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HUNT'S

MERCHANTS' MAGAZINE

AND

COMMERCIAL REVIEW.

SEPTEMBER, 1858.

Art. I.—CONSIDERATIONS IN RELATION TO MARINE STEAM PROPULSION.

THE FULTONIAN SYSTEM IS WASTEFUL AND INEFFICIENT—IN THE USE OF THE OBLIQUITIES TO THE CRANK OVER ONE-FIFTH OF THE POWER HAS NO RESULTANT IN ROTATION—IN THE USE OF THE PADDLE-WHEEL TWO-FIFTHS OF ITS INHERENT POWER, TO THE "COLLINS SHIPS," IS WASTED BY CYCLOIDAL SLIP OF PADDLES AND OBLIQUITIES OF ACTION UPON THE SHIP—PRACTICAL EXPENDITURES OF POWER—55 PER CENT WASTED IN ORDER TO IMPART THE RESIDUE, OR 45 PER CENT, TO THE MOVEMENT OF THE SHIP—RIVER STEAMERS WASTE ABOUT 45 PER CENT AND UTILIZE ABOUT 55 PER CENT—TOWING STEAMERS WASTE EXTRAVAGANTLY LARGER QUANTITIES OF POWER—ANTI-MECHANICAL FEATURES OF THE PADDLE-WHEEL—OUTLINES OF A NEW SYSTEM—MECHANICAL STANDARDS OF ADAPTATION TO PROPULSION—NEITHER EXIST TO THE FULTONIAN OR SCREW SYSTEMS—INCOMPETENCY OF THE CRANK ENGINE TO UTILIZE OVER FOUR-FIFTHS OF THE POWER OF THE STEAM—A FORCE AT THE OBLIQUITY OF 30° TO THE CRANK COMPARED TO ITSELF IN MECHANICAL ACTION—ILLUSTRATION, TRUE TO OUR OBSERVATION, SHOWING $21\frac{1}{2}$ PER CENT OF THE NET MECHANICAL POWER OF THE STEAM WASTED, AND $78\frac{1}{2}$ PER CENT UTILIZED BY THE CRANK—FALSE AND DECEPTIVE OPINIONS, HOW FORMED—OBVIOUS REASONS FOR THE DIMINUTIVE VALUE OF AN OBLIQUE FORCE—PRACTICAL CONSIDERATIONS—COMMERCIAL CONSIDERATIONS.

STEAM navigation, since its first conception, during its first practical success, and its rapid and extended growth to the present time, has always been enshrouded by a known incompetency in the mechanism, by a known want of adaptation to its proper work, and by the belief that the due proportion of utility which ought to be derived from the steam was far from being realized, and consequently it has engrossed the most earnest inquiries of many of inventive talent and mechanical skill, for variations or substitutions by which to remedy the several defects, and introduce some mechanical applications better adapted to the duty of propulsion, and better calculated to satisfy even the common observer with the idea of fitness of means to the required ends, than the action of the steam lengthwise of the crank twice per stroke—producing the anti-mechanical phenomena of the "dead centers"—and interchanging these relations gradually with the mechanical center at every stroke; and than that of the massive wheel in the air from which to get a diminutive surface in the

water, and which diminutive surfaces move in very unnatural relations to the water, as in their cycloidal curves through it; and than that of the oblique action of the paddles, which, as they dip into the water, tend to elevate the ship out of it, and, as they rise from their lowest dip, tend to submerge the ship.

Half a century of skillfully educated development, under the Fultonian system, by cranks and paddle-wheels, has served to increase the growth from the "Clermont" of 1807, to our river palaces; and the ship of Henry Bell in 1812, to the magnificent trans-Atlantic ships, and even to the mammoth Great Eastern, yet the same anti-mechanical features that existed then exist now, and the combined skill of half a century has been insufficient to remove either one of the great local defects—defects which are radical, and hence, perpetual to the system, for the same anti-mechanical crank, and the same unnaturally acting paddle movement (or the no better adapted screw) have grown with the growth of the vessels—inheriting the same anti-mechanical nature, and which no combination of mechanical skill can ever *naturally adapt* to the required duty of propulsion.

THE FULTONIAN SYSTEM OF STEAM PROPULSION IS WASTEFUL AND INEFFICIENT.

First. In the use of the crank as a medium for transmitting the power of the steam to the movement of the vessel.

From the steam in action through its cylinder upon a uniform crank, such are its variable obliquities that we derive an inconstant rotatory force, varying from zero to maximum, and maximum to zero, at every piston stroke.

But from the same steam and cylinder, with a uniform radius—as in the "Cornish" or mining engines of Europe—disconnected from, or without the obliquities to, the crank, we derive a constant force *always maximum, and equal to that by the crank at the living center.*

Hence, we have the *prima facie* inference that that mechanical medium from which we derive, uniformly, a maximum useful effect, *through every indivisible space of the piston's motion, must be far more efficient and useful than that medium from which we can only derive a maximum useful effect at a single indivisible space of the piston's motion* as at the living center, *all other spaces of the piston's motion being less than maximum,* and variably so to minimum at the dead centers.

That is, there is just as many subdivisions, or indivisible spaces, of the piston stroke in the one case as in the other, and which under like and equal energy of steam in the one case vary, *gradually,* from no useful mechanical effect to full usefulness at mid-stroke, and again, *gradually,* to no useful effect; whereas, in the other case there is always a full, useful effect, and equal at every subdivision to that by the other at mid-stroke.

Hence, to claim that the sum of all the subdivisions of the piston-stroke, which have never full, useful, mechanical effect but once per stroke, are equal, in their aggregate, to the sum of all the subdivisions to the same stroke, which have full, useful, mechanical effect at every subdivision or indivisible space, involves a problem which can only be uttered upon the most positive proof, and such as shall clear the paradoxical inconsistency from every cloud of doubt.

But such proof has never been given, and never can be given; for the

wasteful expenditures of power by the crank, and the insufficiency of the obliquities of action, are subject to positive proof, and mere opinions of the contrary, or the interweaving of truths, sophisms, and assumptions, so as to form a web upon which to predicate conclusions favorable to the crank transmissions, are not only irreliaible and deceptive, but directly injurious to the higher and full prosperity of commerce.

Second. The paddle-wheel is also wasteful and inefficient as a medium for propulsion, because not mechanically adapted to required duty.

Such is the want of mechanical adaptation of the paddle-wheel to impart the motive power applied to it, to the movement of the vessel, that it is impracticable for the wheels of the "Collins" steamers to impart over three-fifths of their rotatory power to the movement of the ship—two-fifths or more being wastefully expended to produce the rapid cycloidal slip of the paddles, and to produce horizontal motion from the oblique action of the wheels upon the ship.

When the fact—based upon the average practical data, or performance, of one of the "Collins" ships for several passages each way—is known, that so rapid is the depression of the paddles from the surface to their lowest dip and their rise again to the surface, that *their velocity of cycloidal slip exceeds one-half* (or about 57 per cent) *of the velocity of the ship*, we are surprised at the quantity of power required and expended to produce it, and which is wasted, having no resultant effect in the ship's motion.

Each paddle—and what is true of one is true of all under like and equal conditions—generates a cycloid by the horizontal motion of the ship with the circular motion of the wheels, and the paddles leave the water a very little aft of where they enter it, having moved about three times as far in their descent and ascent through the water as they have horizontally in the water, and having moved in their cycloidal curves at a rate exceeding half the velocity of the ship.

The average, or mean coal, immersion of the "Collins" steamer "Pacific's" wheels was about seven feet, the mean pressure diameter of her paddles was 34.4 feet, or 17.2 feet radii, but the ship moved just as fast as if rolling forward on wheels of 28 feet diameter, or 14 feet radii; consequently, all that part of her wheels below a horizontal level of 14 feet below the center of her shaft had a retrograde movement, and all that part above had a forward movement, whether immersed or not, and about 3 feet of her immersion is above this line, and actually slips forward in the water.

Hence, if the ship is moving at the rate of 22 feet per second, (which gives a little under 10 day's passage to Liverpool,) her paddles rotate about 27 feet per second, leaving a retrograde slip at the lowest point, or dip, of 5 feet per second, and at 14 feet below the center of her shaft of zero feet per second, or an average of $2\frac{1}{2}$ feet per second; but her cycloidal slip of paddles equals $12\frac{1}{2}$ feet per second.

The cycloidal slip covers or embodies the descending, ascending, forward, and retrograde slip, and is the *absolute measure* of the relative resistance of the water to the slip of the paddles, compared to its resistance to the slip or motion of the ship.

We may appreciate the high velocity of slip of paddles, since one-half of all of them *are forced by the steam* down several feet and up again in the same instant in which the piston makes a stroke.

The ship and paddles are each free to move in the water, according to the sum of their resistances to motion therein; and each is free to draw

from the common motive reservoir, the steam cylinder, the greater share of the same or the lesser share, according to the requisitions upon it to produce the slip of the paddles or the slip of the ship.

If, then, the freedom of motion in the ship is fully resisted, as if fast by her cables, the full power will be expended in the circular slip of the paddles; or if the wheels have full adhesion, as in the railway locomotive, the full power will be expended in the movement of the ship; and if equal resistance occur, equal quantities of power will be expended.

1st. Therefore, the expenditures of power are *inversely* as their resistances.

But the velocities in the water are, also, *inversely as their resistances.*

2d. Hence, the expenditures of power are as the velocities of the immersed surfaces of resistances.

3d. Or, since the quantities of power (drawn from the same reservoir) vary *inversely* as their resistances and directly as their velocities, the moving powers are as the respective resistances into the squares of their velocities. (I omit, for brevity, the mathematical proof of the above.)

We observe the resistances to motion, all and singly, whether the displacements into their variable velocities of displacement, or friction of surfaces, or whatever the resistances, are mutually and respectively adjustable to their relative motions, because of the perfect adaptation of *their common medium, the water*, to the one as well as to the other; the greater resistance giving the more perfect fulcrum for a greater motion to the lesser resistance, and the lesser resistance the less perfect fulcrum for motion to the greater resistance; and so that the resistances are strictly inversely as their velocities, and the velocities are as their powers.

Hence, when we can know the relative velocities of slip of vessel, and of paddles during their immersion, we know the relative quantities of power producing them.

During several trips of the late steamer "Pacific," the average movement of rotation, at the mean pressure point of her paddles, for several trans-Atlantic passages each way, was 3,810 miles, whilst the ship run 3,098 miles, denoting a retrograde velocity of slip to that part of the wheel vertically under the shaft of 712 miles, or $18\frac{2}{3}$ per cent of the rotatory velocity of the paddles, or 23 per cent of the advance movement of the steamer.

From the above, knowing the average or "mean coal" depth of immersion, we can derive, very nearly, the actual velocity of cycloidal slip. And in the case of the "Pacific," the ship's velocity was to the paddles' velocity of slip as 63.7 is to 36.3. Hence, of the aggregate quantity of power developed in *these two velocities* (not embodying the power developed in oblique action upon the vessel) 36.3 per cent is developed without any resultant effect whatever in the ship's motion, and 63.7 per cent is the useful, tangible effect which we observe in the ship's motion.

But there is, also, a mutual, simultaneous expenditure of the power of the wheels to produce horizontal motion from "the radial dip and lift," or oblique action of the paddles, which, through the shaft fixtures, tend to lift the ship out of the water, and those which tend to submerge her; and which act at variable obliquities to her line of motion, as only the paddle vertically under the shaft acts upon the ship in her line of motion, and this expenditure, being in addition to those producing the velocity of ship and paddles, and being derived from the same primary quantity, viz.,

the rotatory power of the wheels as imparted through the crank, it must be jointly computed with those expenditures.

Knowing the constructive relations of the wheels, and the average depth of immersion, we can very correctly compute the percentage of the quantity acting obliquely upon the vessel which is wasted, and though the analysis and mathematical combination of these expenditures is too lengthy to insert here, they show the following *practical* values of the power of the wheel, viz., about 9 per cent is expended to produce horizontal motion from the oblique actions upon the vessel; about 33 per cent is developed in the cycloidal slip of paddles; and about 58 per cent is developed *usefully in the advance of the ship*.

PRACTICAL EXPENDITURES OF THE POWER OF THE STEAM.

We observe from our *prima facie* case, as from analytical proofs hereinafter given in relation to the waste of power by the crank, that if we call the mechanical value of the steam, *irrespective of friction*, as 100 per cent, then the rotatory power of the wheels equals, and is represented by, $78\frac{1}{2}$ per cent.

And 9 per cent of $78\frac{1}{2}$ equals	7 per cent of steam by oblique action	7 per cent.			
" 33 " " $78\frac{1}{2}$ "	" 26 " " "	" "	by cycloidal slip	26 "	"
" 58 " " $78\frac{1}{2}$ "	" 45 $\frac{1}{2}$ " " "	" "	in ship's motion	45 $\frac{1}{2}$ "	"
				78 $\frac{1}{2}$	

We observe the mechanical power of the steam is a distinctive, and not an interchangeable, term with the mechanical or rotatory power of the wheels—the difference is $21\frac{1}{2}$ per cent of the former; and this difference is common to all classes of marine crank-engines and to all steamers.

A more strictly *analytical statement* of the expenditures of the power of the "Pacific's" engines, gives—

21 $\frac{1}{2}$ per cent <i>wasted</i> to produce rotation from the oblique interceptions of the power by the crank.					
7 $\frac{3}{8}$ per cent <i>wasted</i> to produce the retrograde slip of the paddles.					
1 $\frac{1}{2}$ " " " the forward slip of the paddles.					
19 " " " the descending and ascending slip of the paddles.					
6 $\frac{5}{8}$ " " " horizontal motion from the oblique actions of the wheels upon the ship.					
56					
44 per cent <i>usefully</i> imparted to the movement of the ship.					
100					

These are *practical* values, derived from practical data and practical relations, by practical proofs; and the evidences, facts, and proofs are *equally strong and absolute* to show 55 per cent of the net mechanical value of the steam developed, without any resultant effect whatever in the speed of the vessel, as to show 45 per cent developed in the speed of the ship.

RIVER STEAMERS.

But the relations of wasteful and useful expenditures by paddle-wheels are variable to different classes of steamers; as our river passenger steamers waste less power than the Collins ships, and the towboats waste more.

To light draft steamers the chief wasteful expenditures by the wheels is in the retrograde slip, none in forward slip, and but little in the oblique

action upon the vessel. There is, however, more expended in the retrograde slip than is generally supposed, because the general supposition is based upon the difference between the number of miles moved through by the paddles in rotation and the number of miles run by the vessel; but this does not ordinarily, and never by a single large engine, give the relative *velocities* of slip to the relative expenditures of power.

We may explain by the "Isaac Newton"—thus, all who have discriminatedly observed her know that her wheels have a very impulsive motion, and so variable that, when standing upon the borders of the Hudson away from the din of the city, their impulsive action is most plainly discovered by the quick, fluttering sound, intermitting an almost cessation of sound by her paddles as they strike the water, and these intermit at every stroke, or twice per revolution; showing that her chief and most wasteful retrograde slip occurs during only a part of the stroke, and just as she is most rapidly expending her power.

The mathematical adjustment of these commonly observed practical relations shows that this steamer, and her consort, to every regular passage waste (with a liberal margin) over one-third of the power of their wheels; and, consequently, that their passages are made under less than 55 per cent of the net mechanical value of their steam.

The difference, or 45 per cent, has no mechanical effect in the run of the boat, no more than if the same quantity of steam was let off through the safety-valve; yet it is a compulsory waste for want of mechanical virtue in the system by which to use the other part without it.

TOWING STEAMERS.

The large towing steamers upon the Hudson, as a class, exhibit the greatest extreme in wasteful expenditure of power, at the same time they *apparently* do a large duty for their quantity of coal; their cluster of barges making a large show, whilst their slow speed requires but a small quantity and slow expenditure of power. In these steamers the singular phenomena occurs of the speed of the tow being but little greater than the average velocity of piston, and less than the velocity of crank-pin, with the paddles slipping in retrograde two miles to the tow's forward movement of one mile; and when these conditions occur, over two-thirds of the power of the wheels, and nearly three-fourths of the net mechanical power of the steam, *is wasted*, in order to impart the diminutive remainder to the movement of the tow.

Therefore, when we see the fine steamers of this class surrounded by a cloud of barges and canal-boats, and in wealthy lines where every element of economical management and adaptation of the system is most studiously and rigidly observed, the mechanical inefficiency is astonishingly great; and the impossibility of mechanical skill remedying its defects is most obvious, and the system shows itself radically bad and mechanically unadaptable.

ANTI-MECHANICAL FEATURES OF THE PADDLE-WHEEL.

The paddle-wheel is mechanically unadapted to the duty of efficient propulsion.

1st. Because of the insufficient surface area in action upon the water.

The facts that the speed of steamers is not unfrequently increased by the reduction of their paddle surface, and that the area of paddles to passenger steamers may be too great for the same engine power if used

in towing service, do not detract from this truth, but, otherwise, they confirm it, because these facts arise entirely from other associate causes—that is, want of proper harmony in other mechanical proportions, to give the proper relations between the resistances and moving power, which cannot be so readily and so cheaply altered.

From three-fourths to five-sixths of the paddle surface of all steamers is constantly out of the water, and in action against the air; and to a stroke of the piston in the “Collins steamers,” *per horse power upon it, there is less than half of an oar-blade of immersed surface*; and this is just as anti-machanical as if a “Whitehall oarsman” should make a pulling stroke with an oar-blade no larger than the flat of his hand; yet it cannot be increased because of want of relative proportions, cycloidal slip, &c. We greatly cover up, except to a practical analysis, the anti-mechanical features of the present system by the extraordinarily large quantity of power centralized upon, and expended by, the marine engine.

2d. Because of the oblique action upon the vessel.

By the oblique action of the power of the steam upon the crank, *we convert a recti-linear to a rotatory power*, by intercepting the lines of action, and changing them to tangent directions; and by the oblique action of the rotatory power of the wheels upon the vessel, *we convert a rotatory to a recti-linear power* by intercepting the lines of action, (by the weight of the vessel to the dipping, and the buoyancy to the lifting paddles,) and changing them to horizontal directions. The same elementary laws of mechanics, and the same practical rules, apply to the one as to the other; reference is therefore made to the examination of oblique acting forces in regard to the crank, and if there is no waste of power by oblique actions upon the crank, there is none by the oblique actions upon the vessel, because of the unnatural movement of the paddles in the water.

So unnatural is the cycloidal movement in their quick descent and rise, and diminutive retrograde, that we cannot well or easily picture to the mind a more unnatural motion, when its singular path is traced to the eye; and it is as practically objectionable as the apparent movement is unnatural.

4th. Because these anti-mechanical features, or incompetencies of adaptation, cannot be remedied, *retaining rotation*, from the very nature of the case.

Analysis shows this, as does also the multitude of attempts under every variety of thought, and equal multitude of failures, to obtain more efficient wheels or paddles.

As a system, it is unnatural and wasteful to change the recti-linear power actuating the piston to the rotatory power of the wheels *by oblique interceptions by the crank*, in order to *rechange* this rotatory power to a recti-linear again, also *by oblique interceptions by the vessel*.

In navigation, as in the mining duties of Europe, we have a reciprocating recti-linear motion from which to derive a continuous recti-linear resultant; and in mining we have a heavy load in slow vertical movement; in navigation we have a light load and fast horizontal movement.

From the presentation thus made of our marine steam propulsion, it is evident that what we require, and what will alone constitute efficient propulsion, is the most simple possible mechanical conversion of the reciprocating recti-linear motion to a continuous recti-linear of higher velocity, with the best practical adaptation to resist retrograde motion in the water as a fulcrum of locomotion.

Most obviously this cannot be done excepting by a NEW SYSTEM, the mechanical features of which are radically different from those of the old system, and which must embody—

1st. Perpendicular action of the power to the radius of transmission, in substitution for the oblique actions to the crank.

2d. A large resisting area of surface upon the water, in substitution for the present small area, which, because of other anti-mechanical features, cannot be increased.

3d. Action upon the water, parallel to and in opposite direction to the boat's motion, and upon the vessel in its line of motion, in substitution for the oblique actions of the wheels. Only ($\frac{1}{7}$) one-seventh of the immersed paddles of the "Collins wheels" act upon the vessel in the line, or direction of its motion; the other, ($\frac{6}{7}$) six-sevenths, is more or less oblique.

OUTLINES OF A NEW SYSTEM.

By the Cornish engine transmissions of power, or by the common marine engine disconnected from the crank, and the reciprocating railway oar-truck, parallel propulsion, which acts lengthwise of, and horizontally upon, the sides of the vessel, and which presents a feasible plan for a large resisting surface of immersion, we have a radically new system, which combines, in a feasible, durable manner, *the three essential features of mechanical adaptation to propulsion*, as—

1st. Direct action of the motive power perpendicular to the lever of transmission.

2d. An adequate resisting surface in immersed action upon the water as a fulcrum of propulsion.

3d. Action upon the water in a retrograde direction parallel to the run of the boat, and upon the vessel in the line of its direction.

It is plainly evident that these are the simple ESSENTIAL FEATURES of mechanical adaptation to propulsion, and, also, that THEIR COMBINATION IS ESSENTIAL.

But to the Fultonian system, *neither of these simple mechanical features exist*; hence, *they are not combined in it*. The screw propelling system is still less mechanical than the paddle-wheel, and possesses neither of these simple standards.

As these are *fundamental principles of mechanical adaptation*, if in any device whatever, one or more of these three features are wanting, there is an important deficiency, the degree of which rests upon the practical proximation to these standards; but where *all three are wanting*, we have a strictly anti-mechanical system; hence, we have the reason why the multitude of devices by which the improvement of the common paddle-wheel has been attempted and failed, and by which *substitutes* for the crank, retaining the wheel, and *substitutes* for the wheel, retaining the crank, have been attempted and failed; all of which failures could have been as well determined before as after trial by a discriminate analysis and comparison with these standards.

These outlines of a new system are only intended, in this article, to be sufficient to invite and enlist *a thorough knowledge* of the present system, of its demerits, of its prodigal or spendthrift character; for it was radically bad as it left the hands of Fulton, and it is equally so to-day, having grown in stature, proportions, and workmanship for the better; but in the

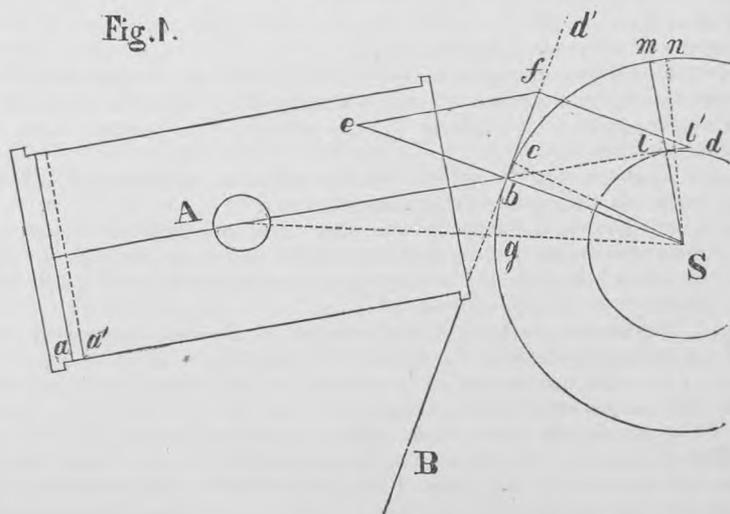
principles which are vital to its character, it has made no advance for half a century; and, to-day, the most talented engineers can say no more, in truth, for their splendid steamers, than that they are constructed perfect in their kind. If they go from the workmanship to the elementary principles, and follow the developments of the mechanical functions of the steam, they can only trace and sum up the lesser half of those functions in the motion of the sea-going ship, and will vary but little from one-half to the best inland steamers.

We cannot discard the usefulness of our present systems, (the screw being still less mechanical than the wheel,) spendthrifts though they are, until the usefulness of a new system shall supersede them; but a mechanical system will only waste power in retrograde slip; for this, to a certain extent, cannot be avoided, yet this, by the new system, will not exceed, if it shall equal, 20 per cent to steamships. All the other wastes now submitted to are remedied by the inherent mechanical virtue, and 20 per cent from the 55 per cent now wasted, will add 35 per cent of useful power to the 45 per cent now useful, making a moving power of 80 per cent instead of only 45 per cent; also, this supplementary 35 per cent exceeds three-fourths, or 75 per cent, of the 45 per cent.

Whatever the devices and improvements for generating power, or a greater quantity of power, it is highly important that the mechanical functions thereof shall be economically used.

And to the present sources of generating power, we shall soon be without excuse if we do not make passages in the same time now made with a largely reduced rate of consumption of fuel, and quantity; or, secondly, if we do not make passages in less time to the same rate of fuel—the quantity being reduced as the time is reduced; or, thirdly, if we do not make passages in considerably reduced time with an increased rate of fuel—(by increase of boilers and machinery to burn the greater quantity in the lesser time,) the quantity being the same as now used.

Fig. 1.



INCOMPETENCY OF THE CRANK ENGINE TRANSMISSIONS TO UTILIZE OVER FOUR-FIFTHS OF THE POWER OF THE STEAM.

As every line of application of power to the crank is oblique—excepting the line of perpendicular action at the living center—and variably so through every *possible obliquity* twice per piston stroke, a careful examination of a single angle of obliquity *forms the bases of computation* of all other angles.

Mechanical value of a given amount, or a given number of cubic inches, of steam expended at the angle of 30° to the crank, compared to its value expended in perpendicular action. To the oscillating engine, in fig. 1, let aa' equal the motion of the piston, and represent a given number of cubic inches of steam. Then, at this angle of 30° , as Ab s or db s, crank-pin space bc equals twice piston space aa' , and the tangential pressure at b equals half the applied pressure.

Let space W' equal space aa' , then as sm equals twice sl , or $\frac{\text{radius}}{2}$, space mn equals space bc , and the pressure at m equals half the pressure at l . But *the velocity of piston* when connected at b , is *only half its velocity* when disconnected at b and connected at l .

This is shown by observation, (as also by demonstration,) as, since the tendency of the piston to velocity at the dead center (as in Ag s) is zero, when the pressure of rotation is zero, and since the *tendency* of the piston to velocity increases from zero to full velocity at the living center, (as if cylinder A is changed from Ag s to Ab s, and more to Bb s,) just as the pressure of rotation increases from zero to full; and as the pressure of rotation increases from zero as the sines of the angles of obliquity increase, so *the velocity of piston* increases as the sines of the angles of obliquity increase, or varies as the sines of the angles vary.

Hence, as the sine of the angle of piston velocity at 30° (as sl in direction Abd) equals half radius, or $\frac{\text{radius}}{2}$, and in perpendicular action (as sb in direction Bbd') equals radius, the velocity of piston at b in Abd is *only half its velocity* at b in Bbd' .

But the velocity of piston at b in direction Bb is the same as at l in direction Al , the pressures at points d and l being equal; because both are simple perpendicular actions, and the power of the steam in each is instantly transmitted.

(a) Consequently, the velocity of the piston in Ab connected at b , is only half its velocity in Al connected at l .

Further, as the velocity of piston A is only half the velocity of crank-pin b , and is only half the velocity of piston when connected at l , it is true that *the velocity of piston* connected at l equals the velocity of crank-pin connected at b .

(c) Hence, the mechanical duty exerted by the steam upon point b is 100 lbs. pressure into the velocity of crank-pin.

(d) Also, the mechanical duty exerted by the steam upon point l is 100 lbs. pressure into the velocity of crank-pin, as the velocity of point l equals that of crank-pin b . (See marginal reference b .)

The expenditures of steam are measured by aa' when in oblique action through bc , and by aa' equal W' in perpendicular action through W' ; therefore, *the primary cost and mechanical values of the steam expended are equal*, and in each case are represented by 100 lbs. pressure into velocity of crank-pin. (See c and d .)

But the UTILIZED value in bc is not the 100 lbs. pressure exerted upon the crank-pin b , but the pressure of rotation derived from it, which is only half of 100 lbs., or 50 lbs., and only equals 50 lbs. tangential pressure into velocity of crank-pin, or $50 \times v$.

(e) And the UTILIZED value in ll' equals 100 lbs. pressure into velocity of crank-pin. Its equivalent in space mn , equal bc , is 50 lbs. into twice the velocity of crank-pin, or $50 \times 2v$.

That is, if aa' , ll' each equal one inch, bc , mn each equal two inches, then the same number of cubic inches of steam, and same intensity of pressure, which, when connected at b can only move 50 lbs. 2 inches in bc , in an instant of time t , when connected at l can move 50 lbs. 2 inches in mn , in one-half of the same instant of time t , or with double velocity.

Therefore, the quantities of steam, the loads moved, and the spaces, all being respectively equal, the UTILIZED VALUE OF THE STEAM is as the velocities, which are as velocity v in bc is to velocity $2v$ in mn , or as $\frac{1}{2}$ is to 1.

The difference in the utilized values derived from the steam equals the wasteful expenditure, in consequence of developing it through the anti-mechanical relations of the obliquity of 30° to the crank.

Again; to harmonize the velocity of piston, when connected at b , with its velocity when connected at l , we must extend relief to the functional element of pressure exerted at b , which we may do by reducing the resisting load in bc from 50 lbs. to 25 lbs., or one-half, and we thereby double the constituent element of velocity.

We have, then, a utilized value of 25 lbs. 2 inches in bc in half of the former time, or in one-half of instant of time t , or with velocity $2v$, and in mn of 50 lbs. 2 inches, in half of instant of time t , or velocity $2v$.

Therefore, the quantities of steam, the spaces passed, and the times, being respectively equal, the utilized value of the steam in oblique action is to that in perpendicular action as their respective loads, which are as 25 lbs. is to 50 lbs.

(The spaces bc , mn may be treated as so extremely small that the difference of angles Abs , Acs would not be appreciated.)

We thus show that the useful effect sought for from a given amount of steam in oblique action, at the angle of 30° to the crank, is only half that due to, and realized from, the same steam in perpendicular action.

And what is true of one oblique force, of x cubic inches of steam, compared to the same force of x cubic inches of steam in mechanical action, is true of all other obliquities, according to their respective angles and relations.

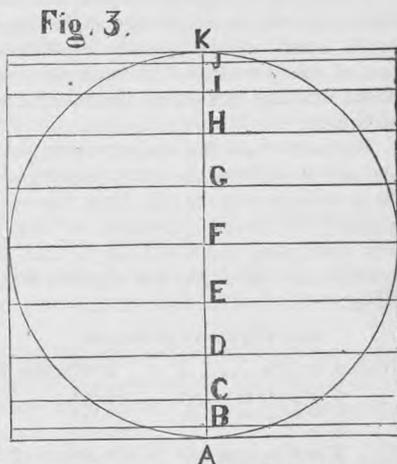
The philosophy of these values is simple, and is that the force—or motive functions of the steam—acts in the direction bd , in which line it cannot move a hair's breadth, being rigidly intercepted in bs —it therefore reacts in direction be , and derives from itself a sufficient quantity of force to change its direction from its line of impossible motion to a line of possible motion, which is the tangential line bf . The quantity of force thus expended equals $bd - bf$, and can no more be utilized than if the same quantity was expended upon friction. (These relative values are entirely irrespective of friction.) That utilized equals bf .

If, for the reactive force in line of crank as in be , we remove the crank and substitute an additional force in same line and direction sb , equal to be , or cosine of the angle—force A being equal to radius—then the joint

We may show the variable relations of utilized values by varying the forces PQ more and more obliquely until they merge in the "dead center," or right line sb , when the diagonal continually lessens from bd until it merges in point b , and the utilized value is zero. And if we lessen the obliquities by varying PQ towards Bb , as at pq , at the angle of 45° , the diagonal equals br of parallelogram $btru$, or 70 per cent of $P + Q$; and as we further move them more and more towards Bb , until they are merged in line Bb , the diagonal increases more and more until it equals bf , which equals $bc + be$, or radius.

ILLUSTRATION, TRUE TO OUR OBSERVATION, WHICH SHOWS $78\frac{1}{2}$ PER CENT OF STEAM IN MECHANICAL ACTION EQUIVALENT TO 100 PER CENT IN STEAM UPON THE CRANK.

Let the square of the figure represent a steam cylinder of 100 inches diameter, or 7,854 inches area of piston, and 100 inches stroke, as in AK , and consider the connecting rod to the crank as if infinitely long; and divide the crank-pin stroke into ten equal spaces; and then, as the piston moves from the "dead center" A to B , the crank-pin has moved through the first tenth of its stroke, and as piston moves from B to C , the crank-pin moves through its second tenth; and so on successively and relatively to the "dead center" K .



From A to B , the capacity of the cylinder equals 19,242 cubic inches of steam; from B to C 55,764 cubic inches, and variably on. The pressure upon the crank-pin to a net of 10 lbs. per inch, equals 78,540 lbs. (or 35 tons) to every indivisible space in AK , and the average utilized pressure at the crank-pin from A to B equals 12,135 lbs.; from B to C 35,225 lbs., and variably on; from which we make this table:—

STEAM CAPACITY OF CYLINDER.		UTILIZED PRESSURE AT CRANK-PIN.	
	Cubic inches.		Pounds.
From A to B	19,242	To first tenth	12,135
B to C	55,764	second tenth	35,225
C to D	86,865	third tenth	54,860
D to E	109,485	fourth tenth.....	69,155
E to F	121,344	fifth tenth	76,655
F to G	121,344	sixth tenth.....	76,655
G to H	109,485	seventh tenth.....	69,155
A to I	86,865	eighth tenth.....	54,860
I to J	55,764	ninth tenth.....	35,222
J to K	19,242	tenth tenth.....	12,135
From A to K	785,400	Average.....	50,000

The piston velocity is reduced below the velocity at F , and to zero at A and K , just as the pressures are reduced below 78,540 lbs. at F , and to zero at A and K . Hence, as the piston and crank-pin velocities at F are identical, the crank-pin velocity is the velocity due to the piston at every

inch of its stroke, but being reduced by the interceptions of the crank, the crank-pin velocity compensates for its reduction. (The reduced pressures are uncompensated.)

If we now inscribe a circle in square AK , it will represent a hollow sphere, the same as the square represents the steam cylinder; and from it we derive variable relations in regard to the crank, which are both true in fact and true to our observation; and we observe that the quantity of steam represented by the circle varies from A to F and F to K , just as the pressures of rotation at the crank-pin vary; and that if in perpendicular action to its radius, it possesses at every susceptible chord of the circle precisely the same utilized pressure that the full quantity represented by any section of the cylinder possesses.

Also, that the difference between the inscribed circle and circumscribed square, precisely equals the quantity of steam wasted by the obliquities to the crank, (which equals 21.46 per cent of the cylinder steam;) and that at every sectional division by the piston, the difference between the chord and the section of the square, indicates the steam wasted at such obliquity.

We have then the obvious facts that no steam at A and K in mechanical action utilizes the same (zero) pressure which the 7,854 square inches do in oblique action, and that the chord at B precisely represents the quantity of steam equivalent to the 35 tons pressure at the end of the first tenth, and the chord at C that at the end of the second tenth, and variably so through the stroke; from which we derive the following table:—

STEAM CAPACITY OF SPHERE.		UTILIZED MECHANICAL PRESSURE.	
From A to B is.....	3,002 cubic inches.	Average.....lbs.	12,135
B to C.....	25,234 "	"	35,225
C to D.....	61,172 "	"	54,860
D to E.....	96,889 "	"	69,155
E to F.....	119,433 "	"	76,655
F to G.....	119,433 "	"	76,655
G to H.....	96,889 "	"	69,155
H to I.....	61,172 "	"	54,860
I to J.....	25,234 "	"	35,225
J to K.....	3,002 "	"	12,135
From A to K equals....	616,853 cubic inches.	Average.....lbs.	50,000

We thus observe that the utilized pressures of rotation, to each and every indivisible space in AK in the cylinder action of steam upon the crank, are precisely equal to each and every corresponding space in AK in the spherical action of the steam upon its radius, and that each average 50,000 lbs. through AK .

But the *piston velocity*, or velocity of steam, *in the spherical action is uniformly equal* to the piston velocity at F in the cylinder action, (at which point it is identical with the crank-pin velocity,) hence equals the crank-pin velocity.

Consequently, the velocity of the cylinder piston is only $63\frac{2}{3}$ per cent of the velocity of the piston in the sphere. Or the cylindrical stroke requires 1.57 times the time of the spherical stroke.

Therefore, to harmonize the velocities of pistons, or their times, we must reduce the resistance at the crank-pin from the average of 50,000 lbs. to $63\frac{2}{3}$ per cent of itself, or to 31,833 lbs., which will increase the velocity of the cylinder piston equal to that of the sphere.

We have, then, the utilized value of spherical steam equal to 50,000 lbs. into velocity v , or equal 50,000 v .

Also, of the cylinder steam equal to 31,833 lbs. at crank-pin, into 1.57 velocity v , or equal 50,000 v .

But the quantity of steam in the sphere is just 78.54 per cent of the quantity in the cylinder; and the quantity of steam wasted by the obliquities to the crank, is the quantity outside of the sphere or circle, and inside of the cylinder or square, and equals 21.46 per cent of the quantity in the cylinder.

Hence, to the common steam cylinder, by the Cornish transmission—dispensing with the crank— $78\frac{1}{2}$ per cent of steam will equal the useful duty of 100 per cent of steam when connected with the crank.

We thus present to the ready observation of the eye and judgment of the mind, by this harmony of coincident relations, correctly illustrated truths of the practical relations of the crank-engine, its variations by the functions of the circle, its worthless expenditure of over one-fifth of the net power of the steam (which has no more resultant effect in the rotatory power of the wheels, than if the same percentage, or 168,546 cubic inches, of steam escaped through the safety valve;) and of the utilization of nearly four-fifths of the power of the steam.

CHARACTERISTICS OF THE CRANK-ENGINE, FROM WHICH FALSE AND DECEPTIVE OPINIONS ARE FORMED.

First. From the fact that the pressure on the piston into its average velocity equals the average rotatory pressure at the crank-pin into its velocity.

