconds; muzzle energy, 42,240 foot tons.

The flash frigates of the Civil War carried as their favorite broadside gun the 5-inch smooth bore. 11 feet in length, that with a ten-pound charge and a seventy pound shot developed an energy of 347 foot tons. The muzzle energy of the latest 12-inch rifle is therefore fifty-four times as great, so that one shot from one new turret gun will develop as much energy as both broadsides of a fighting fifty-four gun frigate of the days of sail or of sail and auxiliary steam.

OLD ORDNANCE SYSTEM STILL IN FAVOR.

Our present ordnance system dates in essentials from 1882. Tentative efforts had been made before this to replace or to revamp the old ordinance, but without suc-

cess, as the country could not produce the steel forgings necessary for heavy-rifled cannon, and because the navy was in such a decadence that it was deemed folly to spend money on it.

Forgings were finally procured abroad, larger and modern than those of the navy—not for experimental purposes, but for service—was completed in 1884.

Since 1883 1,400 tons of gun forgings for main battery guns alone have been manufactured in the United States for the navy (O'Neil). The first large order by which this home industry was put on its feet was, in 1887, placed by Secretary Whitney of Mr. Cleveland's Cabinet with the Bethlehem Iron Company (now Steel Company).

Curiously enough, no great change in principles of construction of material or in methods of manufacture has been made in twenty years.

Larger forgings, with higher characteristics, are available, but the central idea adopted then still holds its place and testifies to the high intelligence and native ingenuity exercised by the ordnance officers of that day.

Great progress has been made in the direction of greater power and of greater rapidity of fire. We secure the first because we know how to make and fire better and simpler guns, and the second because of the gradual and simplifying improvements in the details of breech mechanism. The successful development of smokeless powder has enabled us to take a long step ahead.

The use of electricity with gun mountings has been a contributing energy, as it has done away with the heat and danger of steam pipes and has introduced ease and simplicity of power transmission and facility of control.

These in turn permit more accurate as well as more rapid pointing and firing. Still, with all the devices, intelligent and persistent drill is the prime necessity.

This demands ample appropriations for target practice, and, for the individual, the employment of some target method of continuous aiming, and such recognition by the Navy Department that the gun pointers and captains will be the best-paid men of the ship.

IV.

In an able discussion on the "Tactics of the Gun," by Lieutenant Commander Niblack, he fortifies his contention that the key to modern actions is concentration of gun fire. This officer declares:

Modern steam-fleet tactics differ in many essentials from the tactics of the sailing-ship period and from military tactics on shore. In the days of sailing ships practically all guns were necessarily mounted in broadside, and bow and stern fire, for structural reasons, were inconsiderable. The natural formation was column or "line ahead," as it is called abroad, as this gave the greatest effective fire, viz. broadside.

"We cannot afford next time to trust to luck and an obliging enemy. There is a healthy realization in the personnel of our navy that the present target practice and of the fact that other Powers know it."

"We know very well where we stand in the matter of target practice."

"We need during the coming year \$2,000,000 in ordnance and \$20,000 in gunnery expenditure, instead of the usual \$500,000 and \$100,000 respectively."

"Gun fire is everything."

The supreme tactical advantage was gained by "breaking the enemy's line" (column of vessels), throwing his formation into confusion, raking his nearest ships in passing through and escaping most of his broadsides while delivering our own successively and in its most effective form.

With modern battleships the installation of pairs of heavy guns in the ends of ships and the introduction of the ram and the torpedo have changed naval tactics. Bow and stern fire is now given a new impetus, about 5 per cent, as in the sailing-ship days, and to attempt to break through an enemy's column would be the height of folly.

The leading ships, with less than 30 per cent of their total fire available, would, in attempting to break through, be withered by the powerful concentrated broadsides of the waiting column or destroyed by his torpedoes or sunk by his rams. Then, too, raking fire has lost its terror because the bow and stern presentation of a modern battleship is very strong owing to its concentration of heavy armor in the casemates, barbets and turrets.

In other tactics, as in the quarters, a raking fire is not necessarily any more disastrous than firing at the broadside.

What this concentration of fire means may be seen by an examination of the plans of the Connecticut and a study of the arcs of fire through which the heavily protected main and intermediate batteries of the ship can sweep their destructive energies of discharge.

We thus have in modern steam-fleet tactics a sort of half-way, or a compromise, on sailing ships and military tactics, for "to turn the enemy's flank" as in the army, is a good maneuver; the approach to the attack in line abreast is now feasible, as it gives about 30 per cent of gun fire, and column formation gives maximum effective gun fire.

DETAILED STATEMENT OF MODERN IMPROVEMENTS.

To state the general proposition more in detail, with steam and modern improvements:

First—Bow fire has become a great factor in modern tactics.

Second—The ram is more than ever a dangerous and fatal weapon.