That is, since 10 tons net pressure on the piston into 10 feet stroke per second, equals 6.36 tons crank-pin pressure of rotation into its motion of 15.7 feet per second, it is claimed that there is no waste of power by the obliquities to the crank.

We must observe that the mechanical value of the steam is not what it can do when rigidly intercepted by the crank at every functional energy to move, but what it can do when untrammelled by obliquities. Therefore, unshackle the piston from the crank, and its "average velocity," moving 10 tons pressure, is not what it was per stroke, but what it was at midstroke—its only mechanical condition, its "dead centers," are vanquished—and such as to make its 10 feet stroke in .63 of a second, or with 1.57 times its shackled velocity.

Comparing one part of a complex machine with another part thereof, has no tendency to discover its imperfections, but we should compare its action when attached to the crank with its action when detached. Or we may compare the functions of the steam exerted upon the machinery with the useful effect derived from it; and thus—the steam exerts a constant pressure of 10 tons upon the crank-pin into its velocity, from which the utilized value equals 6.36 tons pressure of rotation into same velocity.

Second. From the characteristic that the velocity of crank-pin varies from that of piston *inversely* as the pressure of rotation varies from the applied pressure.

This fact has led to the false inference that the velocity of crank-pin COMPENSATES for the diminished rotatory pressure. That is, it has been claimed that, since the velocity of crank-pin is 1.57 times that of the piston, and its average rotatory pressure $.63\frac{2}{3}$ of the applied pressure, and

since $63\frac{2}{3} \times 1.57 = 1$, the greater velocity of crank-pin compensates for the lesser pressure of rotation.

But the compensating velocity for zero pressure of rotation at the dead center is an infinitely high velocity of crank-pin, and equal capacity of piston motion as at the living center. Also, the compensating velocity for half-pressure of rotation, as at the angle of 30° , is twice the velocity of crank-pin at midstroke, the velocity of piston being equal to its velocity at midstroke. But every one's infantile knowledge of the crank-engine stamps these conditions as absurd, and we observe the controlling fact that the piston velocity is reduced also, just as the pressures of rotation are reduced, or varies as they vary; under which there exists a necessity of allowing the crank-pin velocity to compensate for the reduction of the velocity of piston; whilst we are compelled to allow that the reduction of the pressure of rotation is taxable to the obliquities to the crank.

The law of "virtual velocities" is only applicable to the tangential resultant of an oblique force.

SELF-EVIDENT REASONS WHY AN OBLIQUE FORCE MUST BE LESS EFFICIENT THAN IF NOT OBLIQUE.

To illustrate a simple mechanical force, let F be a fulcrum, Fb radius, Fd twice radius; and force A equal 100 lbs. through one inch, or bc in an instant of time t , or $\frac{1}{2}$

with velocity v . Then its equivalent at d is an interchange of half the pressure with double velocity, or 50 lbs. through de , two inches in time t , or with velocity $2v$. The $2v$ compensates for the half pressure.

To illustrate an oblique force, we may now change A to the angle of 30° as at Q , when it represents the piston action to the last half of the stroke.

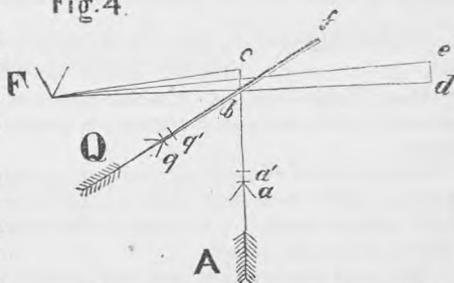
We now observe that every resulting mechanical condition is changed; and, first, that Q is not free to move in direction Qbf , as A is in Abc , for it is rigidly intercepted in line Fb , so that it cannot move the least fraction of an inch in line bf , and the only possible motion for point b is in the new direction bc .

The constituent elements of force Q equal those of force A , and are a determinate function of pressure (represented by 100 lbs.) and a determinate function of velocity due to the pressure, (represented by velocity v .) see quantity A ; and though these are inseparable, they are, however, interchangeable.

This rigid interception of force Q by the crank Fb , effects, jointly, its mechanical function of velocity in qq' , and its function of pressure in direction bc , as,—

1st. Q is not free to develop its function of velocity through qq' , one inch in time t , because it must exert itself first in direction bj ; and, secondly, in direction bc , (whilst A exerts itself instantly in bc .) Hence,

Fig. 4.



Q must take twice the instantaneous time of action upon point *b* which *A* takes, or twice the time of action upon each indivisible space in *qq'*, which *A* takes to each indivisible space in *aa'*. And as *A* takes instant of time *t* to the sum of all its indivisible spaces in *aa'*, *qq'* being equal to *aa'*, *Q* must take two instants of time *t*, or $2t$.

Consequently, as *A* acts through *aa'* with velocity *v*, and *Q* through its equal space in twice the time, it is with only half the velocity, or *v*.

2d. Also, *Q* is not free to develop its function of pressure upon point *b* through *bc*, because it must exert itself upon every indivisible space in *bc* in the same time that it exerts itself upon every indivisible space in *qq'*; and as *qq'* equals one inch, and *bc* equals two inches, there are twice as many indivisible spaces in *bc* as in *qq'*; hence, *Q* can exert itself upon each indivisible space in *bc* with only half the intensity (j) or quantity (50 lbs.) of pressure which it exerts upon each indivisible space in *qq'*.

Therefore, the function of velocity developed by *Q* in *qq'*, is to that developed by *A* in *aa'*, as $2t$ is to *t*, or as $\frac{v}{2}$ is to *v*.

And the function of pressure developed by *Q* in *bc*, is to that developed by *A* in half *bc*, as 50 lbs. is to 100 lbs.

We have then the utilized value of *A*, at *b*, equal to 100 lbs. $\times v$, or at *d* = 50 lbs. $\times 2v$; utilized value of *Q*, at *qq'*, equal to 100 lbs. $\times \frac{v}{2}$

or at *b* = 50 lbs. $\times v$: that is, *A* moves 100 lbs at *b* one inch in time *t*, or at *d* 50 lbs. two inches in time *t*; and *Q* moves 100 lbs. in *qq'*, one inch in time $2t$, or at *b* 50 lbs. two inches in time $2t$, or with half the velocity at *d*.

It may be asked, why are demonstrations repeated under different views? It is because very many practical men deny the diminutive resultant of an oblique force; and because they are professionally so situated that their opinions, however groundless in truth, have an extended influence; and the different views showing the inefficiency of the obliquities of force are given, hoping to dissipate such improper influence against the true interests and advancement of the mechanic arts.

PRACTICAL CONSIDERATIONS.

The average analytical velocity of piston is only $63\frac{1}{2}$ per cent of that due to the value of the steam; and this analytical relation would be the true practical relation if equal quantities of steam were expended at, and near the ends of the stroke upon each obliquity, as are expended at, and near mid-stroke; but as lesser quantities to each obliquity are expended at the extremes than at the mean of the stroke, the exact quantity of steam expended upon each must be taken into account.

Hence, by a correct combination of these relative expenditures, the practical velocity of the piston, under the uniform pressure upon it, is increased from $63\frac{1}{2}$ per cent to $78\frac{1}{2}$ per cent of the velocity of piston due to the steam. Or, in its correlative consideration, the average rotatory pressure of crank-pin (the velocity of crank-pin equalling the function of velocity due to the steam) is increased from $63\frac{1}{2}$ per cent by the practical correction due to the variable expenditure of steam upon each obliquity to $78\frac{1}{2}$ per cent of the applied pressure. That is, only $78\frac{1}{2}$ per cent of the mechanical

value of the steam, irrespective of friction, is practically utilized by the crank-engine.

The more strictly mathematical and analytical formula by which the variable obliquities, and variable expenditure of steam to the respective obliquities are coupled, and by which the wasteful power and useful power are computed, are here omitted; because of their less readable character, and because of the full illustration by Fig. 3. The percentages here given are the practical values, for the formula takes the precise quantity of cubic inches of steam to each obliquity, the precise wasted quantity to each change of direction, and the precise utilized quantity to each obliquity; and the sum of that which is wasted plus the sum of that which is utilized, equals the net primary mechanical value of the steam.

COMMERCIAL CONSIDERATIONS.

Several million dollars, and to the United States steam tonnage alone nearly three million dollars, are annually sacrificed to the insatiate crank, and yet other several millions to its natural allies, the paddle-wheel and screw; or if we may not charge such wholesale sacrifice of commercial interests and prosperity to these things operated upon, then these many millions are sacrificed to the incompetency of skill in the useful arts, to disenthroned them and install their superiors and successors, and it may be they have been sacrificed to the consequences of false education, by which genius and experience have looked upon their perfect workmanship and harmony of system as the true standard of every quality of adaptation; or perhaps to the caprice of some who because of early opinions, now for opinions sake, will shut out the light of demonstrations, confirmatory proofs, and accumulation of facts forming that standard of reliable knowledge upon which alone the true progress of mechanical skill and the highest prosperity of commerce can rest.

What is the true character of a system of which its ablest advocates can only say of its noblest ships, matured under the most lavish expenditures of skill and wealth, as of the Adriatic, Vanderbilt, Ocean Queen, and Persia, that they are mechanically competent to transmit from their cylinders and impart to the movement of the ship something over two-fifths of the extraordinary quantity of motive power centralized and expended upon their pistons, but that *they are wholly and absolutely incompetent to develop one-half of such large and so expensive quantity in the run of the ship?* Able engineers may give *opinions* to the contrary, they may, Pharaoh like, insist upon and exert every capability and resource to maintain commerce under her bondage and servitude to an incompetent system, but opinions, unsupported by knowledge, contradicted by the boldest and most obvious facts, and impossible to draw a support from proofs, are "like the house whose foundations are built upon the sand."

Shall marine steam commerce stand longer in the back-ground, whilst inland commerce has established a progressive era? We cannot carry our railway system, by a bold comparison, *back to our* steam marine system, yet we can correctly make a limited comparison, and thus—our steam propulsion is to what it should be, as the stages in our avenues are to the cars. That is, when we unhitch the horses from the stage and hitch them to the car, we can more than double their load of transfer; so, too, when we can unhitch our steam pistons from their anti-transmissive mechanism and hitch them to naturally adapted mechanism, we add may to our steam-

ships nearly two-fold their power of propulsion, to our inland steamers add over half their present utility of steam; and to our towing steamers more than double the useful capacity of their power.

Again, steam commerce may stand still, and rest upon her laurels won without a competitor, for fear, doubt, or insufficient knowledge, and thus retard and delay a meritorious system, but merit of principles, adaptation, and feasibility have hitherto never been placed in the scales of knowledge against the demerits of which we have treated; yet the inherent virtues of mechanical adaptation will in due time advance independent of, and reformatory to, the hereditary system.

There is nothing inconsistent in the presentation of this subject *with any proofs* by any scientific authors—rather all such proofs harmonize with and confirm these practical truths; it is, however, inconsistent with an indiscriminate intermingling of proofs and assumptions not susceptible of proof, and of truths and errors from which and by which *sophistical conclusions* have been drawn, which cover up the squandered power surreptitiously drawn by the crank from the exchequer of commerce; and it is inconsistent with the “don't know and don't care” judgment of too many in regard to the so large prodigalities of power by the wheel and screw.

ART. II.—TRANSATLANTIC TELEGRAPHS.

EARLY HISTORY OF THE ATLANTIC TELEGRAPH—TRANSATLANTIC ROUTE VIA GREENLAND—SEVEN ATLANTIC LINES PROJECTED—PROGRESS IN TELEGRAPH ART AND SCIENCE—GALVANIC CURRENTS AS TO QUANTITY AND INTENSITY—ELECTRIC CIRCUITS TELEGRAPHICALLY—RETARDATION OF ELECTRIC CURRENTS ON SUBMARINE LINES—ATLANTIC TELEGRAPH LINE TO NEWFOUNDLAND—ATLANTIC TELEGRAPHS POLITICALLY CONSIDERED.

“I'll put a girdle round about the earth in forty minutes.”

THE Atlantic telegraph cannot be traced to any one as the speculative or ideal originator. There are many, on both continents, who have said, “The day will come when the Atlantic Ocean will be crossed by a telegraph.” Prior to 1853, I had been engaged for some years as projector, builder, president, &c., of Southwestern telegraph lines, on which had to be constructed submarine crossings. These experiments led me to embark in the Atlantic telegraph project in 1853. In the fall of that year I removed to the East, and published a magazine in New York, advocating the practicability of the enterprise.

EARLY HISTORY OF THE ATLANTIC TELEGRAPH.

In February, 1854, Mr. H. B. Tebbetts called on me in Washington City, and contracted with me to assume the management of a Newfoundland telegraph company, which I saw would advance my own project, namely, an Atlantic telegraph. On that occasion, the following facts were given me. They will be found in an historical account of the Newfoundland telegraph, published in 1855:—

“In June, 1851, Mr. H. B. Tebbetts, of the city of New York, associated with him several influential gentlemen, for the purpose of organizing

a company to build steamers of a large size, to run between the ports of New York and Galway, Ireland. These ships were to be adapted to perform the mail service, and to accommodate emigrant travel from Ireland.

"In originating this enterprise, Mr. Tebbetts conceived the idea of the Newfoundland telegraph, which is at present so prominently before the public. Confident of the practicability of the project, he entered into a correspondence with different members of the government of Newfoundland in regard to the subject, and with the view of making St. John's a port of call for the steamers to and from Galway.

"Soon after, the government ordered a survey to be made, and on its completion sent the engineer, Mr. Gisborne, with his report and a letter of introduction from Mr. S. G. Archibald, dated December 17, 1851, to Mr. Tebbetts. The introduction resulted in the offer of the sum of twenty thousand dollars by Mr. Tebbetts to the engineer, on condition that he would return and procure a charter from the government. The offer was accepted, the engineer returned and succeeded in procuring the charter, which was granted in March, 1852, and under which Mr. Tebbetts organized the Newfoundland Electric Telegraph Company.

"When Mr. Tebbetts first conceived the project, it was his design to run small steamers across the Gulf of St. Lawrence between Cape Ray and Cape North, the proposed termini of the land lines in Newfoundland and Cape Breton. Up to this period, every attempt to manufacture a submarine cable had been attended with a failure. Shortly after, however, it was discovered that by means of gutta percha the conducting wires could be completely insulated, and in less than a year the first cable was laid between France and England, a distance of twenty-six miles. This was performed in September, 1851.

"The success of this cable led to the abandonment of the plan of running steamers between Cape North and Cape Ray, and to a change in the route of the line. It was decided that the line should run from New Brunswick to Prince Edward's Island, and thence to Newfoundland. The company ordered a submarine cable to be made, which was laid down in September, 1852, between New Brunswick and Prince Edward's Island, a distance of ten miles.

"After expending about one hundred thousand dollars in the prosecution of the work, embarrassments arose, and the company was obliged to suspend payment."

It was at this time that Mr. Tebbetts desired me to take charge of the affairs of the company. I visited New York for that purpose, when I assisted Mr. Tebbetts in interesting the gentlemen now engaged in that company to embark in the enterprise. A new charter was obtained from the government of Newfoundland.

The property of the old company was purchased by the new. Previous to the dissolution of the Newfoundland Electric Telegraph Company, the charter was surrendered to the government. The new association was organized under the title of the New York, Newfoundland, and London Telegraph Company.

Mr. Peter Cooper was made its president. The charter embraced the monopoly of landing an Atlantic cable on Newfoundland for fifty years. With great energy, and at much cost, the company proceeded to complete the line to St. John's, Newfoundland, having in view an arrangement to induce the steamers to make St. John's a port of call, and to this end the

steam companies were consulted. Up to that time, April, 1854, no one was dreaming of an ocean telegraph, as an enterprise, but myself, and with that view I caused the Newfoundland charter to embrace the monopoly for landing the cable. About the same time the experiments of Professor Faraday, on the retardation of the electric currents on submarine wires, were published.

THE TRANSATLANTIC ROUTE VIA GREENLAND.

The state of the science at that time caused me to proceed to Europe and procure concessions for Greenland, Iceland, and the Faroe Isles from the king of Denmark, which was granted me in August, 1854, for the term of one hundred years, so that "dispatches might be transmitted, inasmuch as the contents thereof might not be regarded as dangerous to the Danish State, or of the common weal, from and to all nations;" the Danish government pledging its faith to the bestowment of all "necessary care and vigilance, as well as the means, to insure the free and unhindered use of the said electric telegraph for the benefit alike of all nations."

On the 6th of February, 1855, I was granted a royal concession from His Majesty the king of Sweden for the continuation of the transatlantic telegraph contemplated in the royal concession of Denmark across the kingdom of Sweden.

On the 21st of February, 1855, I was granted a concession for the landing of the cable of the transatlantic telegraph, under the royal Danish concession aforesaid, on the coast of Norway, and its connection over the territory of the kingdom of Norway.

Having obtained the royal Danish concession, and at the request of His Majesty Nicholas I., Emperor of Russia, I visited St. Petersburg, and laid before him my project for a line around the world, and the negotiation ended thus:—

1. The transatlantic line from America to Europe via Greenland, Iceland, and the Faroe Isles, being deemed the most practicable route, was to be prosecuted to success, Russia furnishing the means to complete it to St. Petersburg.

2. On the consummation of certain ideas—wholly with the Imperial government, and which cannot transpire at present—the line from Moscow was to be extended across Asia to San Francisco. The route of that line was described in the emperor's official journals at Moscow and St. Petersburg, in substance, as translated, viz.:—

Leaving St. Petersburg, Mr. Shaffner proposes to run his line to Moscow, or connect at the latter place with the Imperial lines already in operation; from thence to Kazan, across the Ural Mountains, into Asia, passing through Omsk, Kolivan, Kansk, Oudinsk, to Irkoutsk, near Lake Baikal.

From Irkoutsk it is intended to run the line to the Sea of Ochotsk, either north to Yakoutsck, or south to the Amoor River, and thence along the coast of the Sea of Ochotsk to Iamsk, and across the gulf to Cape Utkoloka, Kamschatka, and thence along the Aleutian Isles to Aliaska Peninsula, or Cooke's Inlet, in North America. From this point the line will be run along the Pacific coast to Oregon, and south to San Francisco, California. This range is entirely south of the latitude of St. Petersburg, and, in fact, the line can be carried around by Behring's Straits, and be south of the Arctic circle.

From San Francisco, Mr. Shaffner proposes to run the line along the best route to the Salt Lake or Santa Fé, and thence to the western boundary of Missouri, where it will intersect the existing section of the California line, built by him a few years ago.

With these arrangements consummated, I returned to America, and formed an alliance with the New York, Newfoundland, and London Telegraph Company.

In 1856, arrangements were concluded with an organization in London, under a British charter, for the construction of the line from Newfoundland to Ireland, which has recently been laid—the details of which have been fully made known to the public.

THE SEVEN ATLANTIC TELEGRAPH LINES PROJECTED.

Several other projects for ocean telegraphs have been waiting for the final result of the line across from Ireland to Newfoundland. Among these may be mentioned the following, viz. :—

1st. The line from Quebec, across Labrador, Davies' Straits, Greenland, the sea to Iceland, and over that isle, and thence to the Faroe Isles, to Norway, and to north Scotland. It is proposed to construct the land lines underground, having the whole distance three electric or conducting wires for telegraphic service. The longest water section is only 460 miles. The aggregate land air line from New York to London is estimated at 2,430 miles; water sections, 1,312 miles; or total, 3,742 miles. The slack for the water sections will be less in whole than will be required on the other lines. The friends of this enterprise claim it to be the most practicable for the construction and maintenance of a telegraph. This is an American project.

2d. A line is proposed by Mr. Allan and others, of England, to run from Ireland to Nova Scotia. The friends of this enterprise are gentlemen of great zeal and ability, fully commensurate with the vastness of the undertaking.

3d. A company has been organized in England to construct a line from Land's End, Great Britain, to the Azores, and from thence to Nova Scotia or to Nantucket. This project has been presented with much force and confidence.

4th. A line has been projected to connect the continents by way of Florida, the West Indies, traversing Cuba, Hayti, Porto Rico, St. Thomas, Cape Verde, and thence along the African coast, or by the Canary Isles, to Portugal. The gentlemen embarking in this route are Danish, Spanish, and German. They have been engaged for some time past in procuring the necessary concessions.

5th. A line is proposed to be run direct from Great Britain to the United States. The friends of this measure are Englishmen.

6th. A line has been advocated by substantial gentlemen to extend from Charleston, South Carolina, to the Bermuda Isles, then to the Azores, and thence to Portugal or to France.

From these facts it will be seen that there are seven different telegraphs proposed to be constructed across the Atlantic, extending from the equator to the Arctic regions of the north. Each route has its friends, with resolute determination to attain success. I have no doubt but what a cable can be laid on either of them. The longest line will be the most southern, and the shortest the most northern. The capacity of each to

transmit messages is the question of doubt. The operation, shortly to be tried on the line from Newfoundland to Ireland, will determine the life or death of all the lines having long water sections. The celerity of the transmission of messages on that line will determine the utility of the other projects; and, therefore, the projectors of the respective routes are now waiting with much solicitude the result of the operation on that line. If it be found practicable to work long circuits under water, as may be required by the routes herein stated, then it is to be hoped that they will all be constructed, and individually and nationally aided.

The depths of the ocean will not hinder the success of an ocean line. The most southern line has the deepest water, being about 5,000 fathoms; the northern is the most shallow, being about 1,500 fathoms. The more central routes will cross the gulf stream, and the laying of a cable across its course may be difficult, but I confide in the belief that the difficulty may be overcome.

I have thus far written upon the early history of the Atlantic telegraphs, and of the respective projects for crossing its mighty billows, and traversing its depths with a flame for the enlightenment of man and for the weal of nations.

PROGRESS IN TELEGRAPHIC ART AND SCIENCE.

The science of electricity is much surrounded with mystification. In latter years, many of its hidden cells have been exposed to man. Less than one hundred years ago Franklin discovered that lightning and electricity were identical. In 1819, Oersted, of Copenhagen, discovered electro-magnetism. The discovery of the galvanic battery was a grand achievement in science. The electric telegraph was the union of these two latter discoveries. After the invention of the telegraph, and the construction of the experimental line from Washington to Baltimore in 1844, the telegraph spread with wonderful rapidity throughout the world.

For a long time water crossings gave the telegraph companies much trouble. Submarine crossings all failed, until the discovery of gutta percha at Borneo, a substance found on the islands of the Indian Archipelago in great abundance. This concrete juice, taken from the Isonandra Gutta tree, was found to be a non-conductor. This was a grand stride in science and art, and it advanced the telegraph. With the aid of gutta percha, rivers, straits, seas, and the ocean have been crossed. Experience has discovered that submarine lines have difficulties to overcome not common to air lines. The electricity passing over a wire on poles has resistance in distance to overcome; or, in other words, the electric current must have intensity or energy sufficient to overcome distance. Besides this, heat, being a conductor, more or less of the electric influence is taken from the wire by hot air and conducted to the earth. In hot climates, I have known parts of the day when messages could not be transmitted in long circuits. In northern climates this difficulty is seldom observable. Before speaking of the passing of an electric current on submarine wires, it is necessary to describe the nature or character of a galvanic current, serviceable for the telegraph.

GALVANIC CURRENTS AS TO QUANTITY AND INTENSITY.

Electricity, used for telegraphic purposes generally, is styled galvanic. On one line in England magnetic electricity is employed. The telegraph

requires a battery that will generate the smallest amount of *quantity current*, but of the greatest *intensity current*. It is necessary to fully understand these terms. In reference to their use, Professor Faraday says, viz. :—

“The character of the phenomena described in this report, induces me to refer to the terms *intensity* and *quantity* as applied to electricity, terms which I have had such frequent occasion to employ. These terms, or equivalents for them, cannot be dispensed with by those who study both the static and the dynamic relations of electricity. Every current, where there is resistance, has the static element and induction involved in it, whilst every case of insulation has more or less of the dynamic element and conduction; and we have seen that, with the same voltaic source, the same current in the same length of the same wire gives a different result as the intensity is made to vary with variations of the induction around the wire.”

The *quantity* of electricity developed by any galvanic battery depends practically upon the size of the plates used. The *intensity* is the force with which the quantity is brought to bear upon anything to produce a given result; its *energy*, in overcoming obstacles or impediments to the free passage of the electric current. This *intensity* is generally acquired by increasing the number of cells, and it is proportioned to that numerical increase. A *quantity current* can be so great as to be unmanageable for telegraphic service. It becomes as restless as static, or lightning electricity, and will leave the wire if in proximity to another conductor. An *intensity current* is necessary for overcoming distance. In reference to this subject, that distinguished philosopher, Dr. Lardner, says, viz. :—

“To produce the effects, whatever these may be, by which the telegraphic messages are expressed, it is necessary that the electric current shall have a certain *intensity*. Now, the *intensity of the current* transmitted by a given voltaic battery along a given line of wire will decrease, other things being the same, in the same proportion as the length of the wire increases. Thus, if the wire be continued for ten miles, the current will have twice the *intensity* which it would have if the wire had been extended to a distance of twenty miles.

“It is evident, therefore, that the wire may be continued to such a length that the current will no longer have sufficient *intensity* to produce at the station to which the dispatch is transmitted those effects by which the language of the dispatch is signified.

“The *intensity of the current* transmitted by a given voltaic battery upon a wire of given length, will be increased in the same proportion as the area of the section of the wire is augmented. Thus, if the diameter of the wire be doubled, the area of its section being increased in a four-fold proportion, the *intensity of the current* transmitted along the wire will be increased in the same ratio.

“But in practice it is needless to push the powers of transmission to any such extreme limits. To reinforce and maintain the intensity of the current, it is only necessary to establish, at convenient intervals along the line of wires, intermediate batteries, by which fresh supplies of the electric fluid shall be produced; and this may, in all cases, be easily accomplished, the intermediate telegraph stations being at distances, one from another, much less than the limit which would injuriously impair the intensity of the current.”

The extent of the intensity of the current depends much upon the battery employed. Some batteries generate more *quantity current* than others, and then there are batteries which give out a current of greater *intensity* than others. There are different batteries in use on the telegraph. The grove battery, or a modification of it, is the most general in telegraphic service.

ELECTRIC CIRCUITS TELEGRAPHICALLY.

Having now fully explained the nature of *electric currents*, it becomes necessary to speak of those currents in their application to *circuits*. An *electric circuit* is common to an *electric current*. There cannot be one without the other. The term *circuit*, means the length, or distance, of the telegraph wire on which is employed the electricity generated by any given battery before it is thrown into the earth. On a line from New York to Washington, the *current of electricity* passes over the wire, then into the earth, and many suppose, and believe in the theory, that the current of electricity makes its way back to New York, through the earth, there connects with the wire that runs from the battery to the earth; ascending that wire it completes its *circuit*. Unless the ends of the wire are connected with the earth, there will be no electricity, except there be two wires run from New York to Washington, by which the *current* will be *sent* on one, and it will *return* on the other. In this latter case, the ground is not employed, but the wire will connect both ends of the battery and complete the *circuit of the wire* over which can flow the *current of electricity*, which is the completion of a *circuit of electricity*. In further explanation with reference to the telegraph, suppose a line of telegraph with one wire is run from New York to Washington, about 250 miles. The battery is in New York. A wire from one end of the battery is run to the moist earth; from the other end of the battery is run a wire through the machine in the New York office, thence over the poles to Washington into the office, through the machine, and then into the earth, where the end is buried as was with the other end in New York. The moment the wire in Washington is connected with the earth, and not until then, the battery in New York commences to generate electricity. If the wire is taken out of the earth, the battery ceases to act. The current starting from one end of the battery, passes through the machine in the New York office, thence over the poles to Washington, into the machine there, setting it in motion, passes on to the earth. Practically, there is a battery at Washington on the wire between the machine and the earth. When the current leaves New York it is *strong*, and when it gets to Washington it is *feeble*. *Intensity* forces it to Washington. The machine in Washington being set in motion, puts into action another circuit beyond to Petersburg, Virginia, and from thence a circuit extends to Augusta, Georgia; on which, as well as all the circuits or sections, another battery is employed; beyond this circuit is another to Montgomery, Alabama, and the next to Mobile, Alabama, and the next circuit extends to New Orleans, and thus the whole distance required is overcome. The operator in New York transmits the message, the machines at Washington and other places beyond transfer the message from circuit or section to the next succeeding, until it reaches its destination at New Orleans. The whole distance may be estimated at 1,800 miles, having five distinct and separate electric circuits, averaging 360 miles for each, with an inde-

pendent battery on the respective circuits. These machines are called *repeaters*, because they *repeat* the message on to the next circuit. The arrangement is called the *combining of circuits*, and the offices are called *relay* stations. These circuits may extend to 400 and 500 miles, and on rare occasions to 600 or 700 miles. As a general practice, there is not a line in America that works in one circuit a distance of 700 miles. Iron wire is used as conductors all over America and Europe, on overground lines. Copper wire is used on all underground lines. Ratio of conductivity for copper is 100, and for iron 15.5. If the lines on poles were copper, of equal size as the iron wire now used, it might be practicable to work a circuit of 800 or 1,000 miles, and, as a phenomena for wonderment, at a very cold and frosty time, a current might be transmitted 1,500 or 2,000 miles, but not for any practicable purpose in telegraphing.

RETARDATION OF ELECTRIC CURRENTS ON SUBMARINE LINES.

The underground telegraph has difficulties to overcome not common to overground lines. The most prominent hinderance is called the *retardation of the electric current*, and sometimes styled the *return current*. When a stream of electricity is thrown on a submarine wire it is *retarded* in its transmission. It requires time to pass. A power exterior acts against it, and finally stops its further extension, and holds it in the electric wire. Professor Faraday has made some valuable experiments on underground lines. In a paper to the Royal Institute, he said, viz. :—

“In consequence of the perfection of the workmanship, a Leyden arrangement is produced upon a large scale; the copper wire becomes charged statically with that electricity which the pole of the battery connected with it can supply; it acts by induction through the gutta percha, (without which induction it could not itself become charged,) producing the opposite state on the surface of the water touching the gutta percha which forms the outer coating of this curious arrangement. The gutta percha, across which the induction occurs, is only 0.1 of an inch thick, and the extent of the coating is enormous. The surface of the copper wire is nearly 8,300 square feet, and the surface of the outer coating of water is four times that amount, or 33,000 square feet. Hence the striking character of the results. The intensity of the static charge acquired is only equal to the intensity at the pole of the battery whence it is derived; but its quantity is enormous, because of the immense extent of the Leyden arrangement; and hence, when the wire is separated from the battery and the charge employed, it has all the powers of a considerable voltaic current, and gives results which the best ordinary electric machines and Leyden arrangements cannot as yet approach.

“Mr. Clarke arranged a Bain’s printing telegraph with three pens, so that it gave beautiful illustrations and records of facts like those stated; the pens are iron wires, under which a band of paper, imbued with ferropotassium of potassa, passes at a regular rate by clock-work; and thus regular lines of prussian blue are produced whenever a current is transmitted, and the time of the current is recorded. In the case to be described, the three lines were side by side, and about 0.1 of an inch apart. The pen *m* belonging to a circuit of only a few feet of wire and a separate battery; it told whenever the contact key was put down by the finger; the pen *n* was at the earth end of the long air wire, and the pen *o* at the earth end of the long subterraneous wire; and, by arrangement, the key

could be made to throw the electricity of the chief battery into either of these wires simultaneously with the passage of the short circuit current through pen *m*. When pens *m* and *n* were in action, the *m* record was a regular line of equal thickness, showing by its length the actual time during which the electricity flowed into the wires; and the *n* record was an equally regular line, parallel to and of equal length with the former, but the least degree behind it; thus indicating that the long air wire conveyed its electric current almost instantaneously to the further end. But when pens *m* and *o* were in action, the *o* line did not begin until some time after the *m* line, and it continued after the *m* line had ceased—*i. e.*, after the *o* battery was cut off. Furthermore, it was faint at first, grew up to a maximum of intensity, continued at that as long as battery contact was continued, and then gradually diminished to nothing. Thus the record *o* showed that the wave of power took time in the water wire to reach the further extremity; by its first faintness, it showed that power was consumed in the exertion of lateral static induction along the wire; by the attainment of a maximum and the after equality, it showed when this induction had become proportionate to the intensity of the battery current; by its beginning to diminish, it showed when the battery current was cut off; and its prolongation and gradual diminution, showed the time of the outflow of the static electricity laid up in the wire, and the consequent regular falling of the induction which had been as regularly raised.”

In reference to this subject, Mr. Edward Bright, the very able secretary of the Magnetic Telegraph Company, in association with the Atlantic telegraph, has written a very clear paper, viz.:—

“On extending this system (underground lines) throughout the United Kingdom, where circuits of several hundred miles were brought into operation, it was found, upon communicating a current to such wires, that, after the withdrawal of the excitation, (whether galvanic or magnetic electricity was employed,) an electric recoil immediately took place at the end of the wire to which the current had been previously communicated. This recoil was apparently analogous in all respects to the discharge of electricity from a Leyden jar, except that the current flowing from the wire partook of a quantitative, rather than intense, nature.

“Although this phenomena, as analyzed by Dr. Faraday, has proved highly gratifying in a philosophical point of view, its existence interfered materially with the working of all the previous existing telegraphic apparatus, not having been at all contemplated or provided for; and, up to this time, I am not aware that, as regards the galvanic system, any adequate remedy has been applied. The nature of the interference will be easily understood, when I mention that, with a letter printing telegraph, the surplus current has the tendency to carry the machinery on further, and to make other letters than those intended. With the chemical and other recording telegraphs, the surplus flow of electricity will continue nearly a minute, entirely confounding the marks representing one letter with the next. And, lastly, with Cooke and Wheatstone’s and other needle telegraphs, a beat more is made by the back current than intended with every letter formed.

“Another remarkable feature, to be noticed in connection with the underground system, is the small comparative velocity with which the electric impulse is communicated through each conductor in long circuits.

"In experiments conducted by my brother and myself upon a circuit of four hundred and eighty miles (480) of the underground wires, a *marked* difference between the communication of the electric impulse, and its arrival at the other end, has been observed; the interval required for the passage of the sensation amounting to rather more than a third part of a second.

"The rate of transmission of the galvanic or magnetic fluids, through such conductors, is therefore only about 1,000 (one thousand) miles per second.

"Professor Wheatstone's experiments, showing the passage of *frictional electricity* through a short length of wire in a room, to take place at a speed approaching 300,000 miles per second, are well known, and incontestible.

"A subsequent experiment, conducted by Professor Walker, on some of the overground wires comprised in the American system, gives the velocity of the galvanic current, through two hundred and fifty (250) mile circuits, at about sixteen thousand miles (16,000) per second.

"The underground wires, however, as just mentioned, give a far lower result; and hence it appears evident that the velocity of frictional electricity far exceeds the voltaic or magnetic current, owing, doubtless, to the far greater intensity and comparatively small quantitative development of the former.

"The retardation experienced in underground wires, as regards the propagation of the electric impulse, is not, however, due to any resistance of the conducting medium; for, as it is found in the instance of the Leyden jar, that the frictional electricity communicated is temporarily absorbed by the metal in the interior of the jar, so the galvanic or magnetic currents, during their passage through the underground wires, are partly absorbed, until the mass of copper constituting the wire is saturated with electricity; and it would also appear that a definite time is occupied in the absorption of the electricity by the successive portions of the wire, such as is found to occur in charging a Leyden jar; and until this process of impregnation has been completed, the sensation cannot be communicated to the other end of the conductor."

In relation to this subject, the following question, amongst others, was propounded to Mr. Charles T. Bright, the present engineer of the Atlantic Telegraph Company, and his answer to the same is herewith given, viz:—

"43. What do you consider return currents; and to what extent do you find the existence of the same on both overground and underground lines? Please state all the points fully."

"*Answer 43d.* On overground lines they are very trifling, indeed, compared with underground; the conditions on which the wires are suspended and insulated, passing also through a medium, capable, to a certain extent, of absorbing any electricity developed in surplus, prevents the occurrence of any effects appreciable by ordinary needle telegraphic instruments.

"I look upon an underground wire as being exactly similar, on a large scale, to a Leyden jar, and I am borne out in this by the experiments of my brother and myself, and by those instituted by Faraday on the underground wires more recently laid by the Electric Telegraph Company. The magneto-electricity, as well as the galvanic (or chemical) electricity,

evinces these phenomena, hitherto supposed to belong to properties appertaining peculiarly to frictional electricity.

"The copper may be compared to the inner metallic coatings of a Leyden battery, the gutta-percha to the glass, and the earth and moisture surrounding to the outer covering.

"I was much interested, in one of our experiments, to observe that the larger the size of the wire experimented upon, with the same battery power, the greater the amount of return current; a strong support of our opinion, as, had it arisen from an *elastic* return, owing to the wire being unable to receive as much electricity as was forced into it, as some supposed, of course a *smaller* wire (with the same power as that employed with the larger size) should have given out a *greater* amount of return current. If you experimentalize on No. 18 and No. 16, you will see this very clearly."

After the failure to lay the ocean cable in 1857, Prof. Morse, the co-electrician of the company, and who was in the vessel that payed out the cable, wrote thus, viz. :—

"We got an electric current through until the moment of parting, so that electric connection was perfect; and yet the *further we payed out, the feebler was the current.*"

No detailed report on this subject was published. The attempts to lay the cable have been unfortunate until the last which has been announced within the past few days. No account of the electrical force has been made known. It has been stated that signals have been sent from Newfoundland to Ireland, but with what rapidity has not been published. According to the experiments of Mr. Bright, the speed of the electric wave is not rapid. In answer to a communication from me, he said, viz. :—

"In the course of a long series of experiments carried on last year by my brother and myself, inquiries were instituted with reference to the speed with which the galvanic or magnetic sensation is communicated through underground wires.

"The result of the inquiry shows decidedly that the communication of the electric impulse through a length of 500 miles of underground gutta percha-covered copper wire ($\frac{1}{8}$ gauge) does not exceed 900 to 1,000 miles per second—a speed far below that usually assigned.

"Reasoning upon the issue of these experiments, and those previously tried in America, I have no doubt that the speed of any description of electricity varies greatly with the peculiar conditions and nature of the conductor used, and also with the length of the conductor interposed; and that a wire suspended in the open air, especially if insulated only at points of its support, (such as in a pole line,) would offer far less resistance (*ceteris paribus*) than a wire underground.

"Submarine cables are similar, as regards electrical conditions, to subterranean lines, and the speed with which the electric impulse is communicated would be the same."

THE ATLANTIC TELEGRAPH LINE TO NEWFOUNDLAND.

Having now very fully explained the nature and importance of the electric currents, circuits, and character of the electricity employed, I need not add any views upon the practicability of operating the recently laid line from Newfoundland. The experiments made before sailing were

so unsatisfactory that a notice of them would not serve to form a reliable opinion. Justice to the company requires a suspension of an opinion, until a fair opportunity be afforded for a perfect experiment.

It is not contemplated, I believe, to operate a recording telegraph upon the line from Newfoundland to Ireland. The needle, or signal system, will be employed. In England, two wires are used in the transmission of message, by which, Mr. Foudrinier stated, $21\frac{1}{4}$ words could be sent in a minute, as an average, on an air line. It is stated further, that by a single wire one-third of that number of words can be transmitted. The celerity on submarine lines is much reduced from the above. On the ocean line, a little time more will develop the speed of sending messages upon it.

The cost of the line from Newfoundland has been variously stated, ranging from three to five millions of dollars, and to each of the governments assisting, about one-and-a-half million of dollars. To encourage the enterprise, several grants, concessions, and appropriations have been made by the United States, Great Britain, and the Colonies. The capital invested is nearly entirely English. The energy that brought it to success in submerging the cable was American. The company is organized under British charter, in London. The line from New York to London is owned by four companies, viz., New York to Nova Scotia, by the American company; from Nova Scotia to Trinity Bay, Newfoundland, by the New York, Newfoundland, and London Telegraph Company; across the ocean, by the Atlantic Telegraph Company; and, from the Irish coast to London, by the Magnetic Telegraph Company.

During the late session of Congress, the Judiciary Committee of the Senate had before it the charter of the Atlantic Company, granted by the Parliament of Great Britain, and it was therein discovered that the appropriation of the \$70,000 per annum for 25 years, made by the former Congress, could not be made to that company, in conformity with the law of Congress, and that the contract contemplated to be made between the United States and the Atlantic Telegraph Company cannot be executed, by which the \$70,000 per annum was to have been paid. The committee reported, viz. :—

“The act of Parliament, however, incorporating the Atlantic Telegraph Company, seems, in some of its provisions, to render any contract with that company inadmissible, within the intent of Congress, as evidenced in the act authorizing a contract. The act certainly embodies a controlling power by Great Britain over the company incompatible with the provisions of the act of Congress. The 36th and 52d sections are more particularly referred to, as giving a control to the British government over the company, which impairs its authority to make such a contract as the act of Congress contemplates on behalf of the United States.”

The objectionable part of the 36th section contains the following, having reference to the *ex-officio* director appointed by the government :—

“Such *ex-officio* director shall have power, in case he shall be of opinion that any course proposed to be taken, or act proposed to be done, by the company will, or may, be prejudicial to, or inconsistent with, the due fulfillment of their contracts with the government, or the regular, speedy, and impartial transmission of messages and signals for the public, or otherwise disadvantageous to the government or the public, to *veto* the taking of such course, or the doing of such act.”

ATLANTIC TELEGRAPHS POLITICALLY CONSIDERED.

It has always occurred to me that the United States government ought to endeavor to secure, by treaty, in conjunction with the governments of Europe, for political considerations, a free and unhindered use of the ocean telegraphs for all nations alike. Now that it cannot execute the contract with the Atlantic Company, would it not be patriotic for the government to employ the sum of that appropriation of \$70,000 for 25 years, to the advancement of all lines across the ocean, and particularly such lines as shall terminate on the soil of our own flag?

In political affairs, the Atlantic telegraphs will serve a wonderful part for good or for evil. If international, it will be well, but if under the control of any one nation, much evil could be the consequence. This was foreseen, by me, from the first introduction of the Atlantic telegraph to the public. In order to prevent any nation from having an unfair control over the enterprise, the following was embraced in the Royal Danish concession for the transatlantic line, the principles of which are concurred in by the auxiliary concessions of Norway and Sweden, viz. :—

“That the government of Denmark will forever defend and preserve the rights of the United States, and the people of all nations, to transmit messages over the line herein contemplated, provided the said messages are not calculated to promote war, insurrection, riot, or the violation of peace among nations.”

In case the line from Newfoundland to Ireland proves practicable, it will be of great utility to the British government in the administration of its colonial affairs. In case of war between England and the United States all means of communication from and to our people can be prevented. That it would be done, no one can doubt. Suppose France and the United States were allied against England, would the British government allow cypher messages to pass between its enemies, contemplating its ruin? Of course it would not, unless compelled by an international treaty, not possible to be suspended by any power, either in time of peace or in time of war.

An ocean telegraph can be the means of continuing peace and terminating war. A few months since the whole nation was ready for a war with England, on account of the late gulf difficulties. Had there been an ocean telegraph, much unpleasant feeling would have been prevented, and the nation saved some hundred thousands of dollars. If the line be well protected by international treaties, upon the principle that private property upon the seas shall be protected by the flag of the nation, even in time of war, then the world may expect an ocean telegraph to be the grandest achievement in the arts and sciences for the amelioration of man.

ART. III.—THE BANKING AND CREDIT SYSTEMS.

To the Editors of the Merchants' Magazine:—

I HAVE long wished to write an essay for your Magazine on the distinction between the banking and credit systems, but have been deterred by the cool indifference of the public to the currency question, since the revulsion of last fall, which ought to have aroused public attention to the subject, and by an unfortunate disposition I discover in myself to scold about it. With every wish to respect public opinion, I cannot do it—cannot find anything in it to respect upon this subject. I try to smile with all my might, but find a scowl all over me as soon as I take pen in hand to write about it. When I would say the softest thing in the world, I feel that I dogmatize. With this difficulty to contend against, Messrs. Editors, I will, with your indulgence, proceed as gently as I can with the subject that heads our pages.

I know a worthy merchant of inveterate business habits who worked himself almost to a mummy in the pursuit of a gainful trade. Scrupulously punctual to every engagement, and scrupulously honest, he pursued the direct course that all prudent men and fathers and mothers advise, never turning to the right or left from his regular well-accustomed traffic for more than thirty years. Very cautious about bad debts, and very successful in avoiding them, he had accumulated a clear safe balance in July last year, to the credit of his stock account, of \$175,000, beyond all contingencies excepting the exchange value of money. Now this worthy man, with all his industry, caution, and integrity, was swept clean dry of his whole estate last fall, simply by the sudden appreciation in the value of our currency consequent upon the contraction of bank loans. In a month, or less, one dollar rose in the market to the *value* of two dollars, and conversely his commodities and his ships fell in *price* 50 per cent, or from two dollars to one dollar. Of course he was in debt, as almost every man in business must be in this country, especially in Massachusetts, where we rarely have more than \$5,000,000 of money in the whole State; the only possible mode of doing business being to take notes receivable and grant notes payable, getting the notes receivable discounted in bank to meet the notes payable discounted by others in like manner; repeating the same continually and using no money at all.

He was obliged to pay two dollars of debt, contracted on the former measure of price—the depreciated currency—with one dollar of his merchandise, valued by the new measure of an appreciated currency, as far as it would go; and the balance from his previous accumulations. This took the whole; it was too much for him; his mind gave way, and he is now in an insane asylum, a hopeless maniac.

The fault of this gentleman was that of the great mass of our business men, which bankrupts nearly the whole of them and sustains our present monetary system; he never cared a button for the *science* of his profession. He believed the only mercantile science consists in buying cheap and selling dear; and, with this peddler-achievement and exemplary patience, he expected always to manage, as he had done, and successfully, a foreign business requiring three months frequently to countermand his order, and further or check his investments. During the bank contractions and consequent

fall of prices in 1851 and 1854, I observed he declined selling; he held on to his commodities patiently till the banks inflated again and prices rose, when he sold his cargoes and secured his profits. He had no reason to doubt, in his philosophy, that the same result would immediately follow the contraction of last fall. He never bothered his head with the consideration of the power of gold to serve as the basis of inflation of the currency of the world, nor troubled himself with the irresistible nature of self-interest in the debt-currency system to accumulate debt that will command interest, as money, till the obligations of the community to pay money that never existed cannot be discharged.

All this was none of his business; his business was to import hides and wool, and get the most he could for them, and he pursued it faithfully. Unfortunately, it became an essential part of his business to get money when all the money in market was only money by name—when it was debt by nature, requiring to be paid as much and as fast as his own. This was a dilemma—a principle of self-destruction in the currency—a power of eating itself up—not provided for in his philosophy, and he was ruined.

Now, I find wise men in plenty—men wise after the fact—who think he ought to have sold at a loss on the early decline of the market; but this again was no part of his business; it was his business to sell at a profit, he had always done so and succeeded. Why should he do otherwise? He knew much of the demand and supply of wool and hides, and believed they altered in price only by a deficient or surcharged supply. Money, with him, was a "standard of value;" it always stood still in value except in the rate of interest, while everything else moved. He looked upon the increasing bank currency to be very beneficial, and had no conception that the rise in his hides was really the depreciation of money, and that the bank money was money only in name—that the banks would require real money to pay it at the time when he would most want money himself. In this he did not differ from nine-tenths or nineteen-twentieths of the merchants of this country; they look for the value of money only in the rate of interest, where it is not; the rate of interest having nothing to do with it, excepting to be high when money is low. Thus his fortune, his peace of mind, and the happiness of his family, have come suddenly to an end. Hundreds of others have suffered and are suffering, some even unto death, with broken hearts, under my own observation, from the same cause. I hold the merchants of this country responsible for it all; it is not the fault of the banks.

True, the origin of the evil was with the Bank of England, somewhat accidental I think, but our merchants sustain it to their own destruction, with no possible benefit resulting to the country, but with a loss of \$50,000,000 of absolute capital, yearly, and the earnings which so much real capital in gold and silver would accumulate. With a little attention to the science of their profession, and a very simple and easy practical effort, they can reform it all, and leave England and other countries of Europe to enjoy the invention of the Bank of England of organizing debt into currency.

I have not time and space, in a short essay like this, to pursue the history of paper money or bank currency, but I may briefly say that the Bank of England was established as a mere *go-between* or agent to borrow money of the people and lend it to the government in 1694. The sum originally borrowed and loaned was £1,200,000 for an annuity of £100,000,

or £96,000 a year, interest at the rate of 8 per cent, and £4,000 a year for the expense of management. This was legitimate and right; the lenders were the stockholders, and the government was the borrower. At five several periods this operation was repeated for various amounts, with a slight difference between the stock and the government loan, until in 1722 the capital amounted to £5,560,000 nearly, and the loan to government £5,375,000. The bank had, therefore, an unloaned capital of £185,000.

During all this period, the bank issued its notes, received individual deposits and loaned them, but there is no evidence of its having loaned more than it received, and it did a legitimate banking business until 1722. Then, in pursuance of an act of Parliament passed in 1721, it purchased stock of the South Sea Company to the amount of £4,000,000. To enable it to make this purchase it took subscriptions for only £3,400,000.

I do not find the reason stated for this deficiency of subscription, but presume the bank did not intend it. It may be inferred that distrust of the South Sea Company at the time rendered it difficult or impossible for the bank to obtain the full sum of capital to purchase the stock or annuities for £4,000,000. It was in the form of government annuities of £200,000 which were sold to the bank at twenty years' purchase, or at the rate of 5 per cent per annum. About this period the credit of the government was not always, or often, as good as that of private persons.

The capital stock of the bank, therefore, fell short of its loans in the aggregate £415,000; that is, it was deficient in subscription for the South Sea stock £600,000; from which, deduct the previously unloaned capital, £185,000; deficit, £415,000. This sum, then, the bank loaned in its notes and credits more than belonged to it; that is, of the money lodged for safe keeping belonging to its depositors and the holders of its circulation, charging interest on what was not its own. To this deficit it gave the very respectable name of "undivided capital." I think it was an *undivided swindle* upon the people, who did not understand it then, and who have never properly understood it since. The principle of a debt currency, therefore, appears to have had its origin with the Bank of England in the "South Sea bubble," the most outrageous bubble that ever existed. This principle has been extended under the still more agreeable name of "money," and has been constantly disastrous to England and to every other country where it has been adopted. Although property is produced and aggregated in spite of it, that property is robbed from its true possessor and transferred to the capitalist by this iniquitous scheme.

Afterwards, about 1754, the Bank of Amsterdam made a bold experiment of the same sort, rather more honest, because more easily understood. That was a bank of deposit only, and payments were made by transfers from one account to another on its books. It was bound by its principles to keep at all times in its coffers bullion equal to the full amount of claims upon it. About 1754, however, the Burgomasters in direction privately loaned 10,500,000 florins, about \$4,200,000 dollars, to the States of Holland and West Friesland, and the Dutch East India Company. When this fact transpired, on the invasion of Holland by the French in 1794, the conduct of the directors, who had kept the transaction secret forty years, met with universal contempt and derision; but the principle was precisely the same as that of the loan to the South Sea Company by the Bank of England in excess of its capital, and of the pre-

sent system in England and here, creating two demand obligations on one value, authorizing both lender and borrower to check upon the same money at the same time, thus increasing and cheapening the currency with mere "promises to pay."

The origin of this debt currency, or bank money, generally called "paper money"—although the deposits are as much currency as the circulation—explains its nature. It is *debt organized into currency* through the agency of a bank, over and above all the money in the world. In its nature it cannot be paid, because it adds itself to the price of property, and consequently to all money obligations, which can only be paid while the currency exists, on the measure of which they were contracted. The contraction of this currency contracts prices and the means of payment, creates a pressing demand for money to discharge the counter debt, and, to discharge itself, an equal demand for money which was never created. While its volume remains entire, it may be exchanged against commodities and may transfer debt, but it cannot make a final payment of debt. If final payment is demanded, either of banks or individuals, bankruptcy alone can discharge the sum required. If the bank gets paid, the deficiency must fall somewhere else in the community, for the money is missing.

I have thus briefly sketched the origin, nature, and effects of the debt currency partly to meet a statement I find in an article on "Banking and Currency" in your August issue, that banking ought not to be considered the cause of the late collapse in the affairs of the commercial world, but that it, and such periodical revulsions, must be ascribed to the general system of credit of which banking forms a part.

I am obliged to differ with the author of that article in this, and also in another, position he assumes, which is, of course, the popular notion upon the subject, namely, that money is the "standard or measure of value."

It is not always easy to determine whether a man is in the habit of getting drunk because he is crazy, or whether he is crazy because he is in the habit of getting drunk. It is clear that the debt banking and very extensive credits exist together, and are mutually dependent. If one causes the other, it is also clear that the father of the other is the father of all the mischief which results from both.

It is certain, to my mind, that money, to buy and sell with, is greatly preferred to debt and credit by most men. This is attested by the constant complaints we hear of the impossibility of doing a cash business, of the necessity of credits, and of such long credits, and also by the frequent attempts at combinations to shorten credits, which, after some eloquent speaking and some very energetic resolves, duly published in the newspapers, end in nothing, of course. The failure of all such efforts is inevitable from the nature of our currency. It is a currency of debt and not of money—it is fed upon, and can only be sustained by, debt, and is debt itself, which "makes the meat it feeds on." The debt currency, then, and the banking, which is the machinery of its manufacture, are the cause of the periodical revulsions in the commercial world. The unstable currency created by banking was plainly the cause of the collapse last fall, that ruined my friend of the wool and hide business, and thousands of others in this country and Europe.

Having adopted banking as our method of producing currency, instead

of applying our gold to the purpose, it is quite impossible to retain money, and business cannot therefore be done strictly for money, except in *small grog and oysters at retail*, the transactions in which are within the specie circle, below the denomination of the one dollar note.

The process by which people are forced to provide promissory notes for banking is perfectly simple; it is by keeping dollars of currency in a little fuller supply, compared with commodities, than other countries. The dollars then become cheaper than commodities, and other countries send us their commodities—take the dollars made of gold and silver and leave us dependent upon those made of paper, which are co-existent with, and can only be produced by, promissory notes. This is a tread-mill operation; a man once *in for it* must step on or break his leg. The bank notes and credit inscriptions having been obtained on a promissory note, that note must be paid; other bank notes and inscriptions must be procured by producing another promissory note for discount to pay it, and so on in an endless round of exchanges with the bank, of debt for debt. As the bank lends no money, only promises, when a compliance with its contract in honest specie dollars is required, the dollars are demanded of its debtors who have none—who never had any. The paper and inscription dollars, of course, can no longer be furnished to them, as the required issue would destroy the bank. The debtors are simply *cornered*. Hence comes the “*revulsion*,” which your contributor on banking and currency attributes to the “*credit system*.” This term appears to have been originally adopted, as language frequently is, to conceal ideas; it is a very innocent looking name for the mischief-working banking system. So people fancy they borrow *credit* of the bank, but the man must be very blind who does not see that the bank note he holds in his hand is the bank *debt* and his own *credit*. He is lending capital to the bank while he holds the note, and the bank is charging him interest on his own capital—took it in advance when the note was issued. It is one of the sophisms of the system—*credit* sounds so much more pleasantly than *debt*. Capital and money are tortured in the same way out of all their proprieties by the present banking system.

The “*credit system*” is well enough; banking would be well enough if this wretched and dishonest principle of debt in the currency were abandoned. It is the very error of the moon to suppose, as many do, that an honest man would find difficulty in obtaining credit under a metallic currency system; he would be altogether more certain of obtaining it; the difference is, he would borrow money instead of debt, and if honest and frugal he would be sure not to fail, which he may be almost sure to do now. Debt and credit would then move harmoniously together, and not get periodically at loggerheads after the fashion of last fall. Debt in trade would be met by stable value in the currency, and could do no harm. Let the banks use *money*, and make their profit out of the difference of interest by lending at a higher rate than they borrow, and the production and export of commodities and all business would materially increase. All would then be well with us on this side of the Rocky Mountains.

As to California, her gold producing afflicts her with a cheap currency, and she aggravates the evil by adding to it bankers' debt, in credit inscriptions, when it was already too cheap before. She must inevitably be glutted with imports, and must suffer the consequences.

We of the Atlantic States have not the infelicity of a naturally cheap currency to contend with, which is the misfortune of California, that must keep her prices higher than non-producing gold countries; otherwise commodities could not be sent there, and she could not export her gold. We buy her gold with the products of profitable labor, beneficial to us in the cultivation of the soil and in the use and improvement of the arts, as we do the gold of Australia or Russia, and the silver of Mexico. It is our folly, not our misfortune, that we do not know it to be better than debt for money, and learn how to keep it.

Our merchants generally think business cannot be done on any other than the present system. Very well, gentlemen; so long as you entertain that opinion, and act upon it, you will grasp wind when you think you grasp wealth. Nothing is more certain than that, if you will use money for the medium of exchange, you will import or retain \$50,000,000 of gold and silver annually by exporting \$50,000,000 of our domestic products more than you do now, until gold shall be in natural excess in the Atlantic States. It would be an absolute gain of capital for its whole amount, with the profits to be derived from its use; it would increase your business greatly, with an almost entire absence of bad debts; and, so long as the present increase of gold continues, with an almost constant advance of prices.

This brings us to the consideration of the nature of promissory notes, bills of exchange, and ledger balances, unconnected with the debt system of currency. Have they in any degree the effect of currency upon prices? Surely not. Their affinity is wholly with the property from which they are derived, and against which the currency is exchanged. They are merely a postponement of the money operation, from the time of the purchase to the maturity of the obligation. Money that would have been required at first will be required at last, to accomplish the exchange, and if the money is not then sufficient for the purpose, prices fall until it is sufficient, the same as if the commodity purchased had then been presented in the market for the first time.

I do not see why, with a currency of gold and silver, there should necessarily be any more competition in purchases on time than in buying for money, nor any more tendency to advance prices, because the constant maturing of notes would hold prices in check. On the contrary, I think repeated transfers of the same commodity on credit would frequently average payments for the same thing on one day, and have the same effect as repeating the supply of the commodity itself upon the relative value of money, which, of course, would be to reduce prices. Obviously, the more commodities there are thrown upon the market the lower will be their price, and therefore the higher relatively the value of money. The effect would be the same if several notes for repeated sales of the same commodity should cause a demand for money on the same day. But I do not insist upon this—it belongs to one of the most critical questions of political economy—the power of the “rapidity of circulation,” or, as J. Stewart Mill suggests, the “efficiency of money.” I wish only to establish the fact that the common evidences of debt, apart from bank notes and balances, belong on the side of commodities, and opposite to currency, in their effect upon prices and upon the value of money. They would have no disturbing influence in commercial or financial affairs more than the commodities from which they are derived,

if not discounted, by our present system; or whether discounted or not, with a system of sound currency, where true value would be obtained at every exchange of the obligation. With a metallic currency, or what amounts to the same thing, a system of certificates, coin being retained against all issues, bills and notes might be discounted or transferred any number of times without increasing, or in any degree affecting, the volume or the value of the currency.

I am aware that I differ from other writers on this subject; but I cannot accept any authority opposed to my own practical observation as a merchant, and my own common sense, which teach me clearly that promissory notes are in their nature merchandise more than currency. They make demand upon currency or money to transfer or pay for them, precisely like the commodities from which they arise, with only a postponement of time.

The credit system, unconnected with debt banking, is in no respect chargeable with the financial revulsions that so frequently disturb the commerce and comfort of the world, and most especially of this country. This suffers more than any other country, and more frequently, from the excessive proportion of our banking to our business, its excessive competition among 1,400 banks, and its irrepressible *wild-cat* character. All the world over, the bankruptcies in trade, defalcations in pecuniary trusts, commercial lying and cheating, are in proportion to the expansion of this debt system of currency. Here, where we bank down to the denomination of the one dollar note, and set all our property flying upon what Adam Smith calls the "dedalian wings of paper money," the aggregation of commercial villainies, great and small, has become immense. Failing to make money—the negative fact of not succeeding—is immediately followed by the positive operation of making money by failing, which is the tolerably well understood profession of some men, in which they succeed remarkably well.

All this is inevitable from the operation of a system which alters the value of money, *presto*, by the sudden and unavoidable change of policy by the banks, from what is called accommodation to contraction—the *application of the screw*. Many honest men are driven by this to subterfuges that their souls abhor, to secure to their families for a brief period their daily bread. It is not always that they recover the self-respect necessary to restore them to the true position of moral honesty. I think the immoral influence of our banking system is a matter more deserving attention than the pecuniary evils it brings upon the community, and these are quite insufferable. Yet I do not quarrel with the banks for this. Public opinion, or rather public ignorance, sustains the abnormal system, and the public is responsible for its existence and its evils. Any business required by the public is a legitimate object of money-making, and may and will be pursued by worthy men. The haberdasher furnishes hoops and crinoline, and an amplitude of silk and satin outside drapery for all this frame-work, which cause many a husband and father to wince at the foot of the bill. Thus the handsomest thing in the world—a handsome woman—is converted into the ugliest—an exaggerated demi-john. Shall I blame the haberdasher? Surely not.

It was originally a trick in political economy of the Empress Eugenie, to bring about an increased demand for French goods. Who believes that she felt any delicacy about carrying an heir to the Imperial throne

under her belt, or wished to disguise the appearance of it, as has been suggested? She was a shrewd political economist in this measure. It succeeded. It is sustained here by the folly of our women, and the neglect of our men in not resisting as an indignity this system of fencing off—this being kept at an unnatural and unreasonable distance. Eugenie was the Bank of England of this system of female folly and extravagance which has overtaken the silkworms of France and China for several years past. I do not quarrel with the haberdasher for turning it to profit, and making the most he can out of it.

Nor do I blame the banks. The public, having become possessed with the idea that my note may be made money by the authority of a State Legislature, and being willing to accept it as such, granting me security that they will provide the means of payment, and pay me interest on it as money, is it to be supposed that I will hesitate to avail myself of the privilege? The same conceit being entertained of the notes of 14,000 or 540,000 individuals—I have no conception how many directors and stockholders of banks there are in this country—and the same privilege being granted to all these people of taking interest on their bills payable, without lending a dime of value for them—who doubts that they will issue them till they steep the community in debt to the very lips? and how is such an ungainly power to be controlled? I answer by public opinion—by throwing light upon the subject—and by the action of some good men and capitalists who will establish a “BANK” that is not a “*debt factory*,” and show practically to the self-deluded public the difference between them.

I think there is not one man in a hundred, borrowing currency of the bank, who does not imagine he is borrowing money; nor one in a thousand, perhaps, who is aware of the truth, that he borrows only his own credit in the debt of the bank, and that he must furnish the bank the means to pay with, or its debt cannot be paid. Such is the fact, however, with this debt principle in the currency: it is a mutual borrowing of notes between the bank and its customers—mere kiting.

Now, if a third party gets possession of the liabilities of the bank, and demands coin for them, or even the debtor himself before the maturity of his counter debt, how can they be paid? They were in the first place obligations to pay dollars of gold over and above any dollars in the country. They usurp and occupy the place of so many real dollars among the people, which are thereby forced abroad, as I have before stated; and such demands can be answered only in bankruptcy, because prices, and consequently the means of payment, fall as soon as the demand takes place; and they continue to fall in advance of the demand for money. Thus commodities are forced upon a reluctant market; sellers become plenty and anxious, buyers few and indifferent, and a general stampede of prices and general destruction succeed. These are the sure effects of a bank contraction, more or less, according to its extent; and it produces about five dollars of bankruptcy for every dollar of contraction, depending upon the average number of sales of commodities between the producer and consumer, which with a money currency would be made for cash. I think the transfers of commodities from the raw material to the consumer average five that are made by our system on credit.

I have but a few words to say of the “standard of value,” having before explained the matter in your pages. There is no such thing; for

the value of money fluctuates as it is thrown upon, or withdrawn from, the market, precisely like every other commodity. Money forms the price of things, because it is the medium of exchange, and may be called the measure of price, but it is not the measure of value.

Potatoes measure the value of dollars, as dollars measure the value of potatoes. Reciprocally, every commodity measures the value of every other commodity in relation to itself, money included, and money is but a commodity that does the same thing. Add to, or deduct from, the supply of dollars in proportion to the demand, and more or less dollars must be given in exchange for other things. Add to, or deduct from, the supply of potatoes, and more or less potatoes must be given in exchange, by the same rule. As gold increases in quantity, other things remaining as before, it falls in value, and the dollar, which is but a component part of an ounce of gold, falls with it. And an increase of bank dollars, they being used as equivalent to gold dollars in the currency, depreciates the value of dollars and of gold also. Conversely, the value of gold and of the currency is increased by the reduction in quantity of gold or of convertible bank money. I need not enlarge upon this, it being the principle of value that I demonstrated in a former communication, showing the distinction between value and price.

From these considerations, the conclusion follows that there is a wide distinction between the debt banking and credit systems: they are unnaturally connected—paired, not matched—and the unholy alliance is constantly spawning a bastard progeny of debt, called by the attractive name of “money,” which is unmingled evil.

If the commercial world had been content with the natural volume of a metallic currency, since the gold discovery in California, the late dire calamity in commercial affairs would have been an impossibility, whatever superficial thinkers may say upon the subject. There would have been a constant average advance of prices of two to three per cent per annum, benefiting debtors by making it easy to pay debts, and causing no loss but to those who are able to bear it—the capitalists with fixed-interest investments—excepting only the limited class of small annuitants.

The law of value is as constant in its operation as the law of gravitation, and must precipitate money, like water, from the higher to the lower level of volume, however imperceptible the difference of level may be to ordinary observers. Had we kept our money more valuable than the currencies of Europe, by abstaining from adding bank dollars to our dollars of gold, we should have had continued prosperity, all the more for the inflation in Europe, as long as Europe was not our debtor, rendering us liable to lose by her defalcations.

It will be ascertained, at no distant period, that political economy, though obscured at present by imperfect development, and consequent error in doctrine, is as exact in its conclusions as the science of mathematics.

C. H. C.

Art. IV.—COMMERCE OF GREAT BRITAIN.

DECREASE IN EXPORT VALUE—OFFICIAL VALUE—DECLARED VALUE OF IMPORTS—IMPORTS AND EXPORTS—SPECIE EXPORTS—RETURNS OF SPECIE IMPORT—BALANCE OF TRADE—INCREASE OF WEALTH—COLONIES—SLAVE TRADE—WAREHOUSES—STOCKS OF PRODUCE—IMPORT AND PRICES OF GRAIN—FLUCTUATIONS—PRICE PER BUSHEL—AVERAGE OF WHEAT—CROPS OF FRANCE—DEPENDENCE FOR FOOD—COFFEE AND SUGAR, DUTIES ON—USE OF SUGAR IN FRANCE, GREAT BRITAIN, AND UNITED STATES—BEET-ROOT IN FRANCE, DUTIES ON—ENCOURAGEMENT OF—LOUISIANA SUGAR—IMPORTS, TEA AND TOBACCO—DUTIES ON TEA—TOBACCO CHARGES—DRAIN OF SILVER TO THE EAST—REDUCTION OF DUTIES NOT ALWAYS INCREASES CONSUMPTION—PROPOSED DUTIES ON TOBACCO—OPERATION OF DUTIES—IMPORTS, RAW MATERIALS—COTTON, EXPORT OF—DESTINATION OF—GENERAL EXPORTS—COLONIAL TRADE.

A MARKED feature in the commerce of Great Britain from the Peace of Paris, in 1815, down to the abandonment of the protective principle in 1842, was the continued decline in the real value of exports, as compared with the official values. The latter, being values as far back, in most cases, as the time of Cromwell, came to represent rather comparative quantities than values; and as both real and official values were given, the constant comparative decrease of the former, indicated the decline of prices under the various influences of a return to specie payments, falling prices of food, multiplied improvements in the arts and sciences, and the sharp competition of European industry, let loose from the oppression of long wars. The decline in values thus exhibited, reached over fifty per cent. It was not, however, until 1854, that the real value of imports was ascertained officially. The quantities only at the old official values were previously given. Since then, the annual imports and exports have been as follows:—

	Imported.	Exported.	Excess, imports.
1854.....	£152,389,053	£97,184,726	£55,204,327
1855.....	143,542,850	95,688,085	47,854,765
1856.....	172,544,154	115,826,948	56,717,206
1857.....	187,646,335	122,155,237	65,491,098
Total for four years.....	£656,122,392	£430,854,996	£225,267,396

Here we have an excess of imports over exports, to the enormous extent of £225,276,000 in four years. In the same time, £99,833,511 of gold and silver bullion and specie were exported. The amount imported was probably larger, although it is not officially ascertained, no account of the import of these articles having been kept by the Board of Trade until the commencement of this year.

For the first four months of the present year, the imports and exports were as follows:—

	Gold.	Silver.	Total.
Imports	£9,071,658	£2,743,306	£11,814,964
Exports.....	3,324,158	3,174,856	6,499,014
Excess of imports	£5,747,500	.....	£5,315,950

Thus, after an excess of imports in four years equal to fifty per cent of the whole exports, there is an apparent balance in favor of England, which enables her to increase her specie reserve. This fact is a stumbling-block in the way of those who seek, in a "balance of trade," the causes of a commercial revulsion. On their face, the figures show a very great increase of wealth, since England has, in four years, obtained £225,000,000 worth of property more than she has sent away. A good deal of the received wealth, no doubt, arises from the *exploitation* of the colonies, although this item is not now so great, by far, as under the slave trade.

Then vessels would fit out for the coast of Africa with calicoes, gewgaws, and articles of small value, which would be exchanged for negroes, which, being carried to the East Indies, were converted into rum, sugar, and coffee, that figured largely in the imports into England. The ample warehouses of England are the storehouses of the world, and the large capital of England is employed in holding vast stocks of colonial and other merchandise which are ready for home or foreign uses according to exigencies.

A considerable item in the imports of Great Britain is composed of food, of which her wants annually increase. The average importation of all kinds of grain for the last ten years, has been no less than 8,745,250 qrs., of which upwards of one-half was wheat and flour. Previous to 1847, not a third of this quantity was required on an average. The inference is drawn that the products of English soil are diminishing in proportion to her wants. The following table shows the quantity of grain imported annually, with the official average annual prices for the last ten years:—

	Wheat, qrs.	Grain, (oth. kinds), qrs.	Flour, cwt.	All kinds flour & grain, qrs.	Wheat, s. d.	Barley, s. d.	Oats, s. d.
1848.....	2,500,000	4,500,000	2,000,000	7,528,472	50 6	31 6	20 6
1849.....	4,000,000	6,000,000	3,500,000	10,669,661	44 3	27 9	17 6
1850.....	3,750,000	4,250,000	4,000,000	9,019,590	40 3	23 5	16 5
1851.....	3,750,000	4,250,000	5,500,000	9,618,026	38 6	24 9	18 7
1852.....	3,000,000	3,500,000	4,000,000	7,746,669	40 9	28 6	19 1
1853.....	5,000,000	4,000,000	4,500,000	10,173,135	53 3	33 2	21 0
1854.....	3,500,000	3,500,000	3,750,000	7,909,544	72 5	36 0	27 11
1855.....	2,500,000	3,000,000	2,000,000	6,278,813	74 8	34 9	27 5
1856.....	4,000,000	4,000,000	4,000,000	9,339,425	69 2	41 1	25 2
1857.....	3,500,000	5,000,000	2,250,000	9,169,180	36 4	42 1	25 0

This quantity and prices gives a value of over \$120,000,000 per annum, which England pays for food. It will be observed that in 1855, when the prices were highest, she imported the *least*, because in that year the crops of those countries on which she depends for supplies were also short, and could not spare her the usual quantities, although she bid as high as \$2 per bushel for wheat. In 1853, she obtained 48,000,000 bushels of wheat at \$1 60 per bushel; but although she offered \$2 per bushel in 1855, she got but 25,000,000 bushels. This is an important fact, coupled with the fact that France and the countries of Western Europe are annually able to spare less. The dependence upon foreign countries for food would seem to be a matter of anxiety in this light. The consumption of other articles of food, besides grain, has increased to an extraordinary extent under the general system of reducing duties and the cost of materials. The import and consumption of coffee and sugar for the same period of ten years has been as follows:—

	Coffee. (all kinds.)			Sugar. (raw.)		
	Imported, lbs.	Exported, lbs.	Consumption, lbs.	Imported, cwts.	Exported, cwts.	Consumpt'n, cwts.
1848.....	57,053,450	24,088,477	37,077,546	6,869,931	332,569	6,142,296
1849.....	63,315,517	34,852,083	34,399,874	6,937,349	558,642	5,905,687
1850.....	50,803,152	12,169,752	31,166,358	6,291,535	370,415	6,091,492
1851.....	53,110,660	22,712,859	32,504,545	7,932,534	308,605	6,233,540
1852.....	54,935,510	12,937,552	34,978,432	6,896,761	415,340	6,898,867
1853.....	55,634,733	26,656,892	36,983,122	7,284,290	252,074	7,272,833
1854.....	66,500,358	32,589,117	37,300,924	9,112,364	369,031	8,028,758
1855.....	64,061,479	28,766,528	35,764,564	7,324,133	227,040	7,259,148
1856.....	56,992,116	27,602,836	34,995,944	7,761,240	740,012	6,813,470
1857.....	58,892,726	15,782,710	34,367,484	8,390,696	300,098	7,114,388

In 1844, the duties on sugar had been 25s. per cwt. on colonial, and 66s. on foreign. In 1845, the former was reduced to 14s., and the latter, being free labor, to 23s. 4d. In 1846, all foreign sugar was admitted at 20s., without distinction of origin. In 1850, 1851, 1852, and 1853, successive reductions took place, and in 1854-55, some duties were added as war charges. They are now as follows:—

	Refined, s. d.	White, s. d.	Brown, s. d.	Other, s. d.
1857.....	20 0	17 6	15 00	13 6
1858.....	18 4	16 0	13 10	12 8

The duty on brown sugar imported into France from the colonies is \$3 24 per cwt., and foreign sugar \$4 91 per cwt.; if in foreign vessels, \$6 29 per cwt. In the United States sugar is 24 per cent ad valorem.

CONSUMPTION OF SUGAR IN GREAT BRITAIN, FRANCE, AND UNITED STATES.

	FRANCE			G. Britain, tons.	UNITED STATES.			
	Colonial, tons.	Foreign, tons.	Beet-root, tons.		Total, tons.	Foreign, tons.	Louisiana, tons.	Total, tons.
1841..	74,515	12,042	27,162	114,719	203,200	65,601	38,000	103,606
1842..	77,443	8,210	35,070	110,723	193,823	69,474	39,200	108,674
1843..	79,455	9,695	29,155	118,215	204,016	28,854	64,360	93,214
1844..	87,382	10,269	32,075	129,626	206,000	83,801	44,400	126,206
1845..	90,958	11,542	35,132	137,632	242,831	88,336	45,000	133,336
1846..	78,632	15,185	46,845	140,662	261,932	44,974	83,028	128,002
1847..	87,826	9,626	52,369	149,821	290,275	98,410	71,040	169,450
1848..	48,371	9,540	48,103	106,014	307,114	104,214	107,000	211,214
1849..	63,335	18,979	43,793	126,107	295,284	103,121	99,180	202,301
1850..	50,996	23,862	67,297	142,155	304,574	84,813	110,600	194,413
1851..	.....	.....	74,999	.....	311,677	190,193	102,000	272,193
1852..	32,030	14,882	67,445	114,357	344,943	228,772	118,273	347,045
1853..	32,841	15,044	87,120	135,005	363,641	232,213	160,967	393,180
1854..	40,113	18,943	85,825	144,981	401,437	227,932	224,662	452,644
1855..	45,373	49,822	52,902	148,097	362,957	236,942	173,317	410,259
1856..	46,767	16,456	95,103	158,326	340,673	272,631	115,713	388,344
1857..	42,466	25,689	*132,000	200,155	355,719	388,501	36,933	425,434

The consumption of sugar in Great Britain has increased at least as fast as in the United States and in France, where the production of beet-root sugar appears to be more reliable, as a crop, than that of the cane sugar of the United States.