Third—Armor has almost nullified the great danger from raking fire at close quarters.

Fourth—The torpedo has made it dangerous to attack at close range than 1,000 yards.

Fifth—Smokeless powder and high speed make the windward position of little importance compared with getting the sunlight on the enemy's side.

Sixth—Elaborate subdivisions in ships tend to prolong the time and increase the difficulties of the destruction of a ship by any weapon.

"In training men to shoot we are," writes Niblack, "huffed by the continual change in the personnel of our ships; in the strain on officers and men to keep up in the constant drive to make an inadequate number of ships constantly shift about all over the world to meet political and other emergencies directly in front of target practice and also by inadequate appropriations for gunnery exercise."

"In the study and formation of the principles of tactics and strategy we may rest assured that the Naval War College at Newport is alive to its responsibilities, and we may now confidently look forward to the day when the present target practice and principles into execution in case of the appeal to arms to which this country seems to have the habit and for which it is apparently always well prepared."

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"Gun fire is everything."

There are hands capped with immense roses, butterflies of tinsel for the ladies, and bouffantiers for the men.

The idea of this year seems to be to supply either costly gifts or grotesque ones. If the decorations are flowers they cannot be too large or too showy.

Old fashions like the pretty Maypole are always danced, and it is interesting to remember that the cushion figure of to-day, when a lady chooses her partner by placing a cushion for him to kneel upon, originated in Queen Elizabeth's time and was much used at her court.

Cottions, which have been so popular in England, France and America, have Germany their present large and small figures. One of the new favor figures is danced by six couples.

After waiting they form in line as if for a country dance, the head couple then pull the string of a large German motto, which snapping is found to contain twelve caps. These are at once donned, and each man chooses as his partner the owner of the cap which matches his own.

Among the handsome favors given this year are beautiful little jewel boxes of silver gilt, with a miniature of some old court beauty on the cover, and at one end a miniature set of the favors were tiny gold elephants fashioned in quaint East Indian workmanship, which probably owed its suggestion to the interest felt in the present year in the East.

Golf bags are always pretty for favors, and are much in vogue. Sometimes they are filled with bonbons; and, again, the bags have silver sticks to be used as lace pins, or when one is enough as hat pins. Flowers are always in fashion, and never was there a year when there were more beautiful things for holding them.

HOW THE BENTON-LUCAS ± ± DUEL CAME TO BE FOUGHT.

Continued from the Preceding Page.

In a lengthy article published in the Missouri Gazette of September 29, 1817, Mr. Lawless states that Mr. Benton was "about to withdraw his demand for a second meeting when he was assailed by a man of the most offensive nature to his feelings and reputation."

It was reported, seemingly, among other statements, that Mr. Lucas's authorship, that Mr. Lucas had said that should he again meet Benton, Benton being the most accomplished duelist, that the distance should be shortened to give him, Lucas, an even opportunity with his adversary.

In consequence of this specific report, a declaration was drawn up by Mr. Lawless, submitted to Colonel Benton, and signed by Lucas.

The terms of this declaration are as follows:

In consequence of reports having reached Colonel Benton, of declarations coming from me, respecting the worthiness of the distance at which I intended to fight him at our next meeting, I hereby declare that I never said anything of that subject, with a view to its becoming public, or its coming to the knowledge of Colonel Benton, and that I never said or intimated that Colonel Benton was not disposed and ready to meet me at any distance and at any time whatsoever.

(Signed) CHARLES LUCAS.

Lucas evidently thought much of substantial honor and his youthful pride probably forbade his refusing to accept a second challenge from Benton, who was known then as a great duelist, for fear his failure to do so would be regarded as a disgrace.

After the episode in the courtroom, cited by Lucas as the direct cause of the dueling between Benton and himself, the first challenge was sent him by Benton and refused in the following positive manner:

St. Louis, Nov. 15, 1816—Sir: Your note of this afternoon received. On proper occasions or for proper causes I will give the kind of satisfaction you appear to want, but for such causes as the one you complain of, under all the existing circumstances, I would not feel justified in placing myself in such a situation as to be under the necessity of taking your life or jeopardizing my own.

I will not suffer the free exercise of my rights or performance of my duties at the bar to be made the subject of private disputes; nor will I allow it to others for doing my duty to my clients, more particularly to you in this case, who may meet the first breach of decorum, if one was made.

You complain of my having given you the lie direct, and have as much right to complain of the whole jury, who, on their oath, found a verdict in direct contradiction to what you stated to be the evidence. My object was that no intimation of the testimony should be made in the hearing of the jury without being contradicted. This was my duty to my client, and myself.

The verdict of the jury verified the statement I made of the evidence, and I will not, for supporting that truth, be in any way bound to give

Fannie Bloomfield-Zeisler to Be a Soloist at Union Recital.