France was the first country in which the cultivation of the beet-root became important, and in 1828 the production of sugar from it was about 7,000 tons. The tax levied by France on its colonial sugars was 50 francs per 100 kilogrammes, say \$4 84 per cwt., and no tax was imposed upon the beet-root sugar. The important difference of nearly four-and-a-half cents per pound operated as a great stimulant to the use of the beet-root sugar, and induced the extensive cultivation of the root, and large investments in the machinery for its manufacture. The consequence was great injury to the colonists, and loss of revenue to the government. The former, justly alarmed, energetically demanded the entire suppression of the beet cultivation, and the purchase of the interest by the government. This the government could not listen to, but the loss of its revenue induced it to favor the colonists. Some years elapsed before the matter was settled. That state of suspense prevented any extension of the beet sugar manufacture, because no one would invest in a

* To close of February.

business that might be stopped. In 1843, a law was passed imposing a tax upon the beet sugar, to be annually raised, until, at the end of five years, it was to bear the same tax, say 49f. 50c. per kilogramme, as the colonial. The matter being thus settled, the beet cultivation, although exposed to this onerous tax, began to grow. The tax had the effect of stimulating improvement in the mode of extracting the sugar, and the production increased rapidly until 1848. The political troubles of that year had a great influence, but the rumor that a very simple mode of extracting sugar had been discovered, by which every household might make its own, and by which the expensive machinery used would become valueless, checked investments. Those fears were found to have been much exaggerated, and in 1850 the production resumed its increase. In 1851, the hardships of the colonies, under the abolition laws of the Provisional government, added to the diminished revenue, induced the government to maintain the beet-sugar tax, and reduce that on cane sugar. Accordingly, on the 1st January, 1852, the duty was changed as follows:

Duty on beet-root sugar per 100 kilogrammes.....frances	50
Duty on French West India sugar per 100 kilogrammes.....	44
Duty on Bourbon sugar per 100 kilogrammes ..	41

The lower charge on Bourbon sugar is supposed to compensate the longer voyage it undergoes. In 1856, colonial and beet-root were both again charged 50 francs per 100 kilogrammes. It is not impossible, however, that the present government of France may, in the more liberal and economical policy of which it shows signs, seek to enhance its revenues by following the enlightened example of England in diminishing its taxes. The consumption of foreign sugar in France gained on that of French production in the three years ending with 1851. In the last three years, during which the price of cane sugar has ruled so high, the production of beet sugar has undergone a great development, notwithstanding the high prices of food, which, indeed, were partly ascribed to the breadth of land taken up in beet roots. The loss of the Louisiana crops, which form so important a portion of the United States consumption, gave a great impulse to the rise in cane sugar, and no doubt partly checked the consumption of it in England.

While sugar has shown so great an increase in consumption in Great Britain, tea and tobacco have also been in great demand. The movement has been as follows:—

Years.	TEA.			TOBACCO.		
	Imported, pounds.	Exported, pounds.	Consumption, pounds.	Imported, pounds.	Exported, pounds.	Consumpt'n, pounds.
1848...	47,774,755	3,551,528	48,734,789	34,090,360	10,075,121	26,987,618
1849...	53,459,469	4,845,617	50,021,576	42,098,125	14,992,277	27,348,419
1850...	50,512,384	5,015,629	51,172,302	35,166,358	7,250,888	27,387,960
1851...	71,466,421	4,524,597	55,949,059	31,049,654	12,748,322	27,705,687
1852...	66,360,535	6,134,743	54,713,034	33,185,035	9,673,396	28,218,857
1853...	70,735,135	4,836,009	58,834,087	40,670,032	9,025,727	29,348,568
1854 ..	85,792,032	8,655,955	61,953,041	32,492,848	11,209,343	30,185,642
1855...	83,259,657	13,726,507	63,429,286	36,820,846	8,437,096	30,114,730
1856...	86,200,414	5,718,764	63,278,212	44,809,634	10,463,456	32,163,962
1857...	64,493,989	8,707,571	69,130,482	42,048,830	10,577,372	32,428,066

The increased use of tea is very marked, particularly since 1852, partly by reason of the large reduction in duties which have taken place. The use of tea and sugar seems to have gone hand in hand, to the exclusion of coffee, of which the weight per head used has declined, while

that of tea and sugar has largely increased. The duty on tea was 1s. 9d. per pound in 1857, and is now 1s. 5d. per pound. The great increase in the use of tea has, no doubt, been one cause of the large drain of silver to the East. It cannot, however, be said that the reduction of duties on any one article is the direct cause of the enhanced consumption of that article, since the great increase which has taken place in the use of tobacco, under a very onerous duty, indicates that a general improvement in the means of the people induces an improved demand for certain articles, and not for others. The general principles on which the great reductions of duties were commenced in 1842 was, that by lessening the money price of all those articles which are purchased by the recipients of wages, virtually enhanced those wages, although their sum remained the same in money. If a man earns 20s. per week, and expends 10s. for wheat, sugar, tea, rum, and tobacco, he will have the same quantities of these articles, and 3s. to spare, if their prices are reduced an average of 30 per cent. It does not follow, however, that he will in consequence buy more of each of these articles. He may spend the extra 3s. in clothing, or some other articles conducive to comfort, or he may buy more tea or tobacco, and less coffee. Hence, the consumption of tobacco has enhanced in face of continued high duties. These being now 75 cents per pound on tobacco worth 12 cents in bond, or over 600 per cent, and in consequence of the enhanced consumption at this high rate, it is proposed to raise the duties 6d. per pound, which it is estimated would give \$4,000,000 of additional revenue. With this enhanced consumption of articles of food, there has been a great increase in the quantities of raw materials required for consumption, as follows:—

Years.	COTTON.		Consumption, pounds.	Silk, raw, pounds.	Wool, pounds.	Flax, tons.
	Imported, pounds.	Exported, pounds.				
1848..	713,020,261	660,891	712,359,270	4,500,000	71,000,000	730½
1849..	755,469,012	882,978	754,686,034	5,000,000	77,000,000	903½
1850..	688,576,861	914,908	667,661,953	5,000,000	74,500,000	912
1851..	757,379,759	999,825	756,379,934	4,500,000	83,500,000	597
1852..	929,782,448	998,967	928,783,431	6,000,000	94,000,000	705
1853..	895,278,749	1,326,515	893,952,224	6,500,000	119,500,000	942
1854..	887,333,104	1,101,126	886,231,978	7,500,000	106,000,000	656
1855..	891,751,952	1,119,430	890,632,522	6,500,000	99,500,000	647
1856..	1,023,886,304	1,309,472	1,022,576,832	7,500,000	116,500,000	843½
1857..	969,318,896	1,077,925	968,240,971	12,000,000	130,000,000	933

Cotton has increased nearly 50 per cent; silk nearly 80 per cent; wool nearly 90 per cent; flax has varied greatly, but has, in the long run, increased. The whole shows a very great increase in the use of those raw materials wrought up into fabrics for export by those who have so greatly enhanced the use of food. The quantities of goods that have been produced in the past few years, under the impulse of credit sales on new machinery, have been more rapid than the slow production of raw materials, on which high prices operate only upon labor employed, and can neither increase its volume nor quicken the fertility of the soil. A slight increase in the speed of existing machinery will consume a much larger quantity of material, but the process of nature in producing that material cannot be hastened. It has resulted that prices of materials have been forced very high, and the stocks reduced to a very small quantity, compared to current consumption. The production in the last six months has been violently checked, thus giving materials a chance to come up, but the deficit is large according to future promise.

The labor of England bestowed upon these raw materials constitutes, in the shape of fabrics, her staple export, which, by means of her government policy, backed by large capital and the operation of credit, finds markets in every clime, and draws from every people the products of their industry in return. By the removal of every impediment in the way of the free passage of their raw products to the consumers, in the free competition of freights, in freedom from taxes, and in facilities of warehousing, the manufactures of England enjoy the greatest advantages for competing with all others in the sale of their merchandise. The export of cotton goods and yarns forms one-third of the whole aggregate exports. Of these, cotton cloths, in 1857, reached nearly 2,000,000,000 yards, at a value of \$145,000,000, equal to 7 $\frac{1}{4}$ cents per yard, or about one-quarter cent per yard higher than for the previous year. The destination of these goods was as follows:—

	1856.	1857.
To Hanse Towns yards	58,575,522	50,959,890
Holland	34,837,433	30,481,208
Portugal, Azores, and Madeira.	51,737,338	47,729,447
Turkey.	184,973,726	123,007,531
Syria and Palestine.	40,917,083	39,210,151
Egypt.	50,757,853	55,665,225
United States	207,238,726	177,841,614
Foreign West Indies.	50,260,901	72,486,449
Brazil.	154,560,760	186,784,498
Buenos Ayres.	27,547,401	32,222,886
Chile.	37,236,414	38,296,129
Peru.	26,969,617	34,157,975
China and Hong Kong.	112,665,202	121,594,515
Java.	39,429,498	30,541,746
Gibraltar	33,079,099	19,980,267
British North America.	32,700,705	32,112,811
British West Indies	40,409,428	45,854,319
British East Indies.	477,951,401	469,757,011
Australia.	26,784,384	30,596,459
Other countries.	346,592,448	345,179,006
Total.	2,035,274,969	1,984,459,137
Value.	£28,521,559	£28,882,466

The Russian war served to extend the use of English cottons to a considerable extent in the countries bordering its theater. It is to be remarked, that the British East Indies take nearly one-fourth of the whole export of cottons—a quantity which exceeds the weight of raw cotton derived from India, and this is the case with all cotton-producing countries except the United States, which alone supplies a clear surplus of the raw material.

The general trade of England increases faster and more steadily with her colonies than with other nations. The destination of British exports has been as in the following table. The first epoch was that of war, on the eve of the restoration of the Bourbons, and of the battle of New Orleans. The second was of the separation of Belgium from Holland, and the expulsion of the elder Bourbons in favor of Louis Philippe in France. The third was the era of free trade, when England abandoned finally her protective policy. The year 1851 was marked by the new arrivals of gold. The last two years were of recovery from the Russian war, but of bad harvests:—

BRITISH EXPORTS.

	1814.	1830.	1842.	1851.	1856.	1857.
U. States..	£8,129	£9,053,383	£3,528,807	£14,362,977	£17,009,085	£18,760,812
France....	579,811	602,688	3,193,939	2,028,463	6,432,650	6,199,792
Colonies ..	15,025,456	10,004,399	14,770,097	22,346,698	33,300,439	37,115,247
Other.....	29,880,923	17,503,902	25,888,580	35,711,574	59,084,769	60,079,386
Total...	£45,494,219	37,164,372	47,381,023	74,449,712	115,826,943	122,155,287

France, in the last few years, has become a large customer for England. Her purchases, since 1851, have increased as much as those of the United States. The proportionate sales of British goods to her colonies has, in the aggregate, much increased since 1851, but a considerable portion of that increase is due to Australia, to which place the exports in the past year have been £10,749,741. In 1842, that colony took but £958,953; hence, of an increase of £23,000,000 of exports to British colonies since 1842, £10,000,000 is due to Australian gold. Those exports are the return for the \$60,000,000 of gold which Australia sends back. The exports to British colonies in 1814 were only indirect exports to the United States, and were smuggled in largely. This indirect trade became direct after peace was declared. The trade with Europe has greatly increased since the abolition of the British corn laws, which allowed of a large and steady demand for European corn, enabling a larger consumption by the corn growers of British goods. The extension of the German Zollverein has also contributed largely to the demand for the products of British labor.

Art. V.—GARBLINGS: OR, COMMERCIAL COMMODITIES CHARACTERIZED.

NUMBER IX.*

TOBACCO.

HISTORY—DERIVATION OF NAME—ANCIENT VIRTUES ASCRIBED TO IT—LEGISLATION CONCERNING IT—USES AND ABUSES—ADULTERATIONS AND THEIR EFFECTS—LEAVES OF DOCK, RHUBARB, CABBAGE, AND POTATO—DECAYED MOSS—BROWN PAPER—SUGAR—TERRA JAPONICA—NITRATE OF POTASH—COMMON SALT—CARBONATE OF POTASH—CHROMATE OF POTASH—ALUM—NITRATE OF AMMONIA—MURIATE OF POTASH, ETC., ETC.—EFFECTS DIFFERENT ACCORDING TO THE WAY USED—SNUFFING, SMOKING, AND CHEWING—DIFFERENCE BETWEEN THE EFFECTS OF TOBACCO AND OF THE ADULTERATIONS—CONSTITUTIONAL EFFECTS OF TOBACCO—EFFECTS ON DIFFERENT CONSTITUTIONS—EFFECT OF HABIT—DANGER OF LEAVING IT OFF—INTOLERANCE IN DISEASE.

“O, Great Tobacco! Greater than Great Can,
Great Turk, Great Tartar, or Great Tamerlane;
With Vulture's wings thou hast, (and swifter yet
Than an Hungarian ague, English sweat),
Through all degrees flown far, nigh, up, and down,
From Court to Cart, from Count to Country Clown,
Not scorning Scullions, Cobblers, Colliers,
Jakes-farmers, Fiddlers, Ostlers, Oysterers,
Rogues, Gypsies, Players, Panders, Punks; and all
What common Scums in common Sewers fall,
For all as *Vassals*, at thy neck are bent,
And breathe by thee as their new *Element*.”

* For No. 1, see *Merchants' Magazine* for July, 1857, (volume xxxvii., pp. 19-23;) for No. 2, see same for August, (pp. 166-171;) for No. 3, see same for September, (pp. 298-303;) for No. 4, see same for November, (pp. 542-554;) for No. 5, see same for January, 1858, (volume xxxviii., pp. 43-50;) for No. 6, see same for February, (pp. 175-183;) for No. 7, see same for March, (pp. 292-302;) for No. 8, see same for August, (vol. xxxix., pp. 164-175.)

TOBACCO consists of the *dried leaves* of several species of plants belonging to the genus *Nicotiana*, which, excepting the frigid zones, grows nearly all over the world, and it is doubtful when civilized nations first became acquainted with it. When Columbus arrived at Cuba in 1492, he found the natives smoking an instrument which they called *tabac*; this was easily translated into good Castilian, *tabacco*. The name, however, is variously attributed by different inquirers into its origin. "It has," says Dr. Paris, "suffered romantic vicissitudes in its fame and character, it has been successively opposed and condemned by physicians, condemned and eulogized by priests and kings, and proscribed and protected by governments; whilst at length this insignificant production of a little *island*, or an obscure district, has succeeded in diffusing itself through every climate, and in subjecting the inhabitants of every country to its dominion." The little island *Tobago*, here referred to, was for a long time supposed to have given origin to the name of tobacco. Afterwards, with still greater similarity of name, the province of *Tabaco*, in Yucatan, was fixed upon. It is said to have been smoked on the ratification of a treaty between the Europeans and casique of *Tobasco* or *Tabaco*, in 1518; hence this was also deemed a good origin for its name. But the *Hindoos*, *Persians*, and *Chinese* have used tobacco from an era so remote as to have no fixed date, and Humboldt, in his *Personal Narrative*, states that the natives on the *Orinoco* have cultivated it from time immemorial. So that, taking the greatest license, an old English author refers it to *Bacchus*!

" *Tobacco*, as Τῷ ΒΑΧΧῷ one would say,
To cup god *Bacchus* dedicated, ay."

Certain it is, however, that it was not introduced into Europe until the latter part of the fifteenth century, and that smoking was not general until after the discovery of America.

About the year 1560, Joan Nicot, being at that time the French ambassador at the court of Lisbon, transmitted some tobacco seeds to Catharine de Medecis. From this circumstance it was for some time called *Herba Reginæ* and the *Ambassador's Herb*, but finally Nicot's name was honored by the name of the genus of plants to which it belongs—*Nicotiana*—though not without a strong competitor for the honor. Cardinal Santa Croce, being the Pope's Nuncio in Portugal at the same time that Nicot was ambassador, he took both seeds and tobacco plants with him to Italy, and there it was named *Santa Croce*, in honor of the great exploit—which was considered to shed as much luster on the Santa Croce family as the deed of his progenitor in carrying *back* to Italy the wood of the true cross.

The virtues ascribed to the plant at that time by Santa Croce, and those who honored him by its use, are well recounted in some Latin verses by Castor Dervanti, a famous poet of the day, of which the following version is given in an old English dictionary:—

" The herb which borrows Santa Croce's name,
Sore eyes relieves, and healeth wounds; the same
Discusses the king's evil, and removes
Cancers and boils; a remedy it proves
For burns and scalds, repels the nauseous itch,
And straight recovers from convulsion fits.
It cleanses, dries, binds up, and maketh warm,
The headache, toothache, colic, like a charm

It easeth soon ; an ancient cough relieves,
 And to the reigns, and milt, and stomach gives
 Quick riddance from the pains which each endures ;
 Next the dire wounds of poisoned arrows cures ;
 All bruises heals, and when the gums are sore,
 It makes them sound and healthy as before.
 Sleep it procures, our anxious sorrows lays,
 And with new flesh the naked bone arrays.
 No herb hath greater power to rectify
 All the disorders in the breast that lie,
 Or in the iungs. Herb of immortal fame!
 Which hither first by Santa Croce came,
 When he, (his time of nunciation expired,)
 Back from the court of Portugal retired ;
 Even as his predecessors great and good,
 Brought home the cross, whose consecrated wood
 All Christendom now with its presence blesses,
 And still the illustrious family possesses
 The name of Santa Croce rightly given,
 Since they in all respects resemble heaven,
 Procure as much as mortal men can do,
 The welfare of our souls and bodies too !”

In England, during the reign of King James I., many persons spent enormous sums—over five hundred pounds per annum—in the purchase of tobacco. And the quaint old Burton writes:—“Tobacco, divine, rare, super-excellent tobacco, which goes far beyond all other panaceas, portable gold, and philosophers’ stones, sovereign remedy to all diseases. A good vomit, I confess, a virtuous herb, if it be well qualified, opportunely taken, and medicinally used, but as it is commonly abused by most men, which take it as tinkers do ale, it is a plague, a mischief, a violent purger of goods, lands, and health ; hellish, divelish, and damned tobacco, the ruin and overthrow of body and soul.”

Finally, the use of tobacco having become universal among the common people, a royal “counterblast to tobacco” was published against a custom “loathsome to the eye, hateful to the nose, harmful to the brain, dangerous to the lungs, and, in the black, stinking fume thereof, nearest resembling the horrible Stygian smoke of the pit that is bottomless.”

The same monarch, King James, proposed as a bouquet for the devil, a loin of pork, and a poll of ling and mustard, with a pipe of tobacco for digestion. He endeavored to abolish its use by a heavy penalty, and enacted that no planter in Virginia should cultivate more than one hundred pounds of it ; but the advantage derived to his revenue from its importation soon caused the restriction to be abolished.

Before King James’ time, during the reign of Elizabeth, an edict was published against the use of tobacco, “lest Englishmen should become like the barbarians from whom its use was derived.”

There is still a legal restriction in Great Britain against its cultivation, except in a physic or university garden, or in any private garden for physic or surgery, where not more than half a pole—two yards and three-quarters—is allowed.

But it was not alone in England that war was waged against tobacco, when it came within the means of the peasantry. In 1590, Shah Abbas prohibited its use in Persia, and as the punishment was penal many of his subjects fled to the mountains rather than abandon it.

Pope Urban VIII. excommunicated all snuff-takers who committed the heinous sin of taking a pinch in church. In 1653, all the smokers in the Canton of Appenzel were cited before the council and punished. About the same period, the peasantry of Russia were forbidden to smoke under the penalty of having their noses cut off; and Amurath VII. rendered it a capital offence. The animosity of the Russian government was so great against the use of tobacco that a special tribunal, the *Chambre au Tabac*, was constituted for the punishment of smokers; this was continued until about the middle of the eighteenth century. At the present time the Russian peasantry are probably the greatest smokers in the world. In Constantinople, every Turk who was found smoking was punished by having a pipe transfixed through his nose, and seated on an ass, with his face towards the tail, conducted in ridicule through the streets.

Varieties—The uses and abuses of tobacco have been so severely tried as finally to have become the universal right of man. However applied to the human constitution, it imparts its active propensities. Chewing, smoking, and snuffing all alike communicate its effects, and either may become a necessary luxury.

In an article of such universal use and value it is not surprising that numerous adulterations have crept into the manufacture of its several preparations. What these are and their effects on the system, and the best means of detecting them, is therefore of much moment to all individual consumers, as "Pig-tail," "Bogie," "Alloa," "Cavendish," "Short Cut," "Returns," "Birdseye," "Fanny Fern," "Negro Head," &c., "Havanas," "Lucias," "Principes," "Kings," "Queens," "Cheroots," &c., "Scotch," "Irish," "Welsh," "Grand Cairo," "Rappee," "Cephalic," "Grimstone's-eye," &c., &c., all sometimes contain worse things than tobacco.

Adulterations and their Constitutional Effects.—The most common adulterations are, in TOBACCO, the leaves of dock, rhubarb, cabbage, potato, decayed moss, brown paper or mill-board, sugar, terra japonica, nitrate of potash, *alum*, *carbonate of potash*, *common salt*, nitrate of ammonia, muriate of potash.

In SNUFF, those articles marked in italics, and in addition, oxide of iron and alumina, chrome yellow, or chromate of lead, lime, bichromate of potash, oxide of lead, silica, powdered oris root, savory, rosemary, lavender, red ochre, yellow ochre, and various powdered vegetable substances which cannot be isolated.

In CIGARS, hay, and paper tinted of a bister color, constitute the chief adulterations; traces of opium have sometimes been found in cheroots, but not in quantities nor frequency sufficiently often to justify its alleged commonness. Cigars are undoubtedly the purest form of tobacco, even though the tobacco be poor. The various qualities of tobacco adaptable to cigars, in a great measure obviate the temptation to add foreign substances to it; while of these—hay and paper—they only lessen the quantity of tobacco without injury to the system.

Snuff, on the other hand, is the most injurious form of using tobacco, and this arises from the poisonous character of the adulterating substances; otherwise it would be the least injurious, because it is applied to a smaller extent of the mucous membrane, and where its effects are chiefly local. Nevertheless, the sense of smell is impaired, and frequently also the sense of taste; but these effects are attributable to the irritation and subsequent

congestion of the lining membrane of the nose and fauces by the alkalis and salts, and the still more poisonous *chromates* which enter into the composition of snuff. The bichromate of potash is a potent poison. One twenty-fifth of a grain is usually fatal to a dog, and even the smallest portions are generally followed, sooner or later, by inflammation of whatever part to which it may be applied.

The chromate of lead, and red lead, are also of very poisonous nature, though not to the same degree as the chromate of potash. These are the substances, also, which are so often fatal to children fed on candy. The quantity of chromate of lead and red lead in snuff is often found to be four or five per cent, and there are numerous instances of *paralysis* and *lead-cholic* in snuff-takers, clearly attributable to the poison obtained from this source. The less severe effect of these poisons is *habitual constipation*, which is never the effect of pure tobacco, and rarely attends those who use it in other forms. Inflammation of the nerves, neuralgias in various parts of the system, cholera-morbus, and other affections which are common to most irritants taken into the system, are frequent diseases of snuff-takers.

Tobacco-chewing, next to snuffing, is most injurious, and would doubtless be equal to snuffing were it not for the usual habit of expectoration. The active principles of tobacco are taken into the system to greater extent in chewing than in any other way, and the injurious effects of *it* are oftener found in those who chew than in others. The common adulterations in chewing tobacco are such as principally give it bulk and weight, excepting alum, terra japonica, and lead, which may be suspected whenever a chewer has constipated bowels. The last of these substances, lead, is sometimes introduced by means of lead foil instead of tin, for wrappers.

The most usual *fraud* among tobacco dealers is *moisture*, which has the effect of augmenting the weight.

Constitutional effects of Tobacco.—Tobacco smoking exemplifies in a peculiar manner the effects of tobacco, because, as a general thing, other substances do not find their way into the system with it. The first effect of tobacco is slight excitement, but this exists for a brief period only, and is then followed by a peculiar tranquility which pervades the whole system. The action of the heart is diminished, respiration seems to be carried on with an unusual smoothness, and a general *luxur ousness* of feeling pervades—even the skin softens, or, if smoking is carried to excess, grows moist; the involuntary muscles are relaxed, and the usual effect of a morning cigar after breakfast is experienced.

In plethoric persons, those who have an abundance of red blood, and who so live as to keep up the supply, and whose digestive functions are active, the effects of tobacco are salutary and may be indulged. But those who are of contrary temperament, whose circulation is weak, whose digestion is slow, these are not benefited, but injured, by the use of tobacco.

Nervous and irritable persons, those whom business excites, who are always impatient for results, and constantly exercising their brains in divining new inventions and enterprises, but who are impatient to adopt them, these are benefited by the tranquilizing effects of tobacco.

Deep thinkers, who would draw upon resources long laid up by hard study, who would not again busy themselves in thumbing over volumes which have

already been read, but who, having once devoured them, would make the food their own, find much originality amidst the fumes of a savory cheroot. But students, who would master books, and remember their contents, who would lay up in store clear ideas, should never becloud themselves with smoke, nor in any other way detract from the most energetic application to the fulfillment of the object in view. The satisfying effect of tobacco on students is not calculated to promote advancement, but to retard it. Under its influence pages may be dreamed over without being taken in.

No youth—no one not full grown should use tobacco. Secretions are always impaired by it, and a full development of the most healthy exercise of all the functions is rarely or never obtained under its influence.

Finally, the use of tobacco may become more than a habit; it may become a necessity to the healthy exercise of functions long accustomed to it, or it may become fatal to the constitution from over-indulgence, and, in either case, one should be careful not to confound it with the effects of adulterations, such as are above pointed out.

Detection of Adulterations.—The easiest way for the detection of foreign leaves is to examine with the microscope, which exhibits the different construction of whatever leaves may be present; but these are not the adulterations most apt to injure the constitution. For this purpose chemical tests have to be instituted; and the same processes already given in previous papers, for the detection of the same poisons in other substances, will be found equally efficacious for testing the purity of tobacco.

Effects of Habit.—On once becoming fully addicted to the use of tobacco, it becomes such an absolute necessity that the greatest distress arises from its privation. In the wintry solitudes of the Laplander or the Esquimaux, it becomes a necessary habit to their existence. The Arab, in the desert, would as soon part with his *gourd* as his pipe. And the sailor, grant him but this one luxury, and he will defy the fury of the elements. Nor is it less worshiped at the shrine of fashion. The fascinating influence of its effects once thoroughly incorporated, under whatever circumstances, becomes so wedded to the necessities of the functions, that health may not only suffer by its deprivation, but even life itself become, at least, a burthen.

A contributor to the *Dictionnaire des Sciences Medicales* relates a case he once witnessed, thus:—"I recollect, about twenty years ago, while gathering samples in the forest of Fontainebleau, I met a man stretched on the ground, who seemed to me to be dead, but on approaching him, he asked if I had any snuff; on my replying in the negative, he sank back almost in a state of insensibility. He remained in this state until I brought a person to him, who gave him several pinches, after which he informed us that he had set out on his journey that morning, supposing that he had his snuff-box along with him, but he soon found he had left it behind; that he had traveled as long as he was able, till at length, overcome by distress, he found it impossible to proceed farther, and without my timely aid he would certainly have perished."

When the use of tobacco is carried to excess, general lassitude and indisposition to any exertion, either mental or physical, followed by tremor and excessive perspiration, are the usual symptoms—dyspepsia usually supervenes. An erroneous notion prevails that smoking, or other use of tobacco, will prevent the poisonous influence of malaria; so far from this

being the case, the excessive indulgence in tobacco, or the use of it by persons not accustomed to it, when so exposed, render the system even *more* susceptible. The poison in malaria, whether animal or vegetable, is usually potent in proportion to whatever departure from the most perfect standard of health and powers of endurance, and inasmuch as tobacco can in no respect heighten these, but rather lessen them, it would probably be beneficial to suspend its use altogether under such circumstances. It is well known to tobacco users that sickness creates a distaste for it, and that when the desire returns it may be looked upon as favorable to the restoration of health.

JOURNAL OF MERCANTILE LAW.

ACTION ON A PROMISSORY NOTE.

In the United States Supreme Court, (First District.) Before the Hon. Justice Balcom. The Bridgeport City Bank *vs.* the Empire Stone Dressing Company.

This was an action on a promissory note for \$6.292 38, made by one William J. Flagg, dated New York, February 11, 1854, at eight months, payable to the order of the North American Stone Dressing Company, and indorsed as follows:—"The North American Stone Dressing Company, Charles T. Shelton, Treasurer—The Empire Stone Dressing Company, George Sherman, Secretary—Charles T. Shelton."

The defence was, that the indorsement of the note by the secretary was unauthorized; that notice of protest was not given to the defendants, and that Shelton, the last indorser, took up the note after its maturity, and afterwards left it with the plaintiffs as collateral security for the payment of six other notes, discounted for him by the bank; that the indorser, Shelton, having thus paid the note to the plaintiffs, and afterwards left it with them, after due, as collateral for a loan, the plaintiffs took the note subject to the equities between Shelton and the defendants; that the indorsement of the defendants was obtained by Shelton without any consideration therefor, and, consequently, that the plaintiffs could not recover anything on the note against the defendants.

The signature of the secretary was admitted, and the plaintiffs proved that the secretary of the defendants has authority to indorse notes in the prosecution of their business, and that the plaintiffs, on request of Shelton, discounted the note on the 10th day of June, 1854, in good faith, upon the credit of the defendants; that the note was discounted for account of the defendants, and the proceeds paid to Shelton.

Plaintiffs further proved that the defendants became insolvent as early as June, 1854, and in that month, or in July, sold out all their property to another company, from which time the defendants not only ceased to carry on any business, but had no other office than that occupied by their president, a lawyer, in Trinity Building, in this city, in which office were kept a few of the books of the company, and that there was no sign upon the president's door indicating that such was the office of the defendants. Plaintiffs also showed, by the testimony of a notary and his assistant, that the note fell due on Saturday; that the notices of protest were drawn up on the same day, and that, although the notary had long known of the insolvency of the defendants, inquiry was made on the Monday following, at Trinity Building, (given in the City Directory as the office of the company,) of the porter of the building, for the office of the defendants, and a notice of protest, directed to George Sherman, Secretary of the Empire Stone Dressing Company, was left with the porter; that afterwards, on the same day, a notice, with the same address, was taken to No. 62 East Twenty-seventh-street, the former residence of the secretary; that the house being closed, and the no-

tary being informed that George Sherman had removed to Cincinnati, the notice was, on the same day, inclosed and mailed to him, as such secretary, at that place. The notary further testified, that he believed he sent two notices to the Post-office, one directed to Sherman, secretary of defendants at Cincinnati, and the other to him, as such secretary, New York. The assistant testified that the notary gave him two inclosures for the Post-office, (one of which he remembered was directed to Cincinnati,) and that he put them both in the office the same Monday.

Defendants offered in evidence an agreement made between the plaintiffs by one Fairchild, their cashier, and Charles F. Shelton, by one Nichols, to the effect that the note of Flagg, due October 14, 1854, and protested for non-payment, was left with the plaintiffs as collateral security for the payment of six certain notes, therein described, and that when the above six notes were paid the Flagg note was to be given up.

The plaintiffs then called a former president of the bank, who testified that he was the president at the time Flagg's note was discounted, and was protested, and also when the six notes referred to in the agreement were left with the bank by Shelton; that these notes were not discounted, but only left as collateral security for the Flagg note, and that the cashier had no authority to discount notes or to make the alleged agreement, or to release any of the parties to the Flagg note, and that said agreement was made without the knowledge of the board of directors.

The evidence being closed, the judge held, that where there is no dispute about the facts, it is well settled in this State that what constitutes *due diligence* is a question of *law*; that *great diligence* is not required; and that in this case the holder had used *reasonable diligence*; also, that the plaintiffs by discounting the note, under the facts proved, became *bona fide* holders, and that their position as such was not changed by the subsequent agreement with Shelton, as to the six notes; and he thereupon directed the jury to bring in a verdict for plaintiffs, for the amount of the note and interest, deducting the amount of one of the six notes admitted to have been paid to the bank, with liberty to defendants to make a case to be heard at General Term in the first instance, and a stay of twenty days. Verdict for \$7,138 02.

Truman Smith and H. & C. T. Andrews, for plaintiffs; William M. Everts and C. F. Sanford, for defendants.

STATE AND COUNTY TREASURER.

In the Superior Court, Ohio—May, 1858. Before Judge Spencer. Hatch & Langdon vs. Hamilton Pollock, Treasurer of Symmes township.

Judge Spencer delivered the opinion of the court in this case. The plaintiff below, as Treasurer of Symmes township, sued the plaintiff in error, averring that, as such treasurer, he deposited with the defendants, in April, 1857, \$2,365 of the township money, which was to be repaid, with 6 per cent interest, in sums as required by plaintiff to meet the demands upon him in his official capacity; that part of said money had been repaid; but that there was a balance still due from the defendants of \$1,065, with interest, which the defendants refused to pay over on demand; whereupon he asks judgment, &c.

To the petition there was a general demurrer, and judgment upon it in favor of the plaintiffs, with interest from the time of the demand made, to reverse which is the object of the present action.

Two objections have been taken to the petition:—

1. That plaintiff has no legal capacity to sue.
2. That the contract of loan was illegal and void, because prohibited by statute.

Upon the first proposition we remark that, assuming the contract to be valid, the defendants, having contracted with the plaintiff, in his official capacity as treasurer of the township, have admitted his legal existence and capacity to contract, and to enforce such contract.

The second proposition presents the only question of serious difficulty.

The third section of "An act to punish the embezzlement and use of public moneys," provides to the effect, that if any officer, agent, or servant of the State, county, township, &c., intrusted with the care of the funds or other property of such State, &c., shall deposit or place the same in the hands of any other person or persons with an expectation or upon an agreement to receive therefor, by way of bonus or benefit, interest or any other valuable thing, he shall be fined in a sum equal to the amount thus deposited for the use of said State, township, &c.

It will be seen from this provision that the loan or deposit made by the plaintiff in this case, was as an officer or servant of the township; it was of funds belonging to the township; it secured a bonus by way of interest to the township, and it was prohibited by the express letter of the law, as it is clearly within its terms. It was, therefore, an unlawful act, and the contract founded upon it is unlawful and void. (*State vs. Executors of Buttes*, 3 *Ohio S. R.*, 319.) So far, then, as it is sought to hold the defendants liable, as upon an express contract, to return the money with interest, it cannot be enforced, upon the maxim, "*ex turpi contractu non oritur actio*." Nor could the township, if suing in its corporate capacity through its trustees, maintain an action on such a contract; for, by so doing, it undertakes to, and necessarily does, ratify the contract. But there is no authority vested in townships, or township trustees, or a township treasurer, to loan the township funds on interest. What then? Is the money in such cases entirely lost to the township? Not so; if the loan be void, the defendants acquired thereby no title to the funds, but became the mere bailees of the plaintiff or of the township—bound to restore the money on demand as the property of the township.

In this point of view, has the plaintiff a legal right to sue on behalf of the township? It seems clear to us that he has, as trustee of an express trust, having a qualified interest in the funds of the township confided to his possession and safe keeping. By law the treasurer is made the depository of the township funds; as such he has a qualified interest in them after they have come into his possession; and, undoubtedly, has a right to reclaim them in behalf of his *cestui que trust* (the township) from all wrong-doers. Nor has he any power by any act of his own, to release or surrender such right of possession and control. Here the defendants themselves are shown to be wrong-doers, having unlawfully come by the funds of the township deposited in its treasury, and not the less so, because of the treasurer's consent, for he had no authority to give such consent.

We consider, then, that the case stands upon the same principle that it would if the defendants had taken these moneys from the *strong box* of the treasurer; the latter would have a right to reclaim them as the trustee for the township. In such case he recovers not upon *contract*, but for the unlawful detention or conversion of the public funds in and to which the plaintiff, as custodian, has a qualified interest and the right of possession. The amount of such recovery should be the money received, with lawful interest from the time of demand. For this amount the judgment at special term was rendered. There is no apparent error in the judgment, which must be affirmed, with costs.

Tilden and Rairden for plaintiffs in error; Strait and Hollister on the other side.

DECISION IN ADMIRALTY—EXCEPTIONS TO REPORT—COLLISION—DAMAGES—COMMON CARRIER—INSURANCE.

In the United States District Court. Before Judge Betts. Alfred H. Hovey vs. the steamboat Sarah E. Brown.

This case came up on exceptions to the commissioner's report. The action was for injury done by the steamboat to a vessel called the *Mist*, then in the possession of the libellant, and to the merchandise put on board her by its owners, and committed to the libellant's charge as a common carrier. The answer of the claimant denied the right set up by the libellant, and also denied that he had paid

any money to the owners of the cargo because of any injury to it. The court, upon hearing the cause, gave a decree for the libelant, and referred it to a commissioner to compute the damage. On the reference it appeared that the gross amount of the injuries caused by the collision was \$6,667 81, including lighterage and preservation of the property, and that there was realized from its sale \$2,353 59, leaving a balance of \$4,314 24, for which sum, besides lighterage, towing, and interest, the commissioner reported. The libelant held a general policy of insurance covering the property in question, upon which the libelant was paid by the company \$2,950. The claimant alleged that this amount should have been deducted from the damages, as a satisfaction and extinguishment so far of the cause of action, and excepted to the report on this ground, and also upon the ground that the libelant proved no actual payment by him to the owners of the cargo, and that the libelant was not entitled to damages beyond those actually sustained by the boat.

Held by the Court—That the decision of the court upon the merits proceeded upon the ground that the libelant, as a common carrier, had a qualified property in the Mist and her cargo sufficient to enable him to maintain an action in his own name for the injuries caused by the collision. That the claimant's exception to the allowance of damages beyond what he had actually paid, goes to the merits of the action, and the question cannot be brought up again by exception, but must be raised if at all by appeal, or at least by motion for a new trial. Moreover, by the law of this State, a common carrier is a competent party to sue a wrong-doer for and recover the full value of property injuriously interfered with by strangers while in his possession, (7 Cowen, 670; 2 Keenan, 343;) the same privilege and authority has been recognized in Admiralty as belonging to him. That the payment by the insurance company was not in favor of the steamboat, or in discharge or extenuation of its liabilities. She, by her fault, had incurred a liability to the amount decreed against her for the consequences of the collision. This single responsibility, and nothing more, is sought to be enforced against her by this action, and it clearly cannot be claimed, as an acquittance of that charge, that another party, under a contingent contract of insurance, paid the libelant a portion or the whole of the liability which the steamboat had legally incurred to him. There is no privity of contract or interest between the insurance company and the steamboat in this respect. The company and the libelant may stand in quite a different relation in respect to the application of that money, but whether the company attempts to reclaim the payment made on her contract or abandons it, is solely a question between that party and the libelant, with which the claimant has no concern. (17 How. R., 152.) Exception, therefore, overruled, except that the claimant is entitled to a recomputation of the charges, to ascertain whether "lighterage and towage" has been twice allowed by the commission.

DECISIONS IN ADMIRALTY.

In the United States District Court. Before Judge Betts. Ferdinand Maas vs. the schooner Pedee.

This was an action brought to recover for the non-delivery of 553 hides, shipped at Aspinwall on July 2, 1855, under a bill of lading consigning them to the libelant at this port. The schooner left Aspinwall, well manned and provided, but the crew were soon disabled by disease, and she was blown on the coast in almost a helpless condition, but was at last got into Carthagena in a crippled condition. A portion of the hides were found filled with vermin, and in a perishing condition. A survey was called on the cargo by the master of the schooner, under the advice of the American Consul and resident merchants conversant with the trade. A sale of the hides was advised, as being in a perishing condition. The master decided that to be the best course for the interest of the owners of the hides and the ship, and they were accordingly sold at auction. After being cleaned and prepared, they were shipped to New York, and brought, on sale, a considerable advance on the auction price.

Held by the Court—That the run of the schooner to Carthagena, and her de-

tention there, were the result of inevitable necessity, and the vessel is not responsible to the libellant for non-delivery of the cargo, pursuant to the bills of lading, arising from that cause. That the auction sale was made in good faith by the master, and under the urgency of an apparently extreme necessity. That the master has authority in law to cause cargo in his charge, being in a perishing condition, and which he is unable otherwise to save or transmit pursuant to the contract of affreightment, to be sold at public auction for the benefit of whom it may concern, if he acts *bona fide* and under evidence showing a stringent necessity for so doing. The reality of the peril or urgency which can justify a master in such an act is not to be determined by the after results. That the master becomes in such a case by implication clothed with power, if acting in entire good faith, to sell either ship or cargo, or both, and his acts in so doing will be upheld by the law, if upon all the facts before him it may be reasonably supposed a prudent owner personally present would have directed or approved the sale. That on the facts the master was justified in ordering the sale of the hides in question. Libel dismissed with costs.

SUPPLIES—LIEN.

In the United States District Court. Before Judge Betts. William Menzies vs. the bark Agnes.

This was a libel to recover for certain timber furnished for the vessel to Erskine for building the same vessel. No direct evidence was given whether the timber was furnished to Erskine or directly to the vessel. But enough evidence was given to raise a presumption that the libellant and Erskine dealt in respect to the lumber on the understanding that it was supplied mainly, if not wholly, for the particular vessel.

Held by the Court—That this affords adequate ground for lien in favor of the vendor to the value of the material used in the vessel. But it devolves upon the libellant to establish by clear evidence the quantity and value of the material procured for and used in constructing this vessel. Decree for the libellant, with reference accordingly.

LIEN ON CANAL-BOATS.

The following act of 1858 is important to our commercial readers :—

AN ACT TO PROVIDE FOR THE REGISTRY OF LIENS AND INCUMBRANCES UPON BOATS AND CRAFTS NAVIGATING THE CANALS OF THIS STATE. PASSED APRIL 15, 1858—THREE-FIFTHS BEING PRESENT.

SECTION 1. *The People of the State of New York, represented in Senate and Assembly, do enact as follows,* Any person having any lien or incumbrance on any canal-boat, steam-tug, scow, or other craft navigating the canals of this State, by a chattel mortgage, duly filed, may make a statement in writing, setting forth the nature of his claim, the time when the same arose, the manner in which it originated, and the amount of such lien and incumbrance, and may annex thereto an affidavit made by himself or his agent, or attorney, that the said statement is correct, and the claim just and true, and file the same in the office of the Auditor.

SEC. 2. It shall be the duty of the said Auditor, on the receipt of the said statement, to file the same in his office, and to enter the substance in a book to be provided for that purpose, and the amount, if any, claimed to be due; which book shall always during office hours be open for the inspection of all persons desiring to examine the same.

SEC. 3. All claims and liens by chattel mortgage, a statement of which shall be filed as herein provided, shall, from the time of such filing, have preference and priority over all other claims and liens, in the same manner and to the like extent of claims and liens arising on chattel mortgages filed and entered in towns where the mortgagor resides, but shall not have any priority over existing liens and claims.

SEC. 4. The Auditor shall charge, for filing the said statement and making the

entry thereof as herein provided, the sum of fifty cents, and he shall not be obliged to file or enter the same until such sum is paid.

SEC. 5. Any statement made and filed as herein provided, and copies thereof duly certified by the Auditor in the manner required by law, may be read and used as evidence in all courts of justice.

SEC. 6. This act shall take effect on the first day of July next.

PILOTAGE—UNDERWRITERS—TOWING.

In the United States District Court. Before Judge Betts. Daniel C. Chapman *vs.* the bark *Lucerne*.

This suit was brought to recover the sum of \$30 50, alleged to be due the libellant as pilotage. The bark, on a voyage from the coast of Africa to this port, put into Norfolk in distress, and was there abandoned by her owner to the underwriters. By their direction a steam-tug was sent from here to her, with a pilot and four seamen, to tow her to New York, the owner having no privity with that proceeding. The pilot who went did not go on board the bark at all, but remained on board the tug, which towed the bark to this port, and for those services he brings this suit.

Held by the Court—That the bark being unnavigable, and brought home solely by the power of the tug, was not in a condition bringing her within the provisions of the State statute under which the libellant claims. (Laws of 1857, ch. 243, sec. 29.) That the libellant, on the facts, was employed by the underwriters, and not by the owner or master of the bark; and that he performed no service to her, but remained on board the tug. Though told by the master of the tug off Barnegat to take charge of the bark, his charge only consisted in remaining on board the tug without having any control or direction of her navigation, and the libellant could not exercise in behalf of the bark, being towed as an inert body, his functions as pilot, nor even attempt to undertake them. That the libellant, upon the facts and law of the case, fails to establish any right of action against the bark. Libel dismissed with costs.

OBSTRUCTING A CUSTOM-HOUSE OFFICER.

In the United States Circuit Court, April, 1858. Before Judge Hall. The United States *vs.* Timothy Desmond.

This was an indictment for obstructing a Custom-house officer in the discharge of his duty.

It appeared from the evidence that the defendant was a gatekeeper on Pier No. 44 North River, at which the steamer *Kangaroo* was lying; that the Custom-house officer, Mr. Munroe, was on board the ship, and, hearing a confusion at the gate, went there, and found the defendant refusing to let parties in, whereupon he ordered him to open it, and, on his refusal, undertook to open it himself, and, in doing so, got hit on the head by the defendant with a stick.

Judge Hall thought this was hardly a part of Munroe's duty as a Custom-house officer, and the jury found a verdict of not guilty.

For the United States, Mr. Joachimssen. For defendant, Mr. Donohue.

ACTION ON A PROMISSORY NOTE.

United States Circuit Court, Charleston, S. C. Hon. A. G. Magrath, presiding. W. T. Lane & Co. *vs.* Asa Gobbold.

This was an action against one or two makers of what purported to be a promissory note, whereby defendant promised to pay \$2,274 27 for value received, with current rate of exchange on New York, and all expenses of collection in case of suit, at the agency of the Mechanics' Bank of Cheraw, South Carolina, at Marion, South Carolina. Defendant's counsel contended that this was no promissory note—that if an agreement the consideration must be set out in the declaration, and all the facts established by proof; and so it was held by his Honor, that a paper writing containing a promise to do anything more than to pay a certain sum of money at a certain time, and at all events, is not a promissory note, but is a special agreement, and must be declared on as such.

COMMERCIAL CHRONICLE AND REVIEW.

OCEAN TELEGRAPH—ITS EFFECTS GENERALLY—COTTON IN TRANSITU—CONCENTRATION OF PRICES OPERATES UPON INLAND TRAFFIC—DULL SEASON GENERALLY—GOVERNMENT LOAN—DECAY OF REVENUES—REVENUES FROM SUGAR—GOVERNMENT REVENUES QUARTERLY—GROSS REVENUES AND EXPENDITURES FOR THE YEAR—BIDS FOR THE NEW FIVE PER CENT LOAN—ITS AWARD—CAUSE OF CUSTOMS DECLINE—EXCHANGE AGAINST NEW LOAN—RATES IN NEW YORK—SHIPMENTS OF SPECIE—RECEIPTS OF SPECIE—FRAZER'S RIVER—SHIPMENTS FROM BOSTON—KIND OF SPECIE SHIPPED—SPECIE IN BANKS—ITS DISTRIBUTION—STATE OF CROPS—REQUIREMENTS OF SPECIE—RATES OF INTEREST—PROBABLE DEMAND FOR MONEY—UNITED STATES BANKS—WESTERN CURRENCY—THE CIRCULATION BY SECTIONS—STATE OF BUSINESS—IMPORTS AND EXPORTS.

The past month has been marked by the extraordinary feat of the connection of the Old and New Worlds by the agency of the telegraph, the effect of which is to half the time formerly necessary to receive replies between the two hemispheres. All the markets of the commercial world in Europe and America can now be laid before the well-informed merchant, as in a chart of the same date. At the same time, steam and multiplying lines of communication operated by it now bring each central city within about the same time of each other. On the day that a steamer sails for Liverpool, Hamburg, Bremen, Havre, and New Orleans, the prices of all those cities can be known at the same moment. Hence, operations are greatly simplified and made more direct. The business in cotton has of late much increased in this city in "transitu," the article being sold here by sample, and shipped direct to its destination from the South. The ocean telegraph, it is supposed, will much enhance this business, since the prices of Europe, being all concentrated here, where the samples are, a far greater latitude will be given to the business. The operation of telegraphs and railroads on land was to consolidate business as to locations, and to spread through the year in point of time. Instead of a visit to the city once in six months, to make one large bill of goods, the dealer could make a smaller purchase, and repeat his orders daily by telegraph as demand warranted through the season. Something like this will doubtless be the result of the ocean telegraph. The prices of cotton in all the ports of Europe will be known in New Orleans at the date of the departure of every vessel, and on every departure from Europe the state of the markets here with orders for goods will be received. As the season progresses here, a delay of fourteen days in giving an order will suffice to get the goods in the same time. Beyond these facilities for business no immediate change is to be expected from the operation of the telegraph. All business will soon accustom itself to the new influence, and it is perhaps a matter of congratulation that it goes into operation at so dull a season, since at a highly speculative juncture it might have imparted an undue animation to enterprise. The improving business will now grow up with its operation, and be influenced by its effects in bringing the ideas and capital of Europe in closer relation to our enterprises.

For the month there has been no marked advance in financial affairs, as a glance at the table of weekly bank statements in seven leading cities, under our head of "Banking, Currency, and Finance," will demonstrate. The want of activity in business has allowed money to accumulate, until the specie in the banks of four leading cities is now \$62,000,901. The loss of sugar in Louisiana by the freshets gave a spur to speculation in that article, which has caused

some demand for money and rise of prices in it. Otherwise, there has been little business movement to draw money.

In our last we mentioned the projected loan of the Federal government to supply its wants. The taking of that loan has been the leading event of the past month. The position of the Federal government for the past year has been as follows :—

	First quarter.	Second quarter.	Third quarter.	Fourth quarter.	Total year to June 30, 1858.
Revenue	\$20,929,819 31	\$7,092,665 00	\$8,002,528 35	\$23,161,256 44	\$70,273,869
Expense	23,714,528 37	17,035,453 07	18,104,915 74	22,730,570 52	81,585,467

Of the receipts, \$23,716,300 were for treasury notes, and of the expenditures, \$8,217,283 were on account of the debt exclusive of interest, from which it results that the ordinary expenditures exceeded the ordinary receipts \$26,210,615, but the revenues of the first quarter were large, and the deficit has accrued altogether in the last three quarters. The whole revenue and expenditure for the last two years were as follows from official sources :—

RECEIPTS AND EXPENSES OF THE UNITED STATES FOR THE FISCAL YEAR ENDING JUNE 30.

RECEIPTS.

	1857.	1858.
Customs.....	\$63,875,905 05	\$41,789,620 96
Sales of lands.....	3,829,486 64	3,513,715 87
Miscellaneous.....	926,121 98	1,254,232 77
Treasury notes.....	.....	23,716,300 00
Total receipts for fiscal year...	\$68,631,513 67	\$70,273,869 60

EXPENDITURES.

Civil.....	\$27,531,922 37	\$26,287,822 20
Interior.....	5,358,274 72	6,051,923 38
War.....	19,261,774 16	25,485,383 60
Navy.....	12,726,856 69	13,976,000 54
Old debt.....	503 21	5 00
Redemption loan of 1842.....	516,539 58	614,273 82
“ 1846.....	714,013 26	26,400 00
“ 1847.....	1,000,000 00	1,759,950 00
“ 1848.....	898,150 00	1,435,900 00
Redemption Texan stock.....	143,000 00	28,000 00
Creditors of Texas.....	629,353 24	38,788 42
Bounty land stock.....	400 00	225 00
Premium on stock.....	363,572 39	574,443 08
Interest on public debt.....	1,678,265 23	1,567,055 67
Payment of treasury notes.....	100 00	3,639,300 00
Total expenditures.....	\$70,822,724 85	\$81,585,467 71

Of the new loan authorized to make good the deficit, the department advertised for \$10,000,000 at 5 per cent interest, 15 years to run, and the bids, opened on August 8th, amounted to \$38,271,000, at rates ranging from par to 107.03, those above 105.78, however, being only for small sums. The distribution of the loan appears to have been taken as follows :—

At 106 to 107.3 per cent.....	\$26,000
105 to 106 “.....	4,350,000
104.14 to 105 “.....	4,896,000
104.12½ “.....	223,000
Total.....	\$10,000,000

The award was as follows :—

	Per cent premium.	Amount.
Bank of Commerce.....from	4.53 to 5.67	\$1,550,000
G. S. Robbins & Sons.....	5.05 to 5.78	2,000,000
United States Trust Company	4.65 to 5.07	500,000
Commann & Co.....	4.35 to 5.52	750,000
Clark, Dodge & Co.....	4.26 to 5.76	300,000
Whitehouse, Son & Morrison.....	4.21 to 5.01	450,000
Carroll, Livingston & Co	4.12½ to 4 72½	402,000
Drexel & Co., Philadelphia	4.29 to 5.04	500,000
Crouse & Co.....	4.29 to 5.04	100,000
Marie & Kanz	4.12½ to 5.50	771,000
Trover & Colgate	4.53 to 5.08	500,000
Bank of the Republic.....	.. to 5.	100,000
Hoffman & Ten Broeck.....	4.25 to 5.10	70,000
Continental Bank .....	.. to 4.25	50,000
Howland & Aspinwall.....	4.52 to 5.52	450,000
Hoguett & Boell.....	4.26 to 5.01	150,000
Seamens' Bank for Savings	4.25 to 5.25	100,000
Chubb Brothers.....	4.14 to 5.04	300,000
Bank of the Metropolis	4.12½ to 5.	59,000
M. Townsend, New Haven .....	.. to 5.	100,000
City Bank, New Haven	4 30 to 5.08	80,000
New Haven Bank.....	.. to 4.50	20,000
Tallmadge & Manly.....	4.25 to 5.25	250,000
Meigs & Greenleaf.....	4.37½ to 4.50	55,000
J. C. Thatcher.....	4.25 to 4.81	200,000
H. J. Seaman.....	.. to 5.	25,000
Savings Bank, Baltimore.....	.. to 5.	50,000
R. W. Montgomery.....	.. to 4.75	20,000
State Bank of Troy	6.03 to 7.08	20,000
E. S. Munroe.....	4.26 to 4.51	40,000
Thomas J. Abbott.....	.. to 6.	6,000
Joseph Fowler.....	.. to 5.	5,000
C. F. Pond.....	.. to 5.	20,000
Total		\$10,000,000

The average rate of premium is 4.907 per cent.

Some portion of this amount found its way abroad afterwards, and supplied some exchange in the market. The decline in customs for the year has been \$22,086,285, which at the average rate of duty represents \$111,000,000 of dutiable goods; while, on the other hand, the exports have not greatly declined. Nevertheless, the rates of bills have been sustained and were as follows :—

	July 26.	August 2.	August 16.
London	108½ a 109½	109½ a 110	109½ a 109½
Paris .....	... a 5.12½	5.13½ a 5.11½	5.12½ a 5.11½
Bale and Zurich.....	... a 5.12½	... a 5.11½	5.12½ a 5.11½
Antwerp.....	5.11½ a 5.12½	5.11½ a 5.12½	5.11½ a 5.11½
Amsterdam.....	41½ a 41½	41½ a 41½	41½ a 41½
Frankfort.....	41½ a 42	41½ a 41½	41½ a 42
Bremen	79½ a 80	79½ a 79½	79½ a 80
Prussian thal'rs, on Berlin, Liepzig,			
Cologne.....	72½ a 73½	73 a 73½	72½ a 73½
Hamburg.....	36½ a 36½	36½ a 36½	36½ a 36½

With these rates of specie there has been a continued shipment of specie, not, however, in degree equal to the corresponding period last year. The comparative receipts and shipments in the city, with the amount remaining in the city, were as follows :—

GOLD RECEIVED FROM CALIFORNIA AND EXPORTED FROM NEW YORK WEEKLY, WITH THE AMOUNT OF SPECIE IN SUB-TREASURY, AND THE TOTAL IN THE CITY.

	1857.		1858.		Specie in sub-treasury.	Total in the city.
	Received.	Exported.	Received.	Exported.		
Jan. 16.....	\$1,269,107	\$250,000	\$1,607,440	\$1,045,490	\$2,934,000	\$33,145,266
23.....	.....	781,295	.....	1,244,368	3,073,900	33,903,151
30.....	1,460,900	.....	1,565,779	57,075	3,288,500	34,561,500
Feb. 6.....	225,955	1,177,812	.....	2,928,271	3,168,787	33,821,735
13.....	1,097,186	348,216	1,348,507	48,850	3,384,800	33,611,075
20.....	.....	279,667	.....	641,688	3,360,000	34,776,076
27.....	1,296,108	26,708	1,640,430	128,114	3,420,900	35,079,294
Mar. 7.....	636,000	967,405	.....	297,898	2,996,700	35,736,431
13.....	.....	422,914	1,279,134	225,274	2,964,000	35,925,076
20.....	1,004,100	306,351	11,000	116,114	6,853,852	37,681,656
27.....	.....	88,734	1,403,949	83,120	6,141,594	37,071,066
April 3.....	1,487,128	742,233	.....	115,790	5,548,069	37,078,069
10.....	375,800	468,698	.....	250,246	4,875,975	36,912,411
17.....	1,229,238	779,892	1,325,198	203,163	3,841,577	37,035,026
24.....	140,075	106,200	41,208	15,850	3,695,071	37,808,806
May 1.....	1,800,000	1,711,390	1,550,000	136,873	3,145,400	38,209,613
8.....	.....	671,101	.....	106,110	2,874,200	38,327,346
15.....	1,929,527	1,826,629	1,626,171	720,710	6,853,590	41,586,300
22.....	198,000	353,166	.....	532,862	5,666,300	39,613,700
29.....	1,658,072	2,714,002	1,575,991	400,300	6,398,500	37,894,600
June 5.....	.....	489,668	.....	51,425	5,263,300	38,053,660
12.....	1,920,168	3,394,892	1,446,175	16,616	4,803,609	38,170,900
17.....	208,000	2,045,389	.....	68,318	7,773,108	38,011,251
26.....	.....	2,019,406	1,799,502	276,487	7,461,600	39,410,688
July 3.....	1,892,000	58,228	.....	317,110	5,820,200	39,650,000
10.....	.....	1,184,115	1,500,000	564,030	5,342,200	40,047,800
17.....	1,591,107	523,368	.....	637,240	5,157,650	40,485,000
24.....	200,000	1,893,893	.....	1,028,270	5,336,000	40,851,000
31.....	1,488,040	896,467	1,163,818	303,318	5,144,700	40,856,800
Aug. 7.....	.....	1,615,932	.....	786,841	5,553,400	40,699,200
14.....	1,245,905	930,430	1,531,514	440,729	12,886,800	44,037,300
Total.....	24,175,217	29,433,604	4,722,751	6,399,988	.....	.....

The Frazer's River movement has continued, in connection with the dullness of business there, to diminish the receipts of gold from California, but, on the other hand, the exports are much less. Including the amounts remitted from Boston, the shipments from January to August 1st were \$17,159,238, against \$32,534,167 same period last year, a diminution of over \$15,000,000, which has accumulated in banks. The kind of specie and its destination that has been shipped is seen as follows:—

SHIPMENTS OF SPECIE FROM PORT OF NEW YORK.

	American coin.	Bars.	Silver.	Sov'reigns.	D'bloons.	French gold.	Spanish silver.	Total.
Liverpool....	409,612	2,007,870	.....	34,289	.....	.....	5,426	2,457,197
Havre.....	296,213	366,667	.....	.....	.....	.....	.....	662,880
Havana.....	1,000	.....	.....	.....	21,600	.....	.....	22,900
Bremen.....	1,639	.....	.....	.....	.....	.....	5,376	7,015
Hamburg....	8,074	.....	.....	.....	.....	.....	.....	8,074
Porto Rico..	.....	.....	3,900	.....	30,074	.....	.....	33,074
Gonaives....	700	.....	.....	.....	.....	.....	.....	700
Buenos Ayres.	.....	.....	.....	.....	5,130	.....	.....	5,130
St. Thomas ..	15,000	.....	.....	.....	.....	.....	.....	15,000
Cuidad, Boliv'r	5,000	.....	.....	.....	.....	.....	.....	5,000
Arroga.....	.....	.....	1,000	.....	.....	.....	.....	1,000
Laguayra....	5,000	.....	.....	.....	.....	.....	.....	5,000
Santa Martha.	.....	.....	.....	.....	.....	1,600	.....	1,600
July 12, Aug. 16	742,238	2,374,527	4,000	34,289	57,105	1,600	10,802	3,224,570
May 8, Aug. 16	1,249,425	4,319,229	39,496	278,831	169,212	29,735	13,418	6,019,330

The taking of the new loan of the government has caused the transfer of considerable sums of specie from the banks to the government vaults, and much of this has come from institutions which sold out their stocks last year when the government gave a higher price for them, and are now able to get them back on better terms. The Bowery Savings Bank, of New York, as an instance, has been carrying \$888,000 in gold with this view. Some considerable portions of the loan will go abroad. There have been sales in the New York stock exchange at rates apparently less than the bids; this arises from the fact that the sales by the resolution of the board are "flat," or without interest, until January. That is to say, the seller of the stock keeps the interest until January, 1859.

The bank loans have not increased much during the month, but it is the dull season, and similar features continue to prevail abroad. The amount of specie in the banks of six cities was as follows, comparatively:—

	SPECIE IN BANKS.					
	October.	March 11.	April 8.	May 13.	June 13.	July 12.
London.	\$35,850,110	\$88,532,091	\$88,627,166	\$86,940,942	\$86,530,138	\$94,217,895
Paris...	35,585,613	63,323,865	71,780,888	82,993,386	85,716,528	98,991,184
N. York	7,843,230	32,961,076	32,036,436	34,730,728	33,367,253	35,328,184
N. Orleans	3,230,370	10,978,759	10,808,605	10,615,535	10,312,237	10,877,768
Boston.	2,563,112	7,589,968	8,505,312	9,210,111	9,410,569	9,000,663
Philad..	2,071,434	5,448,514	6,183,289	7,019,204	7,055,188	6,399,754

Total 86,743,890 208,834,273 218,003,696 231,509,906 232,391,913 244,855,448

The aggregate accumulation continues from month to month, but the period is now reached when the sum of specie held at all the great centers is usually at its highest, and the outflow generally commences for the service of the crops. At Paris, the amount is nearly as large as ever before, and the total amount at all points is far larger than at any previous period. It is to be borne in mind this year, that no great expenditure or enterprises are on foot to cause an extra demand for money. War expenditures in Europe are comparatively small. Railway enterprises are in abeyance. There is no commercial speculation at present, and the crops everywhere promise so well as to indicate low prices; and, therefore, to tempt no money into investments. It is, therefore, to be supposed that the usual continued current of money will be small this year, and that the rates will continue low. In fact, experience shows that after all former revulsions like that of 1825, 1838, and 1848, the rate of interest remained very low for a number of years, at least during those years when the crops of food in England were good. Such a period is now just entered upon, and no material demand for money to cause a rise in its rates is shortly to occur. The crops of the United States still promise, in the aggregate, to be good, although complaints are everywhere heard of losses in localities. The fall in prices and the stagnation of business drive in a large bank circulation, and the official report from Washington, published under our "Banking Department," shows the aggregate circulation to have fallen from \$214,778,822, January, 1857, to \$155,208,344, January, 1858, or a decline of \$59,570,478. The greatest decline in this circulation was in the Middle States, and the smallest in the Western.

	CIRCULATION OF BANKS IN UNITED STATES BY SECTIONS.					
	Eastern.	Middle.	Southern.	Southwest.	West.	Total.
1857..	\$53,554,041	\$62,696,774	\$38,788,552	\$37,792,261	\$22,147,594	\$214,778,822
1858..	41,417,692	44,187,749	27,751,551	23,727,772	18,123,580	155,208,344
Dec...	\$12,136,349	\$18,509,023	\$11,037,001	\$13,964,489	\$4,023,614	\$59,570,478

The decrease of Eastern notes is, to some extent, due to the fact that the circulation sent out by arrangement with railroads for Western circulation returned upon them, and was, in fact, a reduction of Western currency. Otherwise, the local currency at the West seems to have been reduced in a ratio less than the other sections, and, perhaps, precisely for the reason that that section has paid up less. The business of the season has, thus far, not been active, but prices have been well maintained. There has been a struggle between the want of goods and the indisposition to submit to the terms of diminished credit that have been persisted in; while on the other hand, the small make of goods has afforded ground for higher anticipation; the more so, that the cheapness of food in England and Western Europe is likely to enhance the consumption of merchandise.

The decline in goods entered for consumption, as well as those entered for warehouse, continues to manifest itself in a marked manner. Not only dutiable, but free goods, diminish in the aggregate, and the receipts at the port are barely half those of the same period last year, as follows:—

FOREIGN IMPORTS AT NEW YORK IN JULY.

	1855.	1856.	1857.	1858.
Entered for consumption.....	\$13,008,485	\$19,288,885	\$26,042,740	\$14,013,659
Entered for warehousing.....	2,431,756	4,907,675	6,796,835	2,949,166
Free goods.....	799,671	1,280,854	2,455,333	1,506,027
Specie and bullion.....	69,035	233,918	505,298	36,895
Total entered at the port.....	\$16,308,947	\$25,716,332	\$35,800,206	\$18,505,747
Withdrawn from warehouse.....	2,029,164	2,187,327	10,470,320	3,164,538

The quantity thrown upon the market was still less, as last year it included \$10,470,820 withdrawn from warehouse, while only \$3,164,538 were so entered for this year. Thus the total on which duties were paid was \$36,513,560, while this year only \$17,178,107 of merchandise was thrown upon the market.

The value of foreign goods entered at this port during the first seven months of the current year is \$76,439,252 less than for the corresponding total for 1857, and \$53,727,860 less than for the same period of 1856:—

FOREIGN IMPORTS AT NEW YORK FOR SEVEN MONTHS, FROM JANUARY 1ST.

	1855.	1856.	1857.	1858.
Entered for consumption.....	\$58,906,280	\$99,589,770	\$91,280,614	\$50,334,179
Entered for warehousing.....	16,264,647	21,093,324	47,911,631	15,185,419
Free goods.....	8,562,298	12,371,647	11,680,078	12,955,525
Specie and bullion.....	523,151	963,500	5,857,310	1,815,258
Total entered at the port.....	84,256,376	134,018,241	156,729,633	80,290,331
Withdrawn from warehouse.....	14,270,234	13,105,204	23,616,081	25,076,502

Included in the imports at New York, for the month of July, were dry goods amounting to \$7,599,039, being \$13,330,542 less than the total for the corresponding period of last year. The total thrown upon the market shows a still greater difference, as will appear from the following comparison:—

IMPORTS OF FOREIGN DRY GOODS AT NEW YORK FOR THE MONTH OF JULY.

ENTERED FOR CONSUMPTION.

	1855.	1856.	1857.	1858.
Manufactures of wool.....	\$2,688,257	\$4,181,850	\$6,996,986	\$2,691,875
Manufactures of cotton.....	1,004,456	1,931,159	2,644,673	1,066,295
Manufactures of silk.....	3,458,933	4,829,350	6,483,722	2,244,955
Manufactures of flax.....	690,757	791,684	1,034,170	575,752
Miscellaneous dry goods.....	671,003	910,397	1,187,900	417,254
Total.....	\$8,508,406	\$12,644,440	\$18,347,451	\$6,996,131

WITHDRAWN FROM WAREHOUSE.

	1855.	1856.	1857.	1858.
Manufactures of wool.....	\$350,944	\$407,577	\$2,644,823	\$409,266
Manufactures of cotton.....	121,677	81,683	639,531	181,971
Manufactures of silk.....	255,550	220,175	2,042,522	192,302
Manufactures of flax.....	89,832	39,929	392,013	88,225
Miscellaneous dry goods.....	43,158	71,131	247,997	90,665
Total.....	\$861,161	\$820,495	\$5,966,886	\$912,429
Add entered for consumption....	8,508,406	12,644,440	18,347,451	6,996,131
Total thrown on market....	\$9,369,567	\$13,464,935	\$24,314,337	\$7,908,560

ENTERED FOR WAREHOUSING.

	1855.	1856.	1857.	1858.
Manufactures of wool.....	\$224,735	\$657,573	\$1,235,003	\$370,985
Manufactures of cotton.....	101,494	176,222	408,236	63,427
Manufactures of silk.....	214,569	213,131	568,065	70,999
Manufactures of flax.....	74,186	69,699	164,535	54,452
Miscellaneous dry goods.....	45,124	55,364	206,291	43,045
Total.....	\$660,098	\$1,171,989	\$2,582,130	\$602,908
Add entered for consumption....	8,508,406	12,644,440	18,347,451	6,996,131
Total entered at port.....	\$9,168,504	\$13,816,429	\$20,929,581	\$7,599,039

This makes the total receipts of dry goods at New York, since January 1st, \$36,546,940 less than for the same period of last year, and less than for the same period of a number of years previous :—

IMPORTS OF FOREIGN DRY GOODS AT THE PORT OF NEW YORK, FOR SEVEN MONTHS, FROM JANUARY 1ST.

ENTERED FOR CONSUMPTION.

	1855.	1856.	1857.	1858.
Manufactures of wool.....	\$7,864,810	\$15,293,314	\$14,405,242	\$7,667,688
Manufactures of cotton.....	4,664,731	10,222,133	11,593,109	4,886,559
Manufactures of silk.....	11,257,784	19,486,648	17,805,042	8,855,134
Manufactures of flax.....	2,915,355	5,109,742	4,104,518	2,115,268
Miscellaneous dry goods.....	2,789,645	4,452,102	4,420,275	1,782,432
Total.....	\$29,492,325	\$54,563,939	\$52,328,186	\$25,307,081

WITHDRAWN FROM WAREHOUSE.

	1855.	1856.	1857.	1858.
Manufactures of wool.....	\$1,542,617	\$1,209,438	\$3,688,663	\$2,606,395
Manufactures of cotton.....	1,772,853	1,535,179	2,402,012	2,947,330
Manufactures of silk.....	1,833,433	1,467,799	3,244,488	2,581,656
Manufactures of flax.....	872,100	745,955	1,128,012	1,544,048
Miscellaneous dry goods.....	578,745	298,806	591,981	943,991
Total withdrawn.....	\$6,599,748	\$5,257,177	\$11,055,156	\$10,623,420
Add entered for consumption....	29,492,325	54,563,939	52,328,186	25,307,081
Total thrown upon market...	\$36,092,073	\$59,821,116	\$63,383,342	\$35,990,501

ENTERED FOR WAREHOUSING.

	1855.	1856.	1857.	1858.
Manufactures of wool.....	\$1,262,361	\$1,983,598	\$5,349,836	\$1,492,256
Manufactures of cotton.....	1,095,280	1,260,313	2,502,580	1,441,855
Manufactures of silk.....	1,641,274	1,547,504	3,989,463	914,698
Manufactures of flax.....	696,792	514,283	1,458,629	594,960
Miscellaneous dry goods.....	536,361	527,309	1,087,599	418,308
Total.....	\$5,232,068	\$5,783,007	\$14,388,107	\$4,862,277
Add entered for consumption....	29,492,325	54,563,939	52,323,186	25,307,081

Total entered at the port.... \$34,724,393 \$60,296,946 \$66,716,293 \$30,169,358

The cash duties received at the port of New York, during the month of July, are very small, being less than half than for the same period last year; they are reckoned, of course, upon the goods thrown on the market. The total does not include the hospital money, and thus varies slightly from the deposits at the sub-treasury on account of the Collector. We annex a comparative summary:—

CASH DUTIES RECEIVED AT NEW YORK.

	1855.	1856.	1857.	1858.
In July.....	\$3,787,341 95	\$5,441,544 27	\$6,987,019 61	\$3,387,305
Previous 6 months....	14,299,945 71	22,541,145 75	19,293,521 31	10,089,113

Total since Jan. 1st. \$18,087,287 66 \$27,982,690 02 \$26,280,540 92 \$13,476,418

The domestic exports from New York to foreign ports, for the month of July, have been larger than for the corresponding month of last year, but far below the shipments for July of 1856, both in produce and specie. Thus the total, exclusive of specie, is \$1,870,480 less than for July, 1857. We annex a comparison including three years:—

EXPORTS FROM NEW YORK TO FOREIGN PORTS FOR THE MONTH OF JULY.

	1855.	1856.	1857.	1858.
Domestic produce.....	\$3,960,757	\$6,901,272	\$4,273,696	\$4,771,962
Foreign merchandise (free).....	185,557	22,423	407,697	70,463
Foreign merchandise (dutiable)..	210,320	108,617	582,059	277,419
Specie and bullion.....	2,923,324	5,278,126	3,628,377	2,801,496
Total exports.....	\$7,279,958	\$12,310,438	\$8,891,829	\$7,921,340
Total, exclusive of specie..	4,356,634	7,032,312	5,263,452	5,119,844

This leaves the total foreign exports from New York since January 1st, exclusive of specie, \$7,161,942 less than for the corresponding seven months of last year:—

EXPORTS FROM NEW YORK TO FOREIGN PORTS FOR SEVEN MONTHS, FROM JANUARY 1ST.

	1855.	1856.	1857.	1858.
Domestic produce.....	\$30,298,181	\$44,678,165	\$38,725,336	\$33,352,354
Foreign merchandise (free).....	3,289,114	592,508	2,315,874	853,024
Foreign merchandise (dutiable)...	3,200,172	1,832,668	2,883,956	2,557,844
Specie and bullion.....	19,998,119	19,501,927	26,026,439	15,161,455
Total exports.....	\$56,785,586	\$66,605,268	\$69,951,605	\$51,924,677
Total, exclusive of specie....	36,787,467	47,103,341	43,925,166	36,763,222

The great decline has been in the exports of specie, which last year went freely forward. This year money is cheap abroad, and the balance due on the current year's business has probably been in favor of this country. The large crop of cotton has aided the exports of domestic goods.

JOURNAL OF BANKING, CURRENCY, AND FINANCE.

NEW YORK CITY BANKS, CAPITALS, DIVIDENDS, PRICES.