Leschetzky, the Viennese Master, Was Her Teacher.

WRITTEN FOR THE SUNDAY REPUBLIC.

Fannie Bloomfield-Zeisler, the pianist virtuosa, has been engaged as the soloist of the artist recital to be given at the Union Musical, February 2.

This is not Mrs. Zeisler's first visit to St. Louis, but it is some time since she has been heard here, and in the interim she has taken on fame and distinction.

For a little more than a decade now, Mrs. Bloomfield-Zeisler's virtuosity on the most difficult of all instruments has been the marvel of her audience. Unlike many other American musicians, she first was heard in her own country. Having come to this country with her parents at the age of 2 years from Austrian Silesia, the pianist considers herself a thorough American. Leschetzky, the removed Viennese master, was her teacher for several years. A tour of this country followed the artist's emancipation from Leschetzky.

There came a tour of the principal cities of Europe with the same artistic success that had characterized her American travels.

Ever since the war of 1870-1871 Frenchmen could see no good in any German name. While that sentiment is somewhat modified now, there is yet an inclination to look askance at German talent.

Mme. Zeisler, however, had the courage of her conviction, went to Paris and announced her concert recital. Her appearance was the occasion for an anti-french demonstration. A guard was stationed in the auditorium. Her first number changed the feeling of animosity against the American artist with the German name into one of genuine approval.

Before she had finished her programme, the catch number of which was a composition by Saint-Saens, she had made an impression among critics, musicians and the fickle lay element of a Paris audience.

Fannie Bloomfield-Zeisler is called a "temperamental" pianist, whose nervous organization is the substantial basis of her extraordinary fascination as a player.

Mme. Zeisler's musical principle of the piano is, "that if any one can play the scales and arpeggios well, he can play the piano." It is this stock of technique one should have in hand, in his opinion, like a merchant his wares.

As the next Union musical recital will contain some Chopin numbers, Mme. Zeisler's interpretation of the great Hungarian master will be demonstrated. She lays great stress on emphasizing the melody,

which she says must be sung with the voice, or stand out like a solo instrument at all times.

PRETTY FAVORS AND QUAIN FIGURES FOR THE DANCE.

White Paper Dresses Worn by Men—Costumes Fashioned Like Frogs—Tinsel Butterflies for Ladies.

Notwithstanding the fact that the men of today show so little interest in dancing, "on" with the dance, let joy be unconfined; it is still a watchword worth carrying out.

Most of the smartest balls end with a collision, danced after supper, and sometimes the whole evening is given to this charming dance, which perhaps has retained its popularity because it represents endless variety and gives opportunity for many beautiful gifts.

There are houses whose whole business is the making of favors and inventing something attractive and new. One novel figure of this season is a rhapsodic figure. A ball is hung by a long ribbon from the center of the room.

The leader waltzes with his partner and designates eight other men who are to choose partners for this figure.

The men are given favors of paper containing costumes made to represent a nine-pin, which they put on and stand in line at a little distance from the ball.

Their partners form in line on the opposite side of the ball, and in turn they toss the ball toward the men, and the first man catching it claims for his partner the fair damsel who has thrown the ball. These favors come in sets of nine.

Another new and pretty costume figure is that of snow men. White paper dresses are worn by the men, and tiny snow figures to match are given an equal number of girls.

These they pin on their gowns or can carry on their fingers, and the man chooses for his partner the girl whose snow man has buttons on its coat which match those of his costume.

Other costume figures are fashioned like frogs, while soldiers of the bandmaster type, with plenty of gold braid, are in evidence. No end of favors are wrought from colored tissue papers.

A beautiful one is a huge maff of pink roses hung from the neck by a ribbon of silver tinsel. These muffs cost from \$9 to \$12 a dozen, according to size, but the larger are the more desirable they become. The favors for the men to go with these are long moss green paper horns sur-



FANNIE BLOOMFIELD ZEISLER. Who will play at the Union Club Recital.

ARTIST LOW'S STORY OF ROBERT LOUIS STEVENSON.

Will Low, the painter, told recently a story of the Latin Quarter days of Robert Louis Stevenson. Low and Stevenson were great friends in their youth; their friendship, indeed, continued up to the time of the writer's death.

"Louis," said the artist, "was no less diplomatic than brave. He could be feisty and he could also be gracious and pacific. One night, I remember, we sat in a garden in Montmartre. The red wine had been flowing pretty freely, and one of our party got heated and aggressive.

"Finally some one said a thing that this fighting chap disapproved. As soon as the words were spoken he grabbed a bottle and huried it at the other's head. It was a strong, true shot, and would have hit the mark had not Stevenson sprung to his feet and caught the missile.

"'Tut, tut, George," he said to the thrower, "but, if the bottle is passed so quickly, it is not worth the trouble of standing out the evening."—New York Tribune.