Names of Companies.	Capital.	Shares.	Par.	Dividends payable.	Last		Price.
					p. c.	dividnds.	
America	\$2,878,325	30,000	\$100	Jan. & July.	3½		108
American Exchange...	4,724,475	50,000	100	May & Nov.	3		103
Atlantic.....	400,000	4,000	100	June & Dec.	3½		100
Artisans'.....	600,000	24,000	25	May & Nov.	3		72
Butchers' & Drovers'...	800,000	32,000	25	Jan. & July.	5		108
Broadway.....	1,000,000	40,000	25	Jan. & July.	5		112
Bull's Head.....	173,300	6,932	25	Sept. & March.	4		76
Corn Exchange.....	1,000,000	10,000	100	Feb. & Aug.	4		99
Commerce.....	8,817,680	83,178	100	Jan. & July.	3½		103
City.....	1,000,000	10,000	100	May & Nov.	4		107
Chemical.....	300,000	3,000	100	Quarterly.*	6		350
Chatham.....	450,000	18,000	25	Jan. & July.	4		60
Citizens'.....	400,000	16,000	25	Feb. & Aug.	4		92½
Continental.....	2,000,000	20,000	100	Jan. & July.	3½		99
Commonwealth.....	750,000	7,500	100	Jan. & July.	3½		92
Dry Dock.....	200,000	14,000	30	Jan. & July.	4		104
East River.....	300,000	6,000	50	Jan. & July.	3		50½
Fulton.....	600,000	20,000	30	Jan. & July.	5		100
Greenwich.....	200,000	8,000	25	May & Nov.	3½		100
Hanover.....	1,000,000	10,000	100	Jan. & July.	3½		81½
Importers' and Traders'	1,500,000	15,000	100	Jan. & July.	4		99½
Irving.....	500,000	10,000	50	Jan. & July.	3½		95½
Leather Manufacturers'	600,000	12,000	50	Feb. & Aug.	5		120
Manhattan.....	2,050,000	41,000	50	Feb. & Aug.	5		125
Merchants'.....	2,071,637	42,000	50	June & Dec.	3½		108
Merchants' Exchange..	1,235,000	24,700	50	Jan. & July.	4		95
Mechanics' and Traders'	400,000	16,000	25	May & Nov.	4		108
Mercantile.....	1,000,000	10,000	100	Jan. & July.	5		100
Metropolitan.....	3,921,600	40,000	100	Jan. & July.	4		108½
Marine.....	650,000	15,000	50	Jan. & July.	4		86
Mechanics'.....	2,000,000	80,000	25	Jan. & July.	4		101
Market.....	1,000,000	10,000	100	Jan. & July.	4		91
New York.....	2,568,875	24,187	100	Jan. & July.	3½		107½
National.....	1,434,187	30,000	50	Apr. & Oct.	4		109
North America.....	1,000,000	10,000	100	Jan. & July.	3½		95
Nassau.....	750,000	25,500	25	Jan. & July.	3		100
New York Exchange..	130,000	1,300	100	Jan. & July.	4		92
New York County....	200,000	2,000	100	Jan. & July.	3½		95
Ocean.....	1,000,000	20,000	60	Feb. & Aug.	3		84
Oriental.....	300,000	12,000	25	Feb. & Aug.	3		90
Park.....	2,000,000	20,000	100	Jan. & July.	4		101
Phenix.....	1,800,000	90,000	20	Jan. & July.	4		106½
People's.....	412,000	16,300	25	Jan. & July.	3½		95
Pacific.....	422,700	8,454	50	June & Dec.	4		112
Republic.....	2,000,000	20,000	100	Feb. & Aug.	5		117
St. Nicholas.....	750,000	7,500	100	Feb. & Aug.	4		90
Shoe and Leather....	1,451,840	14,518	100	Apr. & Oct.	4		106
Seventh Ward.....	500,000	10,000	50	Jan. & July.	5		120
State.....	2,000,000	40,000	100	Jan. & July.	5		94
Tradesmen's.....	800,000	20,000	40	Jan. & July.	4		102
Union.....	1,500,000	75,000	50	May & Nov.	4		109½
Williamsburg City....	300,000	6,000	50	Jan. & July.	3		100

* January, April, July, October.

CONDITION OF THE BANKS THROUGHOUT THE UNITED STATES.

TREASURY DEPARTMENT, April 22, 1858.

SIR:—I have the honor to submit a report on the condition of the banks throughout the Union, in compliance with the following resolution of the House of Representatives, adopted July 10, 1832:—

“Resolved, That the Secretary of the Treasury be directed to lay before the House, at the next and each successive session of Congress, copies of such statements or returns, showing the capital, circulation, discount, specie, deposits, and condition of the different State banks, and banking companies, as may have been communicated to the Legislatures, Governors, or other officers of the several States within the year, and made public; and where such information cannot be obtained, such other authentic information as will best suit the deficiency.”

At the date of the bank statements received at this department for the last year, there were in the whole Union 1,422 banks, including 138 branches; besides 51 banks from which no returns have been received, making a total of 1,473.

The returns show that there has been an increase of bank capital during the last year of \$23,788,113. It is now \$394,622,799. But, whilst the capital has been increased, the loans and discounts, and the bank circulation (the notes of the banks) have very materially decreased. Of the first, there were reported, for the year 1856-'57, \$50,273,607 more than for the year 1855-'56; whilst for 1857-'58, they are less by \$101,291,605 than they were for the year 1856-'57. The decrease in the circulation is also very considerable, being at the close of the last year \$59,570,478 less than at the close of the year 1856.

Whilst there has been an increase of bank capital, and a very great reduction in the amount of loans and circulation, there has been a considerable increase of specie, the amount in possession of the banks being, at the beginning of the present year, \$74,412,832, which is \$16,062,994 more than they returned at the commencement of the year 1857. But as this extraordinary augmentation cannot be ascribed to any permanent causes, it is probable that the specie in the banks will be considerably less at the close of the present year than it was at the beginning of it. The causes of the increase have been the suspension of specie payments by the banks, and the unprecedented accumulation of coin in the banks of the cities of New York and New Orleans, chiefly in the former.

Adding to the capital of the chartered banks \$140,000,000 for the capital of the unchartered, and \$7,000,000, a low estimate, for the 51 non-reporting banks, the whole bank capital in the United States will be upwards of \$541,000,000. The estimate of the private banking capital is not believed to be at all an exaggerated one. My predecessor in this department, Mr. Guthrie, attempted in the year 1855, to ascertain the amount of unchartered bank capital throughout the Union, and the returns received showed a total of \$118,036,000. But those returns are known to have been very incomplete, and the sum of \$22,000,000 may be very safely added for omissions then and for additions since.

The capital of the chartered banks, and also of the unchartered, is understood to be capital actually paid in, though paid without doubt, principally in paper currency and stocks of various kinds—State bonds, railroad stock, and bank notes of all kinds and of various degrees of credit. I have the honor to be, very respectfully, your obedient servant,

HOWELL COBB, Secretary of the Treasury.

HON. JAMES L. ORR, Speaker of the House of Representatives.

COMPARATIVE VIEW OF THE CONDITION OF THE BANKS OF THE UNITED STATES.

	1855.	1856.	1857.	1858.
Number of banks.....	1,163	1,255	1,283	1,284
Number of branches.....	144	143	133	138
Number of banks & branches	1,307	1,398	1,416	1,422
Capital paid in.....	\$332,177,288	\$343,874,272	\$370,894,686	\$394,622,799

RESOURCES.

	1855.	1856.	1857.	1858.
Loans and discounts.....	\$576,144,758	\$634,183,280	\$684,456,887	\$583,165,242
Stocks.....	52,727,082	49,485,215	59,272,329	60,305,260
Real estate.....	24,078,801	20,865,867	26,124,522	28,755,834
Other investments.....	8,734,540	8,822,516	5,920,336	6,075,906
Due by other banks.....	55,738,735	62,639,725	65,849,205	58,052,802
Notes of other banks.....	23,429,518	24,779,049	28,124,008	22,447,436
Specie funds.....	21,935,738	19,937,710	25,081,641	15,380,441
Specie.....	53,944,546	59,314,063	56,349,838	74,412,832

LIABILITIES.

Circulation.....	\$186,952,223	\$195,747,950	\$214,778,822	\$155,208,344
Deposits.....	190,400,342	212,705,662	230,351,352	185,932,049
Due to other banks.....	45,156,697	52,719,956	57,674,333	51,169,875
Other liabilities.....	15,599,623	12,227,867	19,816,850	14,166,713
Aggregate of immediate liabilities <i>a</i>	422,509,262	461,173,568	502,804,507	392,310,268
Aggregate, immediate <i>a</i> 's, <i>b</i> . Gold and silver in U. States treasury depositories.....	158,048,537	166,670,547	177,404,692	170,293,511
27,188,889	22,706,431	20,066,114	10,229,229	
Total specie in banks and treasury depositories.....	81,133,435	82,020,494	78,415,952	84,642,061

CITY WEEKLY BANK RETURNS.

NEW YORK WEEKLY BANK RETURNS.

	Loans.	Specie.	Circulation.	Deposits.	Average clearings.	Actual deposits.
Jan. 2	\$98,549,983	\$28,561,946	\$6,490,403	\$78,635,225	\$13,601,357	\$65,033,867
9	98,792,757	29,176,838	6,625,464	79,841,362	13,899,078	63,942,284
16	99,473,762	30,211,266	6,349,325	81,790,321	14,066,412	67,723,909
23	101,172,642	30,829,151	6,336,042	82,598,348	13,074,762	69,523,836
30	102,180,089	31,273,023	6,369,678	83,997,081	13,519,330	70,477,751
Feb. 6	103,602,932	30,652,948	6,873,931	86,000,468	15,439,083	70,561,405
13	103,783,306	30,226,275	6,607,271	84,229,492	13,803,583	70,425,907
20	103,706,734	31,416,076	6,542,618	86,773,222	14,769,565	72,003,657
27	103,769,127	31,658,694	6,530,759	87,386,311	15,657,056	71,729,805
March 6	105,021,863	32,739,731	6,854,624	90,382,446	18,002,665	72,370,781
13	105,293,631	32,961,076	6,755,958	90,063,432	16,511,506	72,552,926
20	107,440,350	31,902,656	6,853,852	91,238,505	17,064,588	74,173,917
27	109,095,412	30,929,472	6,892,231	90,644,098	16,429,056	74,201,709
April 3	110,588,354	31,530,000	7,232,332	93,589,149	17,567,160	76,021,989
10	110,847,617	32,036,436	7,245,809	93,566,100	16,775,237	76,790,863
17	111,341,489	33,196,449	7,190,170	96,448,450	17,329,431	78,121,025
24	111,003,476	34,113,891	7,140,851	95,340,344	16,141,451	79,198,893
May 1	111,868,456	35,064,213	7,431,814	98,438,506	17,875,203	80,563,303
8	112,741,955	35,453,146	7,735,056	101,165,806	19,438,661	81,727,146
16	114,199,288	34,730,728	7,502,975	101,884,163	18,284,868	83,599,295
22	115,658,082	34,047,446	7,307,445	101,917,869	17,620,131	84,297,738
29	116,650,943	31,496,144	7,252,616	99,351,901	16,199,657	83,152,244
June 5	116,424,597	32,790,333	7,547,330	101,489,535	17,932,648	83,506,887
12	116,022,152	33,367,253	7,367,725	100,787,073	16,503,899	84,283,194
19	117,797,547	32,396,456	7,297,631	102,149,470	16,818,521	85,280,987
26	118,823,401	31,948,089	7,215,689	101,961,632	15,825,983	86,135,699
July 3	119,812,407	33,830,232	7,458,190	106,803,210	17,267,927	89,535,283
10	118,863,937	34,705,593	7,571,373	106,420,723	18,168,757	88,260,956
17	119,164,222	35,328,184	7,346,946	107,101,061	17,046,961	90,054,100
24	118,946,482	35,315,243	7,351,065	105,490,896	15,365,206	90,105,690
31	119,850,456	35,712,107	7,403,365	106,456,030	15,310,157	91,145,873
Aug. 7	120,892,857	35,154,844	7,784,415	107,454,715	17,115,237	90,339,678
14	123,374,459	31,150,472	7,388,739	105,034,769	15,208,690	89,826,082

a. Circulation, deposits, and due to other banks.

b. Specie, specie funds, notes of other banks, and sums due from other banks.

NEW ORLEANS BANKS.

	Short loans.	Specie.	Circulation.	Deposits.	Exchange.	Distant balances.
Oct. 17...	\$19,200,583	\$3,230,320	\$6,196,459	\$7,442,142	\$2,297,348	.....
Dec. 12...	18,069,088	8,841,370	4,148,859	9,993,370	2,838,878	\$816,132
19...	17,818,222	9,942,880	4,224,042	10,996,494	3,526,929	1,266,660
26...	17,741,355	10,320,714	4,336,624	11,579,048	3,951,212	1,363,478
Jan. 2...	18,149,456	10,505,182	4,585,951	11,948,905	4,114,622	1,590,072
9...	.....	10,626,260	4,778,539	11,754,593	4,675,028	1,349,781
16...	14,804,320	10,592,617	4,797,746	12,323,808	5,095,771	1,552,855
23...	14,559,131	10,693,330	4,767,816	12,573,173	5,201,368	1,459,861
30...	14,674,217	10,844,246	4,803,071	12,678,696	5,249,136	1,379,908
Feb. 6...	14,490,001	11,187,398	5,037,906	14,539,408	5,934,781	1,256,815
13...	14,937,307	11,110,768	5,100,916	14,368,835	6,624,657	1,283,609
20...	14,890,351	11,065,597	5,254,181	14,640,976	7,124,477	1,274,034
27...	15,062,058	11,061,832	5,524,209	14,894,714	7,623,252	1,327,750
March 6...	15,832,181	10,967,225	6,005,769	15,201,909	7,919,605	1,378,846
13...	15,888,347	10,978,759	6,299,957	15,421,499	8,220,000	1,347,623
20...	15,937,924	10,897,866	6,654,434	15,765,084	8,776,621	1,172,552
27...	16,157,998	10,947,636	7,068,240	15,792,554	8,880,798	1,271,084
April 3...	16,641,554	10,848,605	7,572,094	15,453,850	9,147,709	1,664,614
10...	16,481,249	10,962,570	7,692,634	15,658,182	9,321,352	1,410,349
17...	16,480,547	10,854,012	7,685,539	15,640,948	9,035,522	1,381,527
24...	16,094,721	10,798,455	7,828,399	15,589,151	9,221,277	1,473,994
May 1...	15,933,046	10,892,453	7,945,334	16,681,593	8,754,140	1,263,882
8...	15,459,435	10,615,530	8,023,429	16,386,529	9,159,848	1,112,188
15...	14,958,401	10,478,675	7,972,599	15,035,182	9,418,151	1,429,660
22...	14,772,173	10,394,638	7,954,829	15,096,528	9,184,271	1,266,140
29...	14,250,529	10,299,135	7,916,858	14,648,164	8,899,170	1,368,531
June 5...	13,521,534	10,257,171	7,965,484	.....	8,269,260	1,102,648
12...	12,828,721	10,312,237	7,943,819	15,464,347	8,533,964	1,009,370
19...	12,374,123	10,208,900	7,645,844	15,714,302	8,720,257	1,119,317
26...	12,390,984	10,423,080	7,323,034	15,676,134	8,110,788	1,034,117
July 3...	12,291,555	10,676,674	7,962,959	16,013,100	7,890,863	1,061,242
10...	12,116,486	10,755,126	7,671,824	14,114,217	6,970,157	1,192,675
17...	11,981,985	10,877,768	7,452,104	14,078,294	7,427,930	1,244,213
24...	11,985,231	10,936,870	7,334,414	13,864,925	6,348,192	1,336,398
31...	12,011,616	10,992,148	7,231,739	15,262,173	6,053,229	1,402,012
Aug. 7...	12,452,664	10,835,005	7,135,389	15,200,271	.....	.....

PITTSBURG BANKS.

	Loans.	Specie.	Circulation.	Deposits.	Due banks
April 12.....	\$5,513,821	\$1,194,232	\$1,287,095	\$1,305,294	\$70,236
19.....	5,570,585	1,220,633	1,291,091	1,345,062	87,713
26.....	5,611,689	1,221,195	1,319,416	1,404,750	84,171
May 3.....	5,784,492	1,192,216	1,360,551	1,504,549	40,312
10.....	5,763,651	1,171,627	1,365,551	1,585,182	74,491
17.....	5,737,072	1,191,663	1,373,401	1,491,620	111,260
24.....	5,769,868	1,175,334	1,371,586	1,464,767	124,044
31.....	5,843,108	1,212,178	1,394,146	1,467,849	88,896
June 7.....	5,895,461	1,207,637	1,426,586	1,540,926	90,334
14.....	5,865,951	1,218,342	1,385,926	1,556,862	108,994
21.....	5,836,952	1,223,759	1,366,481	1,571,589	134,480
28.....	5,874,782	1,266,195	1,377,096	1,630,570	125,743
July 5.....	6,014,676	1,246,588	1,436,651	1,699,196	85,698
12.....	6,016,509	1,229,383	1,458,776	1,691,758	157,608
19.....	6,016,404	1,249,398	1,475,351	1,720,691	165,257
26.....	6,077,608	1,256,026	1,439,916	1,708,210	188,551
Aug. 2.....	6,009,453	1,198,767	1,423,669	1,730,650	188,242
7.....	5,975,321	1,236,485	1,378,231	1,788,792	136,835

WEEKLY AVERAGE OF THE PHILADELPHIA BANKS.						
Date.	Loans.	Specie.	Circulation.	Deposits.	Due banks.	
Jan. 11, '58.	\$21,802,374	\$3,770,701	\$1,011,033	\$11,465,263	.....
Jan. 18....	21,068,652	4,018,295	1,046,545	11,512,765	.....
Jan. 25....	20,780,958	4,243,966	1,062,192	11,547,697	.....
Feb. 1....	20,423,704	4,465,693	1,096,462	12,195,126	.....
Feb. 8....	20,359,226	4,668,085	1,293,046	11,904,519	.....
Feb. 15....	20,071,474	4,888,983	1,559,218	11,889,342	.....
Feb. 22....	20,161,260	4,924,906	1,686,689	12,014,605	.....
Mar. 1....	20,251,066	4,903,936	1,808,734	11,880,532	.....
Mar. 9....	20,471,161	5,147,615	1,916,852	12,253,282	.....
Mar. 16....	20,522,936	5,448,514	2,077,967	12,691,547	.....
Mar. 23....	20,796,957	5,483,358	2,140,463	12,413,191	.....
Mar. 30....	21,020,198	5,661,782	2,296,444	13,201,599	.....
Apr. 6....	21,657,152	5,937,595	2,647,899	13,422,318	3,056,181	
Apr. 12....	21,656,028	6,133,000	2,675,193	13,784,656	3,178,855	
Apr. 19....	21,776,667	6,382,485	2,484,150	14,682,175	3,071,608	
Apr. 26....	22,141,300	6,752,640	2,408,421	15,068,178	2,804,095	
May 3....	22,243,824	7,027,712	2,329,617	15,589,713	2,610,000	
May 10....	22,190,934	7,143,628	2,406,482	15,260,858	2,754,973	
May 17....	22,592,841	7,019,204	2,351,709	15,548,237	3,055,076	
May 24....	22,969,576	6,963,371	2,410,181	15,354,423	3,221,858	
May 31....	23,103,418	7,031,756	2,436,527	15,726,640	3,211,889	
June 7....	23,542,751	6,985,208	2,406,568	15,776,251	3,380,477	
June 14....	23,796,085	7,055,188	2,387,886	15,883,306	3,565,213	
June 21....	23,803,903	6,873,971	2,365,435	15,857,904	3,504,300	
June 28....	24,060,708	6,664,681	2,389,252	16,356,129	3,101,201	
July 5....	24,311,928	6,835,877	2,431,181	16,566,846	2,986,297	
July 12....	23,783,792	6,399,754	2,422,411	15,898,464	3,369,430	
July 19....	24,555,873	6,868,596	2,548,945	16,937,535	3,351,204	
July 26....	24,570,778	6,956,440	2,514,345	17,196,794	3,291,107	
Aug. 2....	24,524,569	7,070,145	2,505,278	17,533,780	3,234,866	
Aug. 9....	24,542,291	6,882,660	2,534,652	17,054,076	3,176,333	

ST. LOUIS BANKS.

	Exchange.	Circulation.	Specie.
April 10.....	\$1,255,694	\$1,788,970	\$1,673,628
17.....	1,161,065	1,793,945	1,720,728
24.....	1,250,295	1,832,915	1,770,882
May 8.....	1,369,316	1,240,431	1,959,823
15.....	1,494,025	1,864,960	2,161,503
22.....	1,547,938	1,825,810	2,225,285
29.....	1,543,531	1,921,475	2,396,027
June 5.....	1,557,119	2,087,890	2,452,141
12.....	1,471,190	2,101,405	2,536,707
19.....	1,459,735	2,161,985	2,465,372
26.....	1,417,340	2,005,505	2,434,398
July 3.....	1,523,179	2,246,835	2,320,758
10.....	1,445,704	2,260,560	2,315,635
17.....	1,490,876	2,190,955	2,322,245
24.....	1,494,116	2,161,370	2,238,498
31.....	1,487,256	2,159,540	2,169,387
Aug. 7.....	1,531,723	2,079,225	2,108,988

PROVIDENCE BANKS.

	Loans.	Specie.	Circulation.	Deposits.	Due oth. b'ks.
Jan. 11.....	\$17,701,725	\$565,553	\$1,552,822	\$2,025,956	\$1,338,435
Mar. 15.....	16,925,349	520,828	1,310,787	1,903,082	1,043,930
Apr. 5.....	17,037,949	591,861	1,409,695	1,946,998	1,080,817
19.....	17,169,822	564,033	1,488,226	1,965,316	996,961
May 3.....	17,203,225	566,869	1,393,553	2,068,335	1,089,333
17.....	17,054,877	567,024	1,451,356	2,062,597	1,131,176
June 7.....	17,060,695	577,863	1,555,717	2,088,873	1,208,543
June 21.....	17,345,487	573,317	1,604,850	1,988,496	1,170,711
July 5.....	17,653,908	523,691	1,810,047	2,402,956	1,010,101
July 19.....	17,877,068	466,266	2,039,911	2,079,183	1,145,364
Aug. 2.....	17,780,220	444,165	1,921,812	2,022,092	1,095,396

BOSTON BANKS.

	Loans.	Specie.	Circulation.	Deposits.	Due to banks.	Due from banks.
Dec. 22....	\$50,209,500	\$4,579,000	\$5,627,000	\$15,606,000	\$4,054,800	\$5,888,000
29....	50,377,000	4,789,500	5,180,400	16,326,600	3,998,000	5,688,000
Jan. 5....	50,726,800	5,028,000	5,416,000	17,073,800	3,911,000	5,732,600
12....	51,221,000	5,449,000	5,938,400	17,226,700	4,368,000	5,969,500
18....	51,740,926	5,661,216	5,669,028	17,722,553	4,754,006	5,891,800
25....	51,772,412	6,073,680	5,494,721	18,129,649	3,531,721	1,949,031
Feb. 1....	51,854,178	6,402,460	5,251,006	18,395,692	5,111,278	5,725,337
8....	52,011,821	6,872,977	5,498,600	18,602,984	5,317,764	5,756,068
15....	52,137,972	7,079,606	5,898,660	18,429,945	5,568,464	5,523,012
22....	52,089,500	7,257,800	5,299,000	18,450,500	5,329,600	5,377,900
Mar. 1....	51,970,800	7,316,800	5,170,000	18,525,000	5,778,000	5,625,000
8....	52,251,300	7,497,700	5,182,400	19,031,682	5,764,000	6,137,000
15....	52,068,743	7,559,698	5,291,549	18,909,682	5,837,584	6,011,377
22....	51,999,451	7,235,531	5,163,492	19,029,251	.....	.....
29....	51,632,451	7,905,491	5,159,569	18,895,249	.....	.....
April 5....	51,918,900	8,259,500	5,477,500	20,136,600	6,576,900	6,386,000
12....	52,042,428	8,505,312	5,852,991	20,675,028	.....	.....
19....	51,752,500	9,007,000	6,224,500	20,657,500	6,110,000	7,259,400
26....	51,388,977	8,851,719	6,007,628	20,671,569	5,884,533	7,363,702
May 4....	51,499,700	9,243,000	5,903,600	21,257,900	5,925,900	7,444,000
10....	51,679,315	9,351,861	6,165,768	21,143,973	5,949,986	7,562,885
18....	52,622,000	9,210,000	6,117,000	21,527,700	7,187,800	6,263,000
25....	53,396,741	9,015,146	6,096,417	21,418,578	7,175,486	6,756,792
31....	53,469,179	9,120,346	5,903,020	20,846,860	6,530,828	6,929,062
June 7....	53,407,693	9,315,986	5,870,808	20,668,037	7,265,607	6,399,061
14....	53,951,032	9,410,569	5,732,900	20,815,560	7,532,900	5,755,268
21....	54,162,119	9,457,831	5,703,699	20,764,739	7,804,896	5,809,542
28....	54,780,644	9,119,604	5,633,176	20,833,942	7,827,075	5,674,795
July 5....	55,808,453	9,104,461	6,313,049	21,570,803	8,089,162	6,357,413
12....	56,200,929	9,000,663	6,538,325	21,075,247	8,526,510	6,299,019
19....	56,626,264	8,930,757	6,236,698	21,462,437	8,565,647	6,023,415
26....	56,602,469	8,943,004	6,268,745	21,456,471	8,658,185	6,268,745
Aug. 2....	56,250,500	8,883,400	5,869,800	21,161,000	8,467,000	5,757,000
9....	56,096,805	8,985,526	6,238,221	21,051,519	8,445,734	6,112,023

VALUATION, POPULATION, AND TAXES IN THE CITY OF NEW YORK.

The growth of property in the city of New York is remarkable. The assessments of the present year, as compared with 1850, when gold was first confirmed in California, are as follows:—

Years.	Real.	Personal.	Total.	Taxes.	Populat'n.
1842....	\$176,512,342	\$61,294,659	\$237,806,800	\$1,100,000	325,000
1850....	207,141,436	78,919,246	288,060,676	3,005,762	515,394
1858....	368,346,296	162,847,994	531,194,290	8,470,741	676,000

In the eight years up to 1850, the property of the city increased but \$51,000,000, real and personal. In the last eight years, it has increased \$243,000,000, or more than the total value of 1842; that is to say, the value of property in the city has doubled since the gold discoveries. The number of aliens in the city in 1842 was 60,946, leaving 264,054 American population. In 1855, the number of aliens was 232,678, leaving 397,142 American population—an increase of 133,088 persons, with an increase of \$192,000,000 in real estate, or \$1,500 per head of those entitled to hold real estate.

The amount of rents at 10 per cent, which must cover taxes, Croton water, insurance, wear and tear, and interest, should this year be \$36,800,000, against \$17,600,000 in 1842—a rise of \$19,000,000, of which \$7,300,000 are taxes. This gross rent, divided among 125,000 families, would give an annual average

of \$300 each, while 65,000 families in 1842 paid apparently \$270 each. It is not, however, the case that the rise in rents has been in proportion to the population. Thus, the 11th ward shows as follows:—

	1840.	1858.
Population	17,052	52,979
Real estate.....	\$3,987,025	\$8,429,800

The population has increased three-fold, and the real estate but little more than doubled. The increase in value of the old lower wards has not been much. The 1st ward has decreased \$2,000,000 since 1852, and its population has decreased 6,000. The 5th ward shows a curious result, as follows:—

	1850.	1858.	Decrease.	Increase.
Population	22,691	21,617	1,074	.....
Valuation.....	\$9,740,650	\$15,273,900	.....	\$5,532,250

This is the direct effect of the progress of business up town. The dwellings have been turned into stores. The proportion of population and valuation above and below 14th-street have been as follows:—

Years.	Below 14th-street.		Above 14th-street.	
	Population.	Valuation.	Population.	Valuation.
1850.....	402,085	\$140,542,027	118,359	\$111,644,726
1858.....	282,541	189,588,085	347,269	178,257,311
Decrease	119,494	.....	.....	.....
Increase.....	.....	\$49,046,958	233,910	\$66,602,585

These figures show to what an extent the population of the lower wards have followed the line of the railroads up town. The real estate they left took a new value from stores, and that which they went to received a new one from dwellings.

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**NEW YORK ASSAY-OFFICE.**

The importance of this establishment to the commerce of our city is daily becoming more obvious. Since the commencement of its operations, (October 10th, 1854,) the amount of gold converted into fine bars has been over seventy-three millions of dollars, in a period of forty-five months, or about \$1,625,000, on an average, per week. For remittances abroad these bars serve as good a purpose as the gold coin. At the French or English mint, no distinction is made in the value between the coin and the bars. With the prospect before us of still larger accessions of gold from the Pacific shores, it is probable that the capacity of the Assay-office to execute all orders given to it, will be fully tested.

The amount of deposits for the last six months are somewhat in excess of the corresponding period of the year 1857. We are indebted to the politeness of Mr. Cisco, assistant treasurer, for the following recapitulation:—

FINE GOLD BARS MANUFACTURED AT THE UNITED STATES ASSAY-OFFICE, NEW YORK, FROM THE COMMENCEMENT OF ITS OPERATIONS, (OCTOBER 10TH, 1854,) TO JUNE 30, 1858.

| Quarters.         | 1854.           | 1855.          | 1856.          | 1857.          | 1858.        |
|-------------------|-----------------|----------------|----------------|----------------|--------------|
| 1st.....          | \$3,401,465 78  | \$6,080,956 34 | \$3,270,501 77 | \$3,295,435 41 |              |
| 2d.....           | 4,204,032 16    | 2,924,367 69   | 5,326,069 29   | 5,408,713 67   |              |
| 3d.....           | 6,024,577 99    | 4,155,798 88   | 5,681,019 82   | .....          |              |
| 4th.....          | \$2,888,059 18  | 6,811,787 70   | 6,234,926 98   | 7,413,522 14   | .....        |
| Total...          | 2,888,059 18    | 20,441,813 63  | 19,396,049 89  | 21,691,113 02  | 8,704,149 08 |
| Grand total ..... | \$73,121,184 80 |                |                |                |              |

In the absence of an Assay-office at this port, for the past four years, all this accumulated gold must necessarily have been sent to Philadelphia for coinage at the mint, involving a loss to the owners of \$73,121 for express charges alone, besides delays, and besides the additional expense for conversion into coin. Upon inquiry, we find that the express charges to Philadelphia are fifty cents per thousand dollars :—

|                                                     |           |
|-----------------------------------------------------|-----------|
| Equivalent on the whole sum of \$73,121,184 to..... | \$26,560  |
| And return.....                                     | 36,560    |
|                                                     | <hr/>     |
|                                                     | 73,121    |
| Add $\frac{1}{2}$ per cent for coinage.....         | 365,600   |
|                                                     | <hr/>     |
| Total cost avoided.....                             | \$488,711 |

from which deduct the small charge for conversion into bars.

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FINANCIAL ACCOUNTS OF THE STATES OF THE UNION.

VIRGINIA.

The last Annual Message of Gov. Henry A. Wise, of Virginia, contains some details of the operations of the treasury of that State for the fiscal year ending September 30, 1857, as prepared by the Auditor of Public Accounts :—

RECEIPTS.

Taxation and other ordinary sources of revenue and capitation tax..	\$2,881,858 24
Dividends on bank stock.....	214,518 00
Internal improvement fund.....	180,000 00
Sales of twelve months' treasury notes.....	770,590 00
Sales of 1,082 shares of stock of the Northwestern Bank of Virginia	118,671 42
Unclaimed dividends.....	4,620 77
Voluntary enslavements.....	475 00
Refunding warrants erroneously issued.....	4,015 00
	<hr/>
Total to September 30.....	\$4,119,748 48

EXPENSES.

Sinking Fund.....	\$2,054,264 49
Expense of the Sinking Fund.....	697 50
Interest on bonds of the James River and Kanawha Company, guarantied by the Commonwealth.....	67,392 90
Interest on debt due to the Literary Fund.....	14,124 22
Interest on treasury notes.....	55,256 68
	<hr/>
Interest on public debt, in part payment of the principal thereof, and expense of Sinking Fund.....	\$2,191,735 79
In full of temporary loans obtained from banks.....	51,500 00
In redemption of treasury notes, principal.....	1,028,450 00
Ordinary expenses of government, &c., including \$44,217 50 for re- assessment of lands, and \$110,580 for capitation tax.....	846,887 64
	<hr/>
Total.....	\$4,113,573 43
Available balance in treasury, September 30th, 1857.....	37,124 81

The operations of the several public funds for the year are reported by J. S. Calvert, Esq., as follows :—

Funds.	Balance.	—Year to September 30, 1857.—		Balance.
	1856.	Receipts.	Expenses.	1857.
Commonwealth.....	\$30,956 19	\$4,119,704 43	\$4,113,579 81	\$37,124 81
Literary.....	37,712 35	228,142 30	229,659 91	36,195 74
Public works.....	3,576 94	1,310,319 35	1,299,176 75	14,719 54
Sinking.....	1,126 60	2,097,610 95	1,806,805 72	291,931 83
	<hr/>	<hr/>	<hr/>	<hr/>
Total.....	\$72,372 08	\$7,755,821 03	\$7,449,222 19	\$879,971 92

In relation to the receipts, the treasurer remarks that it is the amount received into the treasury. But it embraces portions of the items received for "Literary Fund," "Board of Public Works," and "Sinking Fund," which in the form of keeping the books are credited twice—thus, \$60,580 10 of the "Literary Fund" receipts and disbursements was received from "General Fund;" \$599,600 of the "Board of Public Works" receipts and disbursements was received from "General Fund;" and \$2,054,924 49 of the "Sinking Fund" receipts and disbursements was received from "General Fund." So that the actual receipts and disbursements were \$5,114,087 52.

The following is an official summary of the funded debt of Virginia on the 30th of September, 1857:—

Amount of certificates of registered debt.....	\$14,469,015 63
Deduct amount of same to be redeemed as provided by Commissioners of the Sinking Fund.....	228,100 00
Amount of registered debt.....	\$14,240,915 63
Amount of certificates of debt issued in the form of coupon bonds and payable in New York.....	11,367,000 00
Amount of do., (5 per cent.) payable in London.....	1,875,000 00
Actual public debt, 1st October, 1857.....	\$27,482,915 63

MISSISSIPPI VALUATION.

The annexed valuation of the State of Mississippi, according to the returns of the Auditor, M. Mafee, Esq., were as follows:—

Assessed value of taxable lands in 1857.....	\$141,749,429 82
“ “ “ “ 1854.....	91,613,154 54
Increase in valuation.....	\$50,126,254 30
No. of taxable slaves assessed in 1857.....	368,182
“ “ “ in 1856.....	349,731
Increase in 1857 over 1856.....	18,451

If the average increase of slaves be estimated at \$600, it would show the slave property of the State to be worth \$220,902,200.

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CINCINNATI CITY DEBT.

On the 1st of July, the city of Cincinnati paid the following sums of semi-annual interest upon its outstanding indebtedness. The valuation of Hamilton County is \$120,890,791. The city owns property to the extent of \$6,726,039, and its whole debt is \$3,719,000. The annual taxes are \$671,911.

|                                                     | Value.      | Interest. |
|-----------------------------------------------------|-------------|-----------|
| Stock in Little Miami Railroad.....                 | \$80,000    | \$2,400   |
| Loan to same road.....                              | 100,000     | 3,000     |
| Stock in White Water Canal.....                     | 400,000     | 12,000    |
| Loan to same canal.....                             | 30,000      | 900       |
| To fund floating debt of the city.....              | 80,000      | 2,000     |
| “ “ “.....                                          | 150,000     | 4,500     |
| Purchase money of city lot.....                     | 60,000      | 1,800     |
| Purchase of wharf property.....                     | 470,000     | 14,220    |
| Loaned to Cincinnati and Marietta Railroad.....     | 150,000     | 4,500     |
| Exchange on above on New York and Philadelphia..... | .....       | 334       |
| Total.....                                          | \$1,524,000 | \$45,654  |

## FOREIGN COINS—OFFICIAL VALUE.

The following table of foreign coins, with their equivalents in United States currency, gold valuation, has been prepared at the request of the Controller of the Treasury, November, 1857, for the use of the government, in computing the salaries of foreign ministers and others. It is generally supposed that the value of foreign coins is fixed by law, but such is not the case. The coins of foreign countries are not a legal tender in the payment of debts, though they are taken at their valuation at the mint. In view of these facts, the table annexed is especially important :—

|                      |                           |                                | d. | c. | m. |   |
|----------------------|---------------------------|--------------------------------|----|----|----|---|
| Austria.....         | Specie dollar.....        | Silver.....                    | 1  | 02 | 5  |   |
| ".....               | Florin.....               | ".....                         |    | 51 | 2  |   |
| Brazil.....          | Milreis.....              | ".....                         | 1  | 02 | 5  |   |
| Belgium*.....        | Franc.....                | Gold.....                      |    | 19 | 2  |   |
| ".....               | ".....                    | Silver.....                    |    | 19 | 6  |   |
| Bremen.....          | Rix dollar.....           | Money of account.....          |    | 75 | 0  |   |
| Buenos Ayres.....    | Doubloon.....             | Gold.....                      | 15 | 50 | 0  |   |
| Central America..... | Dollar.....               | Silver.....                    |    | 1  | 00 | 0 |
| Chile.....           | " old.....                | ".....                         |    | 1  | 06 | 0 |
| ".....               | " new.....                | ".....                         |    | 96 | 2  |   |
| China.....           | Tael.....                 | Money of account.....          | 1  | 48 | 0  |   |
| Denmark.....         | Specie daler.....         | Silver.....                    | 1  | 10 | 7  |   |
| ".....               | Rigs-bk daler.....        | ".....                         |    | 55 | 3  |   |
| England.....         | Pound sterling.....       | Gold.....                      | 4  | 84 | 8  |   |
| France*.....         | Franc.....                | ".....                         |    | 19 | 2  |   |
| ".....               | Twenty franc piece.....   | Gold, being.....               | 3  | 84 | 0  |   |
| ".....               | Franc.....                | Silver.....                    |    | 19 | 6  |   |
| Germany, N.....      | Thaler.....               | ".....                         |    | 72 | 0  |   |
| " S.....             | Florin.....               | ".....                         |    | 41 | 7  |   |
| Hamburg.....         | Marco banco.....          | Money of account.....          |    | 37 | 0  |   |
| India.....           | Rupree.....               | Silver.....                    |    | 46 | 2  |   |
| ".....               | Star pagoda.....          | Gold.....                      | 1  | 81 | 5  |   |
| Lombardy.....        | Lira.....                 | Silver.....                    |    | 17 | 6  |   |
| Mexico.....          | Dollar.....               | ".....                         |    | 1  | 06 | 0 |
| Naples.....          | Scudo.....                | ".....                         |    | 1  | 00 | 0 |
| ".....               | Carlin.....               | ".....                         |    | 07 | 4  |   |
| ".....               | Onzia (ounce).....        | Gold.....                      | 2  | 48 | 4  |   |
| ".....               | Ducat.....                | Money of account.....          |    | 83 | 6  |   |
| Netherlands.....     | Guilder.....              | Silver.....                    |    | 41 | 0  |   |
| Norway.....          | Specie daler.....         | ".....                         | 1  | 10 | 1  |   |
| Peru.....            | Dollar, new.....          | ".....                         |    | 95 | 7  |   |
| ".....               | " old.....                | ".....                         |    | 1  | 06 | 0 |
| Portugal.....        | Milreis.....              | ".....                         | 1  | 18 | 0  |   |
| Prussia.....         | Thaler.....               | ".....                         |    | 72 | 0  |   |
| Rome.....            | Scudo.....                | ".....                         | 1  | 06 | 0  |   |
| Russia.....          | Rouble.....               | ".....                         |    | 79 | 0  |   |
| Sardinia.....        | Franc or lira.....        | ".....                         |    | 19 | 6  |   |
| Spain.....           | Real vellon.....          | ".....                         |    | 05 | 0  |   |
| ".....               | New doubloon.....         | Gold.....                      | 4  | 96 | 3  |   |
| ".....               | New Peninsula dollar..... | Silver (peso of 20 reals)..... | 1  | 01 | 5  |   |
| Sweden.....          | Specie daler.....         | ".....                         | 1  | 11 | 4  |   |
| Turkey.....          | Piastre.....              | Gold or silver.....            |    | 04 | 4  |   |
| Tuscany.....         | Florin.....               | Silver.....                    |    | 27 | 7  |   |

Four of the above, being moneys of account only, are estimated by their legal relation to certain coins.

JAMES ROSS SNOWDEN, Director of the mint.

\*The actual currency of both these countries is gold, and computations are of course made in reference to that medium. Like the United States, they have the double standard, but silver only circulates for small change, and its value cannot be regarded in computing pecuniary obligations.

FINANCES OF RICHMOND, VA.

The revenue from direct taxation last year was \$294,831 86, of which \$1,607 were collected from delinquents of the past four years. The amount received direct from the City Collector was \$293,224 87. The following is a complete statement of the receipts from taxation for the past four years, viz. :—

|           |           |           |           |
|-----------|-----------|-----------|-----------|
| 1854.     | 1855.     | 1856.     | 1857.     |
| \$161,235 | \$281,795 | \$315,290 | \$293,224 |

WATER WORKS.

The estimate of receipts from water rents, etc., last year, was \$32,500, and the disbursements, exclusive of the appropriation for the culvert at the pump house, \$20,000. The actual results were :—

|                     |             |             |
|---------------------|-------------|-------------|
|                     | 1857-8.     | 1856-7.     |
| Receipts.....       | \$30,521 80 | \$30,970 15 |
| Disbursements ..... | 27,316 38   | 22,651 04   |
| Difference.....     | \$3,205 42  | \$8,319 11  |

GAS WORKS.

The receipts from consumers of gas, etc., last year, were \$81,625 57, or \$6,625 more than the estimate. The disbursements were \$58,255 65 for current expenses, and \$17,162 45 for construction, making a total of 75,417 10.

LOANS, ECT.

During the past year the funded debt of the city was diminished by the amount of \$111,984 99, with the aid of a temporary loan, \$40,000 of which had not been returned at the end of the fiscal year, but has since been refunded, we understand.

|                                                       |              |
|-------------------------------------------------------|--------------|
| The amount of six per cent certificates paid was..... | \$425,122 00 |
| Amount of temporary loan refunded.....                | 46,129 25    |
| Total disbursement.....                               | \$471,251 25 |
| Received from bonds sold.....                         | \$295,461 83 |
| Bills payable.....                                    | 79,586 66    |
| Difference.....                                       | \$75,048 49  |
| Difference.....                                       | \$96,202 76  |

The receipts and expenditures were as follows :—

|                                      | Receipts.    | Disbursements. |
|--------------------------------------|--------------|----------------|
| Taxes.....                           | \$294,831 86 | .....          |
| Loans, &c.....                       | 375,048 49   | \$471,251 25   |
| Gas works.....                       | 81,625 57    | 75,417 10      |
| Water works.....                     | 30,521 80    | 27,316 38      |
| Culverts.....                        | 1,639 93     | 18,870 21      |
| Markets.....                         | 8,582 64     | 3,567 72       |
| Burying grounds.....                 | 695 25       | 2,998 01       |
| Miscellaneous.....                   | 24,001 49    | 246,350 18     |
| Balance on hand March 1st, 1857..... | 58,474 44    | .....          |
| “ “ March 1st, 1858.....             | .....        | 29,650 53      |
|                                      | \$875,421 38 | \$875,421 38   |

The expenditures during the preceding fiscal year for repairs of streets were \$11,719 36; public buildings, \$3,855 33; eleemosynary, \$18,065 09; city government, etc., \$38,527 47; firemen and volunteers, \$8,536 84; other items, exclusive of interest, etc., \$30,481 20—total, \$111,185 29. Total for same items of 1857-58, \$124,202 64.

**GOLD AND SILVER.**

A return of the imports and exports of gold and silver, as laid before the Committee of the House of Commons, (now sitting,) for the past seven years, (1851 to the close of 1857,) produce the following results:—

|                                                                                               |             |              |
|-----------------------------------------------------------------------------------------------|-------------|--------------|
| Imports of gold into Europe from producing countries in seven years, to the end of 1857 ..... |             | £180,000,000 |
| Imports of silver. ....                                                                       |             | 29,870,000   |
| Total. ....                                                                                   |             | £159,870,000 |
| Exports of gold beyond Europe. ....                                                           | £22,500,000 |              |
| Exports of silver to India and China .....                                                    | 56,670,000  |              |
|                                                                                               |             | £79,170,000  |
| Estimated increase to stock of bullion in Europe. ....                                        |             | £80,700,000  |

Or the equivalent of four hundred millions of dollars.

From a statement compiled by Mr. James Low, showing the amount of specie shipped by the Indian steamers of the Peninsula and Oriental Company during the first six months of the present year, we have derived the following abstract:—

|                           | Gold.   | Silver.    |
|---------------------------|---------|------------|
| Total in January. ....    | £16,019 | £589,642   |
| Total in February. ....   | 20,316  | 825,188    |
| Total in March. ....      | 13,282  | 539,233    |
| Total in April. ....      | 8,731   | 115,530    |
| Total in May. ....        | 7,263   | 271,615    |
| Total in June. ....       | 2,190   | 592,637    |
| Total in six months. .... | £67,801 | £2,933,845 |

For the corresponding period of last year the total was £86,202 in gold, and no less than £8,674,349 in silver. The exports for the East from Marseilles and the Mediterranean ports have been £80,873 in gold and £510,872 in silver, against £30,408 and £1,814,991 in the corresponding six months last year. Consequently the East has absorbed in 1858, £7,012,649 less specie than in 1857.

**SALE OF THE PENNSYLVANIA CANAL.**

The Sunbury and Erie Railroad Company have sold the Delaware Division of the Pennsylvania Canal to a company of ten or twelve of the leading capitalists of this city, viz:—I. V. Williamson, A. S. & E. Roberts, J. G. Fell, E. W. Clarke & Co., Wm. Longstreth, the Messrs. Borie, Charles Henry Fisher, Judge Hepburne, Ephraim Marsh, of New Jersey, and some others. The parties are of unquestioned means, and wholly unexceptionable as purchasers on the score of ability and probity of character. The price stipulated to be paid is one million seven hundred and seventy-five thousand dollars! payable as follows:—

|                                                             |             |
|-------------------------------------------------------------|-------------|
| Mortgage bonds at six per cent. ....                        | \$1,200,000 |
| Preferred eight per cent stock. ....                        | 100,000     |
| Ten monthly payments of \$40,000, secured by collateral ... | 400,000     |
| Cash, on execution of the papers .....                      | 75,000      |
|                                                             | £1,775,000  |

This bargain was approved by George Packer, on Saturday last, and is of course complete. The cash payment of \$75,000 was made, and the purchasers organized into a company, under the title of the Delaware Division of Pennsylvania Canal Company, and elected Jay Cook, Esq., of the firm of E. W. Clarke & Co., president. After the sale was made, it is said, an offer of two millions was made, on behalf of the Lehigh Navigation Company, but it was considered too late, the sale having already been completed, and frequent attempts having already been made previously to obtain a bid from that company.

STATISTICS OF TRADE AND COMMERCE.

CALIFORNIA.

The progress of the State of California, independent of its gold, has been immense in the last few years. We are to remember that ten years ago California was hardly known on the Atlantic. Its population was nominal. It has now 500,000 inhabitants, who produce great wealth in addition to the gold. Its agricultural resources are large, quite equal to its wants, while its numbers and industry have grown rapidly. In ten years its annual valuation has been as follows, since the organization of the State government, premising that the falling off noticeable between 1854 and 1856, was attributable to previous real estate and quartz inflations, and their consequent fall. The progress had been steady to 1854, and the assessments of 1857 show that the recuperative ability of the country amended the lapsis which speculation made :—

|            |                 |            |                 |            |                 |
|------------|-----------------|------------|-----------------|------------|-----------------|
| 1850 . . . | \$57,670,689 00 | 1853 . . . | \$95,335,646 00 | 1856 . . . | \$95,007,440 97 |
| 1851 . . . | 49,231,052 00   | 1854 . . . | 111,191,600 00  | 1857 . . . | 125,859,461 82  |
| 1852 . . . | 64,588,375 00   | 1855 . . . | 103,897,193 55  |            |                 |

The report of the State Controller contains the revenue and expenditures for the year. The following figures refer to the fiscal year ending June 30th, 1857 :—

|                                              |              |
|----------------------------------------------|--------------|
| Aggregate receipts, State Treasury . . . . . | \$799,795 90 |
| Aggregate disbursements . . . . .            | 719,103 50   |
| Balance . . . . .                            | \$80,692 40  |

The estimate for the ninth fiscal year, ending June 30th, 1858, are as follows :—

|                                              |              |
|----------------------------------------------|--------------|
| Receipts . . . . .                           | \$808,177 20 |
| Expenditures . . . . .                       | 674,067 00   |
| Balance . . . . .                            | \$134,110 20 |
| Excess of 1857 . . . . .                     | 80,692 40    |
| Balance in Treasury, June 30, 1858 . . . . . | \$214,802 60 |

These figures show a very gratifying result, and one that should place the credit of California high upon the list of solvent States. The failure on the part of the Treasurer of the City and County of San Francisco to provide for the payment in New York of the coupons on the civil debt, due January 1st, 1858, seems, however, to have been no fault of the treasurer, but was owing to an injunction sued out against him by the commissioners of the funded debt, restraining him from paying out money from the public treasury, unless beyond the amount of their claim, \$197,000. Now, as the treasury had been pretty well exhausted by other payments, among which was the school bond interest, also payable in New York, and a large amount of taxes remained unpaid, the treasurer was unable to forward the money, as he would otherwise have done, and desired that the coupons be forwarded there for payment.

The grain products of the last ten years were as follows :—

| Years.         | Wheat,<br>bush. | Barley,<br>bush. | Oats,<br>bush. | Potatoes,<br>bush. |
|----------------|-----------------|------------------|----------------|--------------------|
| 1856 . . . . . | 3,150,665       | 3,802,299        | 1,053,133      | .....              |
| 1857 . . . . . | 2,212,025       | 4,116,367        | 993,306        | 1,221,878          |

The exports of wool for 1857 were 1,000,000 pounds. The imports for 1857 were as follows :—

|                               |             |
|-------------------------------|-------------|
| Entered for consumption ..... | \$4,410,265 |
| Entered for warehouse.....    | 1,987,101   |

The imports and exports for the first six months of 1858 were as follows :—

| Years.    | For consumption. | Warehouse. | Withdrawn. |
|-----------|------------------|------------|------------|
| 1857..... | \$1,907,553      | \$958,952  | \$568,180  |
| 1858..... | 2,139,946        | 705,911    | 820,034    |

From the foregoing data it will be seen that the productive industry of the country, as evidenced by the amounts of treasure and merchandise exported, has nearly kept pace with the two previous seasons, yet there has been a material reduction in the bulk of goods that have been imported from abroad. It is well known, however, that the amount of wealth being accumulated and held in the country is considerably on the increase, and had it not been for the unexpected movement of a large number of the mining population, over 10,000 having emigrated to the newly-discovered gold fields in the British Possessions, there is no doubt but the present year would have realized for California in advancement all that was so confidently predicted for it. The withdrawal of so large a number of the active producing population will soon be felt in the decreased yield of the mines, while the effect upon the trade in the interior of the State has been much more disastrous than the diminution of population would warrant. Accounts from up-country towns represent business as completely prostrated. This result could not have ensued from the reduction of population, but it would seem that confidence has been so shaken by the movement that has already taken place, and the doubt as to what extent it may yet eventually culminate, that business has been curtailed by merchants both in their purchases, and by requiring cash for sales that were hitherto made on short credit. There is no doubt that this state of things has materially injured the interests of many persons, depreciating, though but temporarily it is hoped, the value of all descriptions of property.

The value of freights paid for the year was as follows :—

|                                          |             |
|------------------------------------------|-------------|
| Freights paid in 1857.....               | \$2,618,798 |
| Freights paid in 1858, (six months)..... | 1,275,816   |

Among the imports into California rice figures largely. The receipts of foreign in 1857 reach the enormous amount of 517,525 mats, equal to 30,666,113 pounds. The stock on the 1st January was estimated at 3,000,000 pounds, giving a total of 33,666,113 pounds for the year. The consumption is set down by dealers at 1,500,000 pounds per month, but as Chinamen consume less of rice, proportionably with other food, the longer they remain in the country, it is doubtful whether this rate, though it may have been correct formerly, might not be considered excessive at present. But as a basis of calculation we will assume the rate named, and therein endeavor to approximate to the stock of foreign rice on hand :—

|                                             |      |            |
|---------------------------------------------|------|------------|
| Stock, January 1st, 1857 .....              | lbs. | 3,000,000  |
| Received during 1857.....                   |      | 30,666,113 |
| Total.....                                  |      | 33,666,113 |
| Consumed in twelve months in the State..... |      | 18,000,000 |
| Present stock.....                          |      | 15,666,113 |

Imports since January 1st have been as follows :—

|               |      |           |              |      |           |
|---------------|------|-----------|--------------|------|-----------|
| China .....   | lbs. | 5,011,965 | Manilla..... | lbs. | 1,324,000 |
| Batavia.....  |      | 770,600   | Siam.....    |      | 1,533,333 |
| Calcutta..... |      | 275,000   |              |      |           |

Total East India..... 8,914,898

In sugar the receipts of the year were, of raw, 170,712 mats, (equal to 17,082,564 pounds,) and 104 hogsheads; and of refined, 14,000 barrels, 7,618 half-barrels, 333 casks. The whole stock of light colored sugars, suitable for jobbers, is estimated at 1,070,000 pounds. The stock of raw sugars, (not including the stock of the San Francisco refinery,) may be thus estimated:—

|                   |      |           |
|-------------------|------|-----------|
| Light grades..... | lbs. | 1,070,000 |
| Dark grades.....  |      | 1,950,000 |

Total..... 3,020,000

Importations of raw since January 1st have been as follows:—

|               |      |           |                       |      |         |
|---------------|------|-----------|-----------------------|------|---------|
| China.....    | lbs. | 4,258,125 | Mauritius.....        | lbs. | 514,357 |
| Batavia.....  |      | 790,900   | Sandwich Islands..... |      | 695,228 |
| Mexican.....  |      | 11,600    | Brazilian.....        |      | 32,000  |
| Peruvian..... |      | 161,069   |                       |      |         |

Total..... 6,463,264

To afford an idea approximating to the nationality of population arriving and departing by sea during 1856 and 1857, we submit the following tables for the entire years respectively:—

|                                      | 1856.     |             | 1857.     |             |
|--------------------------------------|-----------|-------------|-----------|-------------|
|                                      | Arrivals. | Departures. | Arrivals. | Departures. |
| Panama.....                          | 19,101    | 12,468      | 17,596    | 13,357      |
| San Juan.....                        | 4,178     | 5,335       | 43        | ....        |
| Atlantic ports direct.....           | 39        | 28          | 33        | 10          |
| China.....                           | 4,807     | 3,028       | 5,924     | 1,932       |
| Sandwich Islands.....                | 496       | 249         | 411       | 187         |
| Pacific Islands.....                 | 44        | 33          | 8         | 33          |
| Chile.....                           | 67        | 344         | 20        | 127         |
| Mexico.....                          | 220       | 600         | 214       | 673         |
| Peru.....                            | 9         | 144         | ....      | ....        |
| Central and South America.....       | 1         | 7           | 93        | 200         |
| East Indies.....                     | 14        | 14          | 6         | 4           |
| Australia.....                       | 225       | 487         | 128       | 369         |
| Great Britain direct.....            | 15        | ....        | 44        | ....        |
| France direct.....                   | 264       | ....        | ....      | ....        |
| Holland direct.....                  | 71        | ....        | ....      | ....        |
| Continent of Europe.....             | ....      | ....        | 225       | ....        |
| British North American Possessions.. | 10        | 9           | 11        | 5           |
| Russian Possessions.....             | 69        | 1           | 3         | 5           |
| Total.....                           | 29,630    | 22,747      | 24,759    | 16,902      |

The Frazer's River movement had of course much affected the mines. There had been received at San Francisco 1,200 ounces of this gold, averaging \$16 40 per ounce. The operations of the California mint for six months were as follows:—

DEPOSITS AND COINAGE AT THE UNITED STATES BRANCH MINT FOR THE SIX MONTHS ENDING JUNE 30, 1858.

|          | DEPOSITS.  |               | COINAGE    |          |                |                |
|----------|------------|---------------|------------|----------|----------------|----------------|
|          | Gold, ozs. | Value.        | Gold.      | Silver.  | Unparted bars. | Total.         |
| January. | 40,001.63  | \$732,766 50  | \$811,800  | \$50,250 | \$261,739 41   | \$1,123,789 41 |
| February | 77,770.73  | 1,421,594 02  | 700,000    | ....     | 228,522 07     | 928,522 07     |
| March .. | 120,760.44 | 2,228,588 45  | 1,880,000  | 22,000   | 326,034 17     | 2,228,034 17   |
| April... | 120,744.41 | 2,223,905 06  | 2,020,000  | 6,000    | ....           | 2,026,000 00   |
| May ...  | 154,159.46 | 2,896,127 72  | 2,560,000  | ....     | ....           | 2,560,000 00   |
| June...  | 119,951.02 | 2,264,860 90  | 2,641,000  | ....     | ....           | 2,641,000 00   |
| Total.   | 633,387.69 | 11,767,842 65 | 10,612,800 | 78,250   | 816,295 65     | 11,507,345 65  |

## DESCRIPTION OF COINAGE.

|                         | GOLD.   |                 |                          | SILVER. |                 |
|-------------------------|---------|-----------------|--------------------------|---------|-----------------|
|                         | Pieces. | Value.          |                          | Pieces. | Value.          |
| Double eagles . . . . . | 519,440 | \$10,388,800 00 | Half-dollars. . . . .    | 146,000 | \$73,000 00     |
| Eagles . . . . .        | 11,800  | 118,000 00      | Quarter-dollars. . . . . | 9,000   | 2,250 00        |
| Half-eagles. . . . .    | 18,600  | 93,000 00       | Dimes. . . . .           | 30,000  | 3,000 00        |
| Quarter-eagles. . . . . | 1,200   | 3,000 00        |                          |         |                 |
| Dollars. . . . .        | 10,000  | 10,000 00       | Total. . . . .           | 746,528 | \$11,507,345 65 |
| Unparted bars. . . . .  | 488     | 816,295 65      |                          |         |                 |

The imports of treasure for six months, including \$19,680 of Frazer's River gold, was \$1,028,985, and the exports of gold and other merchandise for the same period was as follows:—

| GOLD.                 |                 | MERCHANDISE.                 |             |
|-----------------------|-----------------|------------------------------|-------------|
| New York. . . . .     | \$17,565,735 62 | New York. . . . .            | \$570,000   |
| England. . . . .      | 4,524,586 58    | Sandwich Islands. . . . .    | 100,103     |
| Panama. . . . .       | 152,126 30      | Mexican ports. . . . .       | 408,874     |
| New Orleans. . . . .  | 99,500 00       | Valparaiso. . . . .          | 28,347      |
| Hong Kong . . . . .   | 1,131,654 07    | Hong Kong . . . . .          | 150,347     |
| Australia. . . . .    | 1,436 07        | Australia. . . . .           | 104,550     |
| Acapulco. . . . .     | 3,000 00        | Peru. . . . .                | 95,170      |
| Valparaiso. . . . .   | 16,500 00       | Society Islands. . . . .     | 33,611      |
| Mauilla. . . . .      | 11,000 00       | Vancouver. . . . .           | 161,724     |
| Honolulu . . . . .    | 21,528 32       | Central America. . . . .     | 7,870       |
| Tahiti. . . . .       | 2,000 00        | Russian Possessions. . . . . | 61,366      |
| Singapore. . . . .    | 16,397 00       | Batavia . . . . .            | 6,778       |
| Vancouver. . . . .    | 500 00          |                              |             |
| Total. . . . .        | \$23,545,663 96 | Total . . . . .              | \$1,727,990 |
| Total, 1857 . . . . . | 23,658,999 00   | Total, 1857. . . . .         | 2,127,189   |

## COMMERCE OF FRANCE.

The imports and exports of France for the past three years have been in actual value as follows, distinguishing the "general" from "special" commerce, the latter term signifying the imports for French consumption and the exports of French production; the former term the whole import and export:—

|               | Imports.         |                  | Exports.         |                  |
|---------------|------------------|------------------|------------------|------------------|
|               | General, francs. | Special, francs. | General, francs. | Special, francs. |
| 1855. . . . . | 2,159,700,000    | 1,394,100,000    | 2,167,000,000    | 1,557,900,000    |
| 1856. . . . . | 2,740,900,000    | 1,989,800,000    | 2,659,000,000    | 1,893,100,000    |
| 1857. . . . . | 2,689,000,000    | 1,872,900,000    | 2,539,300,000    | 1,865,900,000    |

The value of the exports last year was consequently over 28,000,000 francs below that of the preceding year. On the whole, these returns are less unfavorable, especially as regards the exclusive commerce of France, than from the commercial crisis of last year might have been expected; but it is to be remembered that the crisis broke out at the latter part of the year, and that the French, by means of extensive renewals of bills, staved off a great part of the consequences of it to the present year. The totals of French imports and exports, above given, do not comprise the precious metals. The total importation of gold in the three years, 1855, 1856, and 1857, was £56,584,000, and the total exportation £15,004,000—excess of imports, £41,580,000. The total importation of silver in the said three years was £13,164,000, and the exportation not less than £47,868,000—excess of exports, £34,704,000.

BREMEN COMMERCE.

The commerce of Bremen for the year 1851 has been comparatively as follows :—

| TOBACCO.               |            |             |             |             |
|------------------------|------------|-------------|-------------|-------------|
|                        | 1854.      | 1855.       | 1856.       | 1857.       |
| Import.....cwt.        | 7,050,369  | 9,521,996   | 10,917,267  | 11,290,676  |
| Export.....            | 3,515,994  | 5,025,567   | 6,658,620   | 5,850,837   |
| Together.....          | 10,566,363 | 14,547,562  | 17,605,887  | 17,441,513  |
|                        | 1854.      | 1855.       | 1856.       | 1857.       |
| Import.....ld'r thaler | 35,906,720 | 53,254,978  | 66,091,522  | 74,004,780  |
| Export.....            | 31,803,494 | 48,924,319  | 61,475,297  | 62,609,472  |
| Together.....          | 67,710,214 | 102,179,297 | 127,566,819 | 136,614,252 |

The import and export of the principal articles were as follows :—

| TOBACCO.     |                     |                     |                     |                     |
|--------------|---------------------|---------------------|---------------------|---------------------|
|              | 1856.               |                     | 1857.               |                     |
|              | Weight, pounds net. | Value, Ld'r thaler. | Weight, pounds net. | Value, Ld'r thaler. |
| Import ..... | 52,990,987          | 10,542,119          | 62,774,944          | 15,173,666          |
| Export ..... | 56,766,721          | 11,067,707          | 46,252,808          | 11,561,211          |
| STEMS.       |                     |                     |                     |                     |
| Import ..... | 12,173,919          | 865,068             | 11,877,528          | 734,609             |
| Export ..... | 16,423,819          | 797,710             | 11,447,858          | 773,462             |
| COTTON.      |                     |                     |                     |                     |
| Import ..... | 41,557,005          | 6,898,559           | 40,940,316          | 8,311,043           |
| Export ..... | 42,787,418          | 7,595,707           | 36,074,019          | 8,000,941           |
| SUGAR.       |                     |                     |                     |                     |
| Import ..... | 24,822,519          | 2,195,517           | 21,743,786          | 2,384,375           |
| Export ..... | 14,734,753          | 2,207,449           | 14,157,124          | 1,691,819           |
| RICE.        |                     |                     |                     |                     |
| Import ..... | 62,887,414          | 2,392,089           | 54,796,446          | 1,843,158           |
| Export ..... | 38,559,927          | 1,798,800           | 28,666,606          | 1,289,925           |

COMMERCE OF BRAZIL.

The report of Senor Souza Franco, Finance Minister of Brazil, was made to the chamber in May, and contains the following figures.

The official value of the imports and exports of Brazil in 1856-57 amounted to £26,484,375. or upwards of 40 per cent above the average of the previous five years, and 27 per cent in excess of the value in 1855-56. Of that sum the value of the imports are £13,761,773, or 33 per cent greater than that of the previous year, and 39 per cent above the average of the previous five years. The value of the exports was £12,722,601, or 21 per cent more than that of 1855-56, and 42 per cent in excess of the quinquennial period. Of the imports of 1857 £8,190,116, or about 59½ per cent of the whole, came from England and her possessions; £1,830,674, or 13 per cent, from France; and £864,155, or 6 per cent, from the United States. Of the exports of that year those to England were valued at £3,954,128, or 31 per cent of the whole; those to France £1,058,611, or 8 per cent; those to the United States, £3,516,079, or 27 per cent. Thus, it appears that in 1856-57 the total trade of England with Brazil reached the enormous value of £12,144,244. "And yet," it is observed, "Brazil is the only country in the world, our commerce with which has not the security of a single treaty stipulation."

## BRAZIL SUGAR.

The production of sugar in the Brazils is very large—much more so than is generally supposed. The consumption is also immense. The people are great tea and coffee drinkers, as well the peasantry as the higher classes, and the quantity of sweetmeats and preserves used is proverbially large. The consumption of sugar per head is quite equal to that of Cuba, which is estimated at 20 pounds; that of the United States averaged in the last four years 30 pounds per head, nearly the same as in England. The population of the Brazils is 8,000,000, of which 3,000,000 are negroes, who are great sugar eaters. This would give a consumption of 400,000,000 pounds, which is within the market. A great deal of sugar in the interior is lost for want of means of getting it to market. The quantities exported depend, in some degree, upon the price abroad. For these we are indebted to the politeness of the Brazilian Consul, L. D'Aguiar, Esq. The average for the last nine years is 271,673,307 pounds, or 65,770,103 pounds more than the average for the previous ten years. The production must therefore be equal to 700,000,000 pounds:—

## EXPORTS OF SUGAR FROM BRAZIL, FISCAL YEARS ENDING JUNE 30.

|                  |               |                  |               |
|------------------|---------------|------------------|---------------|
| 1840-41.....lbs. | 214,348,532   | 1848-49.....lbs. | 272,180,768   |
| 1841-42.....     | 144,162,491   | 1849-50.....     | 255,794,752   |
| 1842-43.....     | 166,711,089   | 1850-51.....     | 317,051,720   |
| 1843-44.....     | 181,855,385   | 1851-52.....     | 238,759,728   |
| 1844-45.....     | 239,241,174   | 1852-53.....     | 341,803,008   |
| 1845-46.....     | 227,500,928   | 1853-54.....     | 256,510,048   |
| 1846-47.....     | 227,162,452   | 1854-55.....     | 254,765,504   |
| 1847-48.....     | 246,241,984   | 1855-56.....     | 236,520,928   |
| Total.....       | 1,647,224,035 | Total.....       | 2,173,386,456 |
| Medium.....      | 205,903,004   | Medium.....      | 271,673,307   |

## THE FLOUR AND GRAIN TRADE OF BOSTON.

We give below a comparative view of the receipts of flour and grain at this port for the first six months of the present and corresponding period of the past year, as derived from the books of the Boston Corn Exchange Association:—

|                | 1857.   | 1858.     |               | 1857.   | 1858.   |
|----------------|---------|-----------|---------------|---------|---------|
| Flour....bbls. | 448,696 | 495,424   | Rye.....bush. | 16,202  | 33,661  |
| Corn.....bush. | 992,993 | 1,393,798 | Shorts.....   | 192,392 | 280,578 |
| Oats.....      | 328,771 | 316,741   |               |         |         |

This exhibit shows that, notwithstanding the general depression of trade, this important branch of our commerce is steadily increasing, the arrivals of breadstuffs for the half year ending June 30, exceeding those for the same period of last year. The stock of flour on hand at the present time is not large, the receipts having been light for some weeks.

## SUGAR CROP—CUBA AND PORTO RICO.

The crops of sugar of Cuba and Porto Rico have been as follows:—

|           | Cuba.   |           | Total, tons. | Porto Rico, pounds. |
|-----------|---------|-----------|--------------|---------------------|
|           | Hhds.   | Boxes.    |              |                     |
| 1854..... | 186,151 | 1,227,147 | 349,502      | .....               |
| 1855..... | 207,935 | 1,292,119 | 375,475      | 91,971,108          |
| 1856..... | 236,335 | 1,103,605 | 357,395      | 116,554,476         |
| 1857..... | 301,394 | 953,797   | 369,611      | 79,879,700          |

EXPORTS OF WILMINGTON, NORTH CAROLINA.

The exports for the three months ending with June have been as follows :—

| Articles.                         | 1857.      |           | 1858.      |           |
|-----------------------------------|------------|-----------|------------|-----------|
|                                   | Coastwise. | Foreign.  | Coastwise. | Foreign.  |
| Spirits turpentine . . . . .bbls. | 28,364     | 1,323     | 31,493     | 935       |
| Crude turpentine . . . . .        | 8,217      | ....      | 6,679      | 1,122     |
| Rosin . . . . .                   | 192,925    | 11,677    | 125,651    | 5,116     |
| Tar . . . . .                     | 17,547     | 985       | 14,798     | 673       |
| Pitch . . . . .                   | 1,147      | 277       | 2,969      | 190       |
| Timber, P. P. . . . .feet         | ....       | 31,000    | 26,773     | ....      |
| Lumber, P. P. . . . .             | 5,093,756  | 2,856,965 | 4,094,468  | 3,466,400 |
| Shingles . . . . .                | ....       | 755,000   | 36,000     | 695,000   |
| Staves . . . . .                  | 36,600     | ....      | 15,330     | ....      |
| Peanuts . . . . .bush.            | 22,712     | ....      | 17,831     | ....      |
| Flour . . . . .bbls.              | 253        | ....      | 141        | 10        |
| Cotton . . . . .bales             | 2,063      | ....      | 4,004      | ....      |
| “ sheeting . . . . .              | 587        | ....      | 500        | ....      |
| “ yarn . . . . .                  | 501        | ....      | 316        | ....      |
| “ waste . . . . .                 | 41         | ....      | 45         | ....      |
| “ warp . . . . .                  | 68         | ....      | ....       | ....      |
| Rice, rough . . . . .bush.        | 39,510     | 19,000    | 90,108     | ....      |
| “ clean . . . . .casks            | 89         | 105       | 226        | 20        |

COMMERCE OF CHARLESTON.

We have obtained the following statements of the exports and imports of the four leading articles of commerce at the port of Charleston, during the fiscal year ending June 30th, 1858 :—

|                       | Exports. | Value.       |                          | Imports.  | Value.    |
|-----------------------|----------|--------------|--------------------------|-----------|-----------|
| Cotton . . . . .bales | 284,462  | \$15,311,468 | Sugars . . . . .lbs.     | 5,406,703 | \$295,888 |
| Rice . . . . .tierces | 27,960   | } 687,514    | Molasses . . . . .galls. | 993,957   | 148,650   |
| Rice . . . . .bush.   | 64,621   |              | Coffee . . . . .lbs.     | 1,173,512 | 106,487   |
| Wheat . . . . .       | 144,961  | 191,651      | Salt . . . . .bush.      | 320,262   | 37,687    |
| Flour . . . . .bbls.  | 51,242   | 304,321      |                          |           |           |
| Total . . . . .       |          | \$16,494,954 | Total . . . . .          |           | \$588,712 |

It will be seen, by the above number of cotton bales, that Charleston has exported nearly nine per cent of the crop estimated last year.

IMPORTS OF COTTON INTO GREAT BRITAIN.

The quantity of raw cotton imported into England from various places, is a highly interesting subject to both the producers and consumers. We find the following statement in the London correspondence of the *National Intelligencer* :—

| Imported from—                              | 1843.       | 1857.       |
|---------------------------------------------|-------------|-------------|
| The United States . . . . .lbs              | 574,738,520 | 654,758,048 |
| Brazil . . . . .                            | 18,675,123  | 29,910,832  |
| Egypt and Mediterranean countries . . . . . | 9,674,076   | 24,882,144  |
| British East Indies . . . . .               | 65,709,729  | 250,338,144 |
| British West Indies and Guiana . . . . .    | 1,260,444   | 1,443,568   |
| Other countries . . . . .                   | 3,135,224   | 7,986,160   |
| Total . . . . .                             | 673,193,116 | 969,318,896 |

The most striking feature of this statement, is the very great increase in the produce of cotton in the British possessions in the East Indies.

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**COMMERCIAL REGULATIONS.**

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**REGULATIONS ENACTED BY THE EUROPEAN COMMISSION OF THE DANUBE,  
FOR THE PRESERVATION AND MAINTENANCE OF ORDER AND REGULARITY IN THE  
PORT OF SULINA.**

Whereas, it is necessary that order be maintained in the port of Sulina, in order to avoid all confusion and collision between vessels entering and going out of the Danube, and in order to facilitate the execution of any works that may be undertaken at the mouth of that river, the European Commission of the Danube, in virtue of the 16th article of the Treaty of Paris of the 30th March, and in virtue of the temporary power writ which the commission has been invested by the Sublime Porte, do hereby exact the following temporary regulations:—

ART. 1. All merchant vessels entering the port of Sulina, whether from the sea or from inland, shall strictly obey the orders of the captain of the port or those of his subordinates in everything connected with harbor service and discipline.

ART. 2. A guard boat shall be stationed at each end of the port; No. 1 seaward—No. 2 above in the river. These boats shall indicate to captains entering the port the berths where they are to anchor.

ART. 3. The harbor of Sulina shall be divided into five sections, numbered from 1 to 5, commencing from the sea; these shall be marked by posts of different colors, placed on each side of the river. The first shall be reserved for the men-of-war on the station, for barges in the service of the European Commission, and for merchant steamers. The second shall be allotted to merchantmen who, after having lightened, are ready to put to sea, as well as to the lighters into which they have discharged part of their cargo. The third, to vessels having to lighten. The fourth, to vessels waiting at Sulina for a fair wind to ascend the river. The fifth to the empty lighters. It is strictly forbidden to the latter to approach the loaded lighters. The space situated between the first section and the lighthouse must always remain free.

ART. 4. Any captain infringing the regulations of the preceding article by dropping anchor on forbidden ground, and who, on the summons of guard boats No. 1 or 2, shall not directly repair to the anchorage, that shall have been allotted to him, will be liable to a fine of 15 to 25 ducats, see 19th article of these regulations.

ART. 5. Every captain of a sailing vessel after having anchored his ship must proceed in person, or send his mate, to the Harbormaster's Office to produce his bill of health and other papers. If the vessel stops at Sulina less than 24 hours, the papers will be immediately returned to the captain after examination; otherwise they will be left at the Harbormaster's Office till her departure.

ART. 6. Every captain must pay the port dues in force at the Harbormaster's Office, taking a receipt for the same. Any payment, for which the Harbormaster's receipt cannot be shown, shall be considered null and void.

ART. 7. After having cast anchor the ships must be moored either to the posts fixed for this purpose on each side of the river, or to vessels already moored.

ART. 8. As soon as the orders of the preceding article have been complied with, vessels must take in their jibbooms, and while thus moored the yards must be braced fore and aft.

ART. 9. The captain of the port will, as far as possible, definitely fix the moorings and landing places for the weekly mail steamers in the first of the stations mentioned in article No. 3.

ART. 10. All vessels entering and leaving the port of Sulina must hoist their colors; the authorities of the port will not permit any vessel to pass without doing so.

ART. 11. The captain of the port will regulate as follows the movement of vessels on bogas days, (days on which vessels can pass the bar.) 1st. No vessel can weigh anchor or leave its moorings before the signal of departure has been given, which signal will be the hoisting of a ball on a vertical pole on the light-house. 2d. Vessels must pass out one after the other in turn; guard boat No. 1 will regulate this movement, and stop any vessel which cannot produce the receipt of the Harbormaster for the port dues. 3d. The chief pilot will be on the bar to direct the passage of ships over it, and to prevent all confusion and collisions between them.

ART. 12. Small coasting vessels, as well as lighters, shall be submitted to the strict surveillance of the captain of the port. They shall be forbidden to move about the harbor during the night; that is to say, between evening and morning gun fire. Boats belonging either to the port or to merchant vessels must not move about at night without having on board a lighted lantern.

ART. 13. It is not allowed to burn tar or pitch on board vessels inside the port, or in short to do anything which may incur the risk of fire.

ART. 14. All fires must be put out after the evening gun has been fired by the Turkish man-of-war on the station. Captains will take care that no other lights but glass lamps or lanterns are used on board.

ART. 15. In case of a fire breaking out on board of any ship the captains of all vessels at anchor must send part of their crew to give her every possible assistance. Sailors not told off for this purpose must remain on board their respective vessels.

ART. 16. Vessels can only be hove down in a part of the port allotted for this purpose. The captain of the port will moreover take care that navigation shall in nowise be hindered thereby.

ART. 17. Sailors must return on board their vessels immediately after evening gun fire.

ART. 18. In conformity with article 14 of the provisional instructions, dated 28th February, 1857, and transmitted by the European Commission to the captain of the port, he shall decide summarily all differences between captains and their crews, taking the assistance of two captains of the same nation, as the two disputing parties, or in their absence of two other captains. He shall not however exercise this part of his functions, unless one of the parties interested shall have solicited his intervention, and no other competent authority shall be present on the spot.

ART. 19. Any infraction of articles 7, 8, 10, 12, and 14, shall be punished by a fine of from one to five ducats, which, in case of resistance, shall be doubled. Infractions of articles 2, 3, 11, and 13, shall be punished by a fine of from 15 to 25 ducats, which, in case of resistance, shall also be doubled. Should the captain of any vessel refuse to pay the fine incurred, the Harbormaster will detain the ship, and report forthwith to the competent authority, in order that the payment thereof may be enforced.

ART. 20. The captain of the port shall fix the amount of the fines which may be incurred by persons infringing the present regulations. In case of appeal against the decisions of the captain of the port, the total amount of the fine shall be deposited, until such time as the case shall be decided, in the hands of the authorities to whom the offender is amenable.

ART. 21. Masters and captains of vessels shall be personally responsible for offences committed by their crews.

ART. 22. In all cases in which the interference of the captain of the port, and that of the agents placed under his command, may be insufficient, he may have recourse to the men-of-war on the station, who will lend him their aid, within the limits of their instructions.

ART. 23. The present regulations shall be put in force as soon as they shall have been published at the Harbormaster's Office at Sulina, and at the ports of Galatz and Ibraila. The text shall be communicated, with English, Italian, German, and Greek translations, to the consular authorities at Constantinople, Galatz, Ibraila, and Toulch, as well as to the local authorities of these three

latter towns, to the authorities at Ismail and Reni, and to the commandants of the men-of-war appointed by the 19th article of the Treaty of Paris, to ensure the execution of the regulations for the navigation of the Danube.

For the European Commission of the Danube,

OMER FEVZI.

#### JAPAN TRADE—LAW OF THE UNITED STATES.

Whereas, a convention between the United States and the Empire of Japan, for the purpose of further regulating the intercourse of American citizens within the Empire of Japan, was concluded and signed at Simoda, on the seventeenth day of June, eighteen hundred and fifty-seven, the English version of which convention—it being in the English, Japanese, and Dutch languages—is word for word as follows:—

For the purpose of further regulating the intercourse of American citizens within the Empire of Japan, and, after due deliberation, his Excellency Townsend Harris, Consul-General of the United States of America for the Empire of Japan, and their Excellencies Inowouye, Prince of Sinano, and Nakamoera, Prince of Dewa, governors of Simoda, all having full powers from their respective governments, have agreed on the following articles, to wit:—

ARTICLE 1. The port of Nangasaki, in the Principality of Hizen, shall be open to American vessels, where they may repair damages, procure water, fuel, provisions, and other necessary articles, even coals, where they are obtainable.

ART. 2. It being known that American ships coming to the ports of Simoda and Hakodade cannot have their wants supplied by the Japanese, it is agreed that American citizens may permanently reside at Simoda and Hakodade, and the government of the United States may appoint a vice-consul to reside at Hakodade. This article to go into effect on the fourth day of July, eighteen hundred and fifty-eight.

ART. 3. In settlement of accounts the value of the money brought by Americans shall be ascertained by weighing it with Japanese coin—(gold and silver itsebues)—that is, gold with gold and silver with silver, or weights representing Japanese coin may be used after such weights have been carefully examined and found to be correct. The value of the money of the Americans having been thus ascertained, the sum of six per cent shall be allowed to the Japanese for the expense of recoinage.

ART. 4. Americans committing offences in Japan shall be tried by the American Consul-General or Consul, and shall be punished according to American laws. Japanese committing offences against Americans shall be tried by the Japanese authorities, and punished according to Japanese laws.

ART. 5. American ships which may resort to the ports of Simoda, Hakodade, or Nangasaki, for the purpose of obtaining necessary supplies, or to repair damages, shall pay for them in gold and silver coin, and if they have no money, goods shall be taken in exchange.

ART. 6. The government of Japan admits the right of his Excellency the Consul-General of the United States to go beyond the limits of the Seven Ri, but has asked him to delay the use of that right, except in cases of emergency, shipwreck, &c., to which he has assented.

ART. 7. Purchases for his Excellency the Consul-General or his family may be made by him only, or by some member of his family, and payment made to the seller for the same without the intervention of any Japanese official, and for this purpose Japanese silver and copper coin shall be supplied to his Excellency the Consul-General.

ART. 8. As his Excellency the Consul-General of the United States of America has no knowledge of the Japanese language, nor their Excellencies the Governors of Simoda a knowledge of the English language, it is agreed that the true meaning shall be found in the Dutch version of the articles.

ART. 9. All the foregoing articles shall go into effect from the date hereof, except article two, which shall go into effect on the date indicated in it.

Done in quintuplicate, (each copy being in English, Japanese, and Dutch,) at the Goyosso of Simoda, on the seventeenth day of June, in the year of the Chris-

tian era, eighteen hundred and fifty-seven, and of the independence of the United States of America the eighty-first, corresponding to the fourth Japanese year of Ansei, Mi, the fifth month, the twenty-sixth day, the English version being signed by his Excellency the Consul-General of the United States of America, and the Japanese version by their Excellencies the Governors of Simoda.

TOWNSEND HARRIS, [SEAL.]

And whereas, the said convention has been duly ratified:—Now, therefore, be it known that I, James Buchanan, President of the United States of America, have caused the said convention to be made public, to the end that the same, and every clause and article thereof, may be observed and fulfilled with due faith by the United States and the citizens thereof.

In witness whereof I have hereunto set my hand, and caused the seal of the United States to be affixed.

Done at the city of Washington this thirtieth day of June, in the [SEAL.] year of our Lord one thousand eight hundred and fifty-eight, and of the independence of the United States of America the eighty-second.

JAMES BUCHANAN.

By the President:—  
LEWIS CASS, Secretary of State.

#### ALTERATIONS IN FOREIGN CUSTOMS TARIFFS.

A return has just been printed, by order of the House of Commons, specifying the alterations which have recently taken place in the customs tariffs of the various foreign States, and their dependencies, and of which an account had been received since the 10th of March, 1857. The first is that relating to Russia. By the new tariff, which came into operation in June, 1857, numerous modifications have been made in the rates of duty charged; and considerable improvements also appear to have been effected in the mode of assessing the goods—the process, as a rule, being much simplified. In very few instances, where those alterations in the rates have taken place, are the duties levied in any other way than by a specific sum chargeable on the weight, though in many cases this practice must operate very severely on the producer as well as the consumer. Still, this is an objection which applies as much to the English tariff as to the one now in operation in Russia; and we certainly could point out as many anomalies in the mode of charging duties under the English system as are to be found in that of any other country. Nearly the whole of the articles are charged, under the Russian tariff, by the pood, of 36 pounds English, and by the Russian pound, which is equal to .9 pound English.

The total value of British goods, or manufactures, exported to Russia in the year 1857 amounted to £2,832,172. The total quantity of cotton twist and yarn exported from the United Kingdom to Russia, during the last year, was 13,062,005 pounds, the declared value being £697,304; the rates of duty being for white cotton twist 11s. 1d. per pood, and for dyed 15s. 10d. per pood. Taking the present modified tariff, we find cottons of all sorts, closely woven, such as calicoes, jaconets, cambrics, nankins, &c., subject to the rate, if imported by sea, of 1s. 2-20d. per pound, (Russian,) and if imported by land, of 1s. 1-30d. per pound. Printed and embroidered cottons, such as corduroy, velvets, and velveteens, pay 2s. 2-60d., if imported by sea, and 2s. 0-70d. per pound if by land. All light cottons, such as muslins, if white, or dyed of one or varied colors, 3s. 2d.; and if printed 4s. 4-20d. per pound. Those are very high rates, the last mentioned being fully equal, in point of weight, to that charged upon figured silk broad stuffs imported into this country, but the rate per cent upon the value would be infinitely greater. The same principle applies to linen manufactures. The rates vary from 3-80d. to 3s. 11-50d. per pound; and for cloth mixed with cotton, whether bleached or unbleached, and dyed of one or several colors, 25 per cent on the value. But of British linen manufactures Russia has imported none since 1851. Woolen goods are also subject to high rates, varying from 7-60d. per pound on bunting, sashes, &c., of all colors, up to 12s. 8d. per pound on shawls, handkerchiefs, and scarfs. For cloths or half-cloths,

cassimere, tricots, &c., 4s. 4-20d. ; flannel, plush, baize, &c., 2s. 2-60d. ; carpets and rugs of all sorts, 1s. 5-10d. ; and all light manufactures, if plain, 3s. 9 60d., and if printed, 5s. 0-80d. per pound. We do not, however, find woolen and worsted yarns enumerated in the present return, or modified tariff, though the value of those goods exported from England to Russia amounted to £353,179 during the past year.

Nor do we find machinery enumerated among the modified rates now charged, though the value of the exports under that head to Russia amounted to £598,605 during the year 1857. But on iron, wrought and unwrought, the rates are from 5-70d. to 3s. 2d. per pood, the latter rate being chargeable on anvils. The total value of iron and unwrought steel exported to Russia was £230,299 in 1856, as compared with £67,130 in the year 1852. Unmanufactured steel is subject to 2s. 4-50d. per pood. Utensils of iron for professional purposes, such as saws, files, &c., are charged 2s. 6-40d. per pood ; packing, harness, and sailmak rs' needles, 9-50d. per pound ; and whitesmiths' and locksmiths' work of all kinds 12s. 8d. per pood ; while cutlery, mounted in wood, horn, or bone, pays 1s. 2-20d. per pound. Papier mache, and all works thereof, is now liable to a duty of £1 11s. 8d. per pood. And china, as well as common pottery, pay rates, varying from 7-60d., up to £3 16s., according to the quality, or whether imported by sea or land.

In the Norwegian tariff some modifications have taken place ; but not to that extent which will affect our trade. The total exports to Norway during the past year was £441,757. Amongst the rates which have been altered are those chargeable on cotton manufactures ; yarn, undyed and not twisted ; cloths and tapes of cotton ; wool, hair, or flax ; iron, wrought or unwrought, and iron manufactures ; pig iron and plates, under one-third of an inch in thickness, being made free.

The modified rates in all instances in the French tariff, as well as in that of the Papal States, are all specific, and levied on the weight. In Spain they vary ; some being by number, some by weight, and others are *ad valorem*. And, last of all, we must not omit stating that his Majesty of the Two Sicilies has, in the generosity of his soul, deemed it right to modify his tariff ; so that Bomba now admits maccaroni into his States at 1s. 9d. per 196 pounds English.

#### PORTO RICO TARIFF.

DEPARTMENT OF STATE, WASHINGTON, July 12, 1858.

Information has been received at this department from GEORGE LATIMER, Esq., the United States Consul at St. John's, Porto Rico, that, by the new tariff of the island, the duties on several articles of produce of the United States are increased, viz. :—

On staves, \$2 per 1,000 ; on shingles, 50 cents per 1,000 ; on butter, 50 cents per 100 lbs. ; on cheese, 50 cents per 100 lbs. ; on hams, 75 cents per 100 lbs.

And by the instructions prescribed for the government of the custom-houses, it is provided that all vessels are to be measured and pay tonnage dues on what they appear to be in Spanish tons, instead of paying, as heretofore, on the number of tons expressed in the registers of such vessels. By the same instructions it is required that all manifests, even though the vessel comes in ballast, must be certified by the Spanish Consul, under penalty of being fined one hundred dollars for want of such certificate.

#### TRAVELERS TO EUROPE.

SWISS CONSULATE GENERAL, WASHINGTON, D. C., May 10, 1858.

The Swiss consulate in London, in a recent dispatch to the Federal Council of Switzerland, relates the following occurrence :—

Two Swiss citizens coming from New York provided with proper passports, were, at their arrival in France, not allowed to proceed further, and were obliged to go to London, simply because they had omitted to procure the French *visa* at New York.

This is, therefore, to caution those of my countrymen who desire to return to Switzerland by way of France, not to neglect observing the above formality.

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**NAUTICAL INTELLIGENCE.**


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**FIXED LIGHT IN DUNGARVAN BAY—IRELAND, SOUTH AND EAST COASTS.**

Official information has been received at this office, that the Port of Dublin Corporation has given notice, that on and after the 1st of July, 1858, a harbor light will be exhibited all night from the lighthouse recently erected on Ballinacourty Point, on the northern side of Dungarvan Bay, south coast of Ireland. The light will be fixed, and visible between the bearings, from a vessel, of west and S. E.  $\frac{3}{4}$  S. It will show green bearing from west to N. W. by W., and red in the direction of Carrickapane Rock, but in all other directions it will be white. The light will be placed at an elevation of 52 feet above the level of the sea at high water, and its white appearance should be seen from seaward at a distance of about 10 miles in clear weather. The illuminating apparatus is dioptric, or by lenses of the third order. The light-tower is circular, of light grey limestone, 44 feet in height, and stands in latitude  $52^{\circ} 4' 27''$  N.; longitude  $7^{\circ} 33' 5''$  west of Greenwich, with Helvick Head S.  $\frac{1}{2}$  W.  $1\frac{1}{2}$  mile; Carrickapane Rock S. S. E. 9 cables' lengths; and White-house spit W. by N.  $3\frac{1}{2}$  cables' lengths.

**DIRECTIONS.**—The intermittent light on Mine Head, S. W. by W. 4 miles from Helvick Head, marks the approach from the westward to Dungarvan Bay, and can be seen farther eastward than the range of Dungarvan harbor light. A vessel in the entrance of Dungarvan Bay must keep clear of the red color of the light to avoid Carrickapane Rock; and on the northern side of the bay keep to the southward of the green light to avoid Carricknagaddy, and the rocks which extend half a mile eastward of Ballinacourty Point.

**BUOY ON BUTTER PLADDY SHOAL.**—Also, that a black nun buoy has been moored off the western extremity of the Butter Pladdy Shoal, about 2 miles southwest of the South Rock Lighthouse, east coast of Ireland. This buoy, which is placed as a guide to vessels taking the channel between the Butter Pladdy and the main, lies in 5 fathoms at low water, with South Rock Lighthouse N. E.  $\frac{3}{4}$  E.; North Rock beacon N. E.  $\frac{1}{4}$  N.; Kerney Point north; and St. Patrick rocks perch S. W. by W. All bearings magnetic. Variation  $25\frac{1}{2}^{\circ}$  west in 1858. By order of the Lighthouse Board.

THORNTON A. JENKINS, Secretary.

WASHINGTON, July 2, 1856.

**FIXED LIGHT WITH FLASHES ON CAPE SALOU.****MEDITERRANEAN, COAST OF SPAIN.**

Official information has been received at this office, that the Minister of Marine at Madrid has given notice, that on and after the 1st of April, 1858, a light would be exhibited from the lighthouse recently erected on Cape Salou, in the Province of Tarragona, Catalonia. The light is a fixed white light, varied by flashes every 4 minutes, placed at an elevation of 141 English feet above the level of the sea, and should be visible in clear weather from the deck of a vessel 15 miles distant. The illuminating apparatus is dioptric, or by lenses of the third order. The lighthouse consists of a rectangular building, from the center of which rises a circular tower in two portions, the lower being 16 feet, and the upper 11 feet in diameter; this is surmounted by a lantern, and the whole is 38 feet in height. The lower part of the structure is colored yellow; the tower is of the natural bluish color of the stone of which it is built, and the lantern is white. It stands upon a rock close to the seashore, in latitude  $41^{\circ} 3' 52''$  N., longitude  $1^{\circ} 9' 36''$  east of Greenwich. By order of the Lighthouse Board,

THORNTON A. JENKINS, Secretary.

WASHINGTON, May 22, 1858.

**FIRE ISLAND LIGHTHOUSE, LONG ISLAND, NEW YORK.**

On the evening of Monday, the 1st day of November next, a first order revolving light will be exhibited for the first time, and on every night thereafter from sunset to sunrise, from the lighthouse tower now in course of erection at Fire Island Beach, east side of Fire Island Inlet, south side of Long Island, New York. The illuminating apparatus is of the first order revolving catadioptric of the system of Fresnel, and will produce a brilliant flash once in every minute, which will not be materially different in appearance from the existing light in the old tower at that place, except in the greater brightness of the flash and increased range of the new light. The lighthouse tower, which is placed about 200 feet N. E. from the old lighthouse tower, is built of brick, will be 150 feet in height, of a cream or yellow color, and the light will be about 166 feet above the mean level of the sea. The old lighthouse tower and keepers' dwelling will be removed immediately after the exhibition of the light from the new tower. The new light should be seen in ordinary states of the atmosphere, from the deck of a vessel 15 feet above the water, from 21 to 23 nautical miles. Approximate position of the new lighthouse tower, latitude,  $40^{\circ} 37' 53''$  north, longitude,  $73^{\circ} 12' 51''$  west. Distances from Fire Island lighthouse—to Montauk Point lighthouse,  $67\frac{1}{2}$  nautical miles; Great West Bay lighthouse, 35 nautical miles; Sandy Hook light-vessel, 31 nautical miles; Navesink lights,  $37\frac{1}{4}$  nautical miles; Barnegat lighthouse, 66 nautical miles. By order of the Lighthouse Board,

J. ST. C. MORTON, U. S. Corps Engineers.

NEW YORK, July 3, 1858.

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NEW LIGHTHOUSE AND FOG-BELL ON BISHOP AND CLERKS' SHOAL,

NANTUCKET SOUND, MASSACHUSETTS.

A new lighthouse has been erected on Bishop and Clerks' Shoal, Nantucket Sound, Massachusetts. The tower is built of cut granite, on a cut-stone cylindrical pier, placed on the north point of the shoal. The pier is 12 feet high, and the tower 45 feet 8 inches high. The focal plane is 59 feet above the level of the sea. The color is grey, the natural color of the stone. The illuminating apparatus is a 4th order revolving catadioptric lens, of the system of Fresnel, showing a bright flash of the natural color every thirty seconds, which should be visible, in ordinary states of the atmosphere, a distance of 14 nautical miles. The position of the lighthouse, as given by the coast survey, is latitude $41^{\circ} 34' 17''$ north, longitude $70^{\circ} 15' 20''$ west of Greenwich. A fog-bell, to be rung by machinery, is attached to the lighthouse, and will be sounded in thick weather. The interval between the sounds is 15 seconds. The lighthouse bears from Point Gammon S. by E., (magnetic) distance $2\frac{1}{4}$ nautical miles. The light will be lighted for the first time at sunset on the evening of Friday the 1st of October next, and will be kept burning during that night and every night thereafter from sunset to sunrise. The Bishop and Clerks' light-vessel will be removed from her station on or about the 1st day of October, and will not show a light after the 30th of September next. By order of the Lighthouse Board,

W. B. FRANKLIN, Engineer, Secretary.

WASHINGTON, D. C., July 26, 1858.

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**BOLIVAR POINT LIGHTHOUSE, GALVESTON, TEXAS.**

The Bolivar Point Lighthouse having been renovated and elevated, the light will be re-exhibited on the night of the 15th instant, and the temporary light discontinued. The apparatus is of the 3d order catadioptric of the system of Fresnel, fixed light of the natural color, and will be exhibited from an elevation of 100 feet above the mean level of the sea. This light should be seen in ordinary states of the atmosphere, from the deck of an ordinary coasting vessel, at the distance of 16 nautical miles. The tower is painted red. By order of the Lighthouse Board,

W. H. STEVENS, U. S. Corps Eng's, L. H. Inspector, 9th L. H. Dist.

GALVESTON, TEXAS, July 1, 1858.

## SWASH LIGHTHOUSE, MATAGORDA BAY, TEXAS.

A light will be exhibited for the first time on the 15th of August next, and every night thereafter, from sunset to sunrise, from the screw-pile lighthouse recently erected at the Swash, opposite Alligator Head, in Matagorda Bay, Texas. The structure is upon seven iron screw-piles, hexagonal, and painted white. The iron work is painted black. The illuminating apparatus is catadioptric, fixed, of the fifth order of Fresnel, and is placed at an elevation of 38 feet above the mean level of the bay. This light marks the upper entrance to the Swash Channel. The buoy in the center of the channel ranges with this light and the small beacon light at Saluria. From the Swash Lighthouse, the buoy bears, per compass, N. N. E.; Saluria Light bears, per compass, S. S. W.; Decrows Point bears, per compass, S. S. E.; Matagorda Lighthouse, (revolving) south; Alligator Head bears, per compass, W. N. W.; Powder Horn Wharf bears, per compass, W. by N.  $\frac{1}{2}$  N.; Half-moon Reef Lighthouse bears, per compass, N. E. by N. By order of the Lighthouse Board,

GALVESTON, TEXAS, July 8, 1858.

W. H. STEVENS, Lighthouse Inspector.

## REVOLVING LIGHT ON CANTICK HEAD—ORKNEYS, SOUTH WALLS.

Official information has been received at this office that the Commissioners of Northern Lighthouses have given notice that on and after the 15th of July, 1858, a light will be exhibited from the lighthouse recently erected on Cantick Head, the southeastern extremity of South Walls, Island of Hoy, Orkneys. The light will be a white revolving light, showing a flash once every minute. It will be placed at an elevation of about 115 feet above the sea at high water, and should be seen in clear weather from the deck of a vessel at a distance of about 16 miles. The illuminating apparatus will be dioptric, or by lenses of the second order. The light-tower, which is 60 feet in height, will, together with the keepers' houses, be painted white. It stands in latitude  $58^{\circ} 47' 15''$  N., longitude  $3^{\circ} 7' 45''$  west of Greenwich. By order of the Lighthouse Board,

WASHINGTON, July 2, 1858.

THORNTON A. JENKINS, Secretary.

## FIVE-FATHOM BANK LIGHT-VESSEL, OFF CAPE MAY, N. J.

A new light-vessel has been placed to mark the Five Fathom Bank, lying to the eastward of Cape May Lighthouse, as a substitute for the old vessel, which has been withdrawn for repairs. The rig and color of the vessel, and the characteristic distinction of the lights, are the same as the old vessel, but the present position of the vessel is to the E. N. E. of the position formerly occupied, which will enable over-sea voyagers and coasters to determine with less difficulty, it is believed, than formerly, the position of the shoal part of the bank in approaching it from all quarters. The position of the light-vessel may be determined by the following compass bearings from it, viz., to shoal part of the bank, N. W.  $\frac{1}{2}$  N. distant  $2\frac{1}{2}$  miles; Cape Henlopen main light, W. by S.  $\frac{1}{2}$  S; Cape May Light, W. by N.  $\frac{1}{2}$  N. Moored in 12 fathoms water. By order of the Lighthouse Board,

PHILADELPHIA, July 14, 1858.

E. M. YARD, Lighthouse Inspector.

## LIFE-PRESERVING JACKET.

This is an article which has just been manufactured in Philadelphia. It is said to fit a man like a sailor's monkey jacket, and, therefore, not liable to be washed from the body. The jacket is lined with cork shavings, enclosed in water-tight cloth, quilted in cylinders around the jacket, three or four inches apart. The jacket, therefore, is a series of water-tight compartments, and injury to any one will not affect the buoyant character of the others. The arms and hands are left free in their motion to seize a rope, grasp a plank, or use in any other way which is necessary to save life.

## MARINE LOSSES FOR JULY.

The following is a table of marine losses for July, showing an aggregate of twenty two vessels, of which five were ships, five were barks, two were brigs, eight were schooners, and one a sloop. The total value of property lost was five hundred and forty thousand seven hundred dollars. As compared with the month of July, 1857, the above shows a decrease in the value of property lost of one hundred and seventy thousand dollars.

The vessels reported in this list are chiefly American, although some foreign are included—when bound to or from any United States port, or known to be insured in this country :—

|                                | Vessels. | Value.      |
|--------------------------------|----------|-------------|
| Total losses for January ..... | 15       | \$443,500   |
| “ for February .....           | 33       | 1,182,300   |
| “ for March.....               | 33       | 813,500     |
| “ for April (corrected).....   | 33       | 951,040     |
| “ for May.....                 | 33       | 714,000     |
| “ for June .....               | 22       | 814,401     |
| “ for July .....               | 22       | 540,700     |
| <hr/>                          |          |             |
| Total for six months.....      | 191      | \$5,359,441 |
| Same period in 1857.....       | 386      | 10,943,200  |

## THE LIGHTHOUSE AT GENOA.

We condense from a letter of an American traveling in Italy, the subjoined items descriptive of the lighthouse at the port of Genoa. It is a square tower, built upon a high rock that extends into the sea, and is itself 247 feet in height. Its top is 385 feet above the sea. Nothing can be more complete, in its arrangements, than this lighthouse. There is a winding marble staircase within, reaching to the very top. The light is excellently arranged, being on the dioptric or Fresnel principle, now so generally used. The oil is pumped up by machinery, as in the regular lamps, the surplus falling back into a receiver. There are four circular wicks, one within another, affording a light, which, strengthened by crystal magnifiers, revolving upon a frame also turned by machinery, and making an eclipse every  $1\frac{1}{2}$  minutes, can be seen at the distance of forty marine miles. The machinery resembles somewhat that of an old-fashioned clock with its weights hanging down in the tower, and cogwheels, balance wheel, &c., in a glass case. The whole is kept in excellent order, and is well worthy of a visit.

## IMPORTANT INVENTION.

Lieut. Brooke, U. S. N., inventor of the celebrated instrument for deep sea soundings, has given to the nautical world another invention, for instantly detaching ships' boats from the davits, and thus preventing the loss of life so frequently resulting from the swamping of small boats, in attempts to disentangle them from the tackle after they have touched the water—an event most likely to happen when the sea is rough, or the vessel from which the boat is lowered is moving rapidly. This invention consists of a metal socket and ball fitted to each other. The former is secured to the boat and the latter is attached to the tackle; but as soon as the boat touches the water, the tackle being slackened, the ball drops from its place, and the boat is instantly released.

Nautical men who have seen this contrivance, have given it their unqualified approval, and it is likely to be soon brought into use, not only in this country, but elsewhere. The Russian Government is about to adopt it, we understand, upon the new war steamer built by William H. Webb, and it is already in use on the United States sloop-of-war Marion.

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**POSTAL DEPARTMENT.**


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**OCEAN STEAM POSTAGE.**

The following rates of postage on letters have been agreed upon between this government and the German States, Prussia, &c., by Bremen steamers:—

Bremen, 10 cents; Oldenburg, 13; Austrian Empire, (including Hungary, Galicia, Lombardy, and Venice,) Bavaria, Brunswick, Hamburg, Hanover, Mecklenburg Schwerin and Stralitz, Kingdom of Prussia, Kingdom of Saxony, and Saxe-Altenburg, 15; all other German States, cities, and towns, 22 cents; Switzerland and the Netherlands, 25 cents; Denmark and Schleswig, 25; Poland and Russia, 29; Constantinople, Greece, and Sweden, 33; Norway, 38—pre-payment optional.

Alexandria, Corfu, 38 cents; island of Malta, Wallachia, 30; Italy, (except upper part,) 33—pre-payment required.

Newspapers and circulars, 3 cents each, to be pre-paid.

**MAILS TO THE PACIFIC.**—For a single letter, not exceeding half an ounce in weight, to Chagres, 20 cents; to Panama, 20 cents; to California and Oregon, 10 cents—pre-payment required.

**HAVANA MAILS.**—A line is established between Charleston and Havana, and between New York and Havana, the postage being 10 cents on a single letter not exceeding half an ounce in weight, with an additional 10 cents for each additional half-ounce, or fractional excess of half an ounce, to be pre-paid. Postage on each newspaper to Havana, 2 cents, also to be pre-paid.

**BRITISH POSTAL ARRANGEMENTS.**

On letters to British North America, 10 cents, if not over 3,000 miles; if over that distance, 15 cents a single rate—pre-paid or not at the option of the sender.

Letters posted or charged in the United States will be rated at a half-ounce to the single letter, over a half and not exceeding an ounce as a double letter, and so on.

The single rates to be charged on each letter posted in the United States addressed to any place in Great Britain or Ireland is 24 cents, the double rate 48 cents—over an ounce and not exceeding 2 ounces, as a quadruple letter, and so on, each ounce constituting two rates.

Said postage on letters going to any place in Great Britain or Ireland may be pre-paid, if the whole amount is tendered at the office in the United States, where mailed, at the option of the sender.

Newspapers may be mailed at any office in the United States to any place in the United Kingdom, on the pre-payment of 2 cents, and may, on receipt from any place in Great Britain or Ireland, be delivered at any office in the United States on payment of 2 cents. NOTE.—Each government is to charge 2 cents on each newspaper. These are to be sent in bands or covers, open at the sides or ends, and to contain no manuscript whatever.

**FRENCH POSTAL ARRANGEMENT.**

A postal arrangement having been entered into between the United States and France, letters for France, or Algeria, may be sent in the open mail to France, direct, or through England, by either the United States, British, or French packets, the postage on the same being 15 cents for each  $\frac{1}{2}$  ounce, or fractional part thereof—pre-payment optional.

Persons mailing letters to foreign countries, with which the United States have not entered into postal arrangements, are reminded that it is necessary for them to pre-pay the proper postage, or the letters cannot be forwarded.

## BRITISH MAILS.

The foreign mails leave Great Britain as follows:—

## SOUTHAMPTON STATION—BY DAY MAIL.

| Destination.                                                                                                                                                                                                                       | Mails<br>dispatched from London.       | When<br>expected. |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-------------------|
| Portugal, Spain, and Gibraltar.....                                                                                                                                                                                                | 7th, 17th, and 27th of every<br>month. | } July 6          |
| Malta, Egypt, Mauritius, Ceylon, and India..                                                                                                                                                                                       | 4th, 12th, and 20th of every<br>month. |                   |
| Gibraltar, Penang, Singapore, and China ...                                                                                                                                                                                        | 4th & 20th of every month              | } July 4          |
| British colonies in the West Indies, (except<br>Honduras and Bahamas,) foreign colonies,<br>&c., in the W. Indies, (except Havana,) Cal-<br>ifornia, Venezuela, N. Granada, Chile, and<br>Peru, Greytown, (St. Juan de Nicaragua.) | 2d & 17th of every month               |                   |
| Mexico and Havana.....                                                                                                                                                                                                             | 2d of every month only                 | July 1            |
| Honduras, Bahamas, and Blewfields .....                                                                                                                                                                                            | 17th of every month                    | July 16           |
| Lisbon, Brazil, B. Ayres, and Falkland Isles.                                                                                                                                                                                      | 9th of every month                     | Aug. 5            |
| Australia.....                                                                                                                                                                                                                     | 12th of every month                    | July 6            |

## DEVONPORT STATION.

|                                                        |                                      |          |
|--------------------------------------------------------|--------------------------------------|----------|
| Cape of Good Hope, Ascension, St. Helena, }<br>&c..... | Evening of the 5th of every<br>month | } July 2 |
|--------------------------------------------------------|--------------------------------------|----------|

## PLYMOUTH STATION.

|                                                        |                                      |          |
|--------------------------------------------------------|--------------------------------------|----------|
| Madeira, Teneriffe, and West Coast of Af-<br>rica..... | Evening of the 23d of every<br>month | } July 6 |
|--------------------------------------------------------|--------------------------------------|----------|

## LIVERPOOL STATION.

|                                            |                         |        |
|--------------------------------------------|-------------------------|--------|
| British North America and United States .. | Evening of every Friday | July 8 |
|--------------------------------------------|-------------------------|--------|

PORTUGAL, SPAIN, AND GIBRALTAR.—The Tagus, for the mail of the morning of the 7th inst.

GIBRALTAR, MALTA, EGYPT, MAURITIUS, CEYLON, INDIA, AND CHINA.—The next mail from Calcutta direct, Penang, Singapore, and China, via Marseilles, is due in London on the 14th inst. The next mail for India, via Bombay, and Marseilles, is due in London on the 4th inst.

LONDON, BRAZIL, BUENOS AYRES, &c.—The Tyne, for the mails of the morning of the 9th inst.

MALTA, EGYPT, ADEN, INDIA, CEYLON, AND AUSTRALIA.—The mails, via Southampton, will be dispatched on the morning of the 18th inst. The mails, via Marseilles, will be dispatched on the evening of the 16th inst.

CAPE OF GOOD HOPE, &c.—The Dane, for the mails of the evening of the 5th inst.

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 UNITED STATES POST-OFFICE.

The Boston *Post*, in remarking upon the comparative expense of correspondence in different localities, under our postal system, gives the following comparative table. Of course, so long as letters and mail matter go all distances, it is not possible to get at the exact sum that it costs to distribute letters in any particular State or Territory, or other locality. Still, if we look at the money received, and the money expended in each State or district throughout the country, we can form a very tolerable idea of the comparative profit or loss. The larger the districts are, over which a computation is made, the more equitable and exact will be the estimate. It must be mentioned that the sum set down as the postal "expenses" in each State, does not necessarily embrace just the amount—no more or less—of the expenditures for such State, as in mail transportation a route may commence in one State and run through several others,

and the sum paid be set down to the State where the route begins. As the routes usually begin at the East, the largest portion of the expenses will be thrown on the States the farthest east. Still, this fact will make but little difference in estimating the postal business of the country in three large sections or divisions. The first division extends from Maine to Pennsylvania, the next from Delaware to Tennessee and Missouri, including California, and the last the States on the Gulf of Mexico, and the territories lying west of the Mississippi.

States.	Postal revenue.	Postal expenses.	Number of letters.	Letters per 1,000 persons.	Revenue per 1,000 persons.	Proportion of exp. to revenue.
Maine.....	\$210,664	\$170,745	3,111,403	4,987	\$245	81
N. Hampshire..	137,950	99,943	2,037,459	6,269	308	72
Vermont.....	133,314	117,831	1,968,980	6,058	297	85
Massachusetts.	769,290	385,989	11,362,071	10,028	492	50
Rhode Island..	86,277	39,544	1,274,287	7,630	375	46
Connecticut....	263,380	175,181	3,889,997	9,700	476	66
New York.....	1,981,100	1,037,316	29,259,943	8,432	411	52
New Jersey....	148,624	132,336	2,195,117	3,852	189	89
Pennsylvania..	815,588	523,796	12,045,863	4,737	232	64
Total.....	\$4,546,187	\$2,682,681	67,145,120	7,025	\$345	59
Per cent.....	50	30	51	..	..	..
Delaware.....	\$27,103	\$19,477	400,320	4,127	\$202	72
Maryland....	258,109	263,471	3,812,166	5,956	292	102
Dist. Columbia..	60,326	38,161	891,000	15,101	741	63
Virginia.....	300,855	413,993	4,443,494	2,936	144	137
Kentucky.....	167,343	224,422	2,471,601	2,274	111	134
Tennessee....	139,998	198,103	2,067,716	1,893	93	141
Ohio.....	623,159	670,995	9,203,343	4,154	204	108
Michigan.....	215,454	232,837	3,182,164	6,252	307	108
Indiana.....	236,482	303,972	3,492,409	3,037	149	129
Illinois.....	460,259	553,337	6,797,370	5,468	268	120
Wisconsin....	206,478	170,369	3,049,586	5,525	271	82
Iowa.....	161,973	153,313	2,392,283	7,141	350	95
Missouri.....	195,565	287,373	2,888,406	3,434	163	147
California.....	365,514	268,714	2,769,354	8,266	791	74
Total.....	\$3,418,618	\$3,798,537	47,861,212	5,007	\$259	111
Per cent.....	37	42	36	..	..	..
Grand total.	7,964,805	6,481,218	115,006,332	5,428	274	81
Per cent.....	89	72	88	..	..	..
North Carolina	\$99,168	\$206,068	1,464,668	1,589	\$78	208
South Carolina	126,642	270,437	1,870,449	2,649	130	214
Georgia.....	193,226	326,406	2,853,868	3,052	150	169
Florida.....	27,670	105,866	408,674	3,681	181	382
Alabama.....	150,675	324,868	2,225,414	2,665	131	216
Mississippi....	102,702	248,708	1,516,765	2,257	111	242
Louisiana.....	225,657	371,411	3,332,854	5,555	273	165
Texas.....	93,312	251,533	1,385,574	2,771	136	268
Arkansas.....	38,394	234,177	567,066	2,240	110	610
Territories....	64,871	150,440	818,745	3,355	192	230
Total.....	\$1,122,817	\$2,489,914	16,444,077	2,845	\$141	222
Per cent.....	11	28	12	..	..	..
Grand total..	9,087,622	8,971,132	131,450,409	4,875	244	99

The sums given as the postal revenue are not precisely the sums contributed by each State. To the sums so contributed have been added the proportion due by government for and on account of free matter, (government postage,) the sum

being estimated at \$2,500,000 a year, and distributed among all the States, just in proportion to the postal revenue of each. The sums representing the expenses are only the expenses set down against each State in the annual report. There are some other moderate sums that go to increase the grand total of expenses, (like the cost of ocean transportation to California, set down in the naval estimates,) but these would not affect the distinct results that we arrive at in this programme.

JOURNAL OF INSURANCE.

NEW YORK FIRE INSURANCE STOCKS, DIVIDENDS, AND PRICES.

Names of Companies.	Capital.	Shares.	Par.	Dividends payable.		Semi-	Latest price.
				Jan. & July.	Feb. & Aug.	divid'nds. p. c.	
Ætna.....	\$200,000	4,000	\$50	Jan. & July.	6	112 a	115
Arctic.....	250,000	5,000	50	Jan. & July.	5	104 a	105
Astor.....	150,000	6,000	25	Feb. & Aug.	7	123 a	125
Atlantic.....	150,000	3,000	50	Mar. & Sept.	10	150 a	155
American.....	200,000	4,000	50	Jan. & July.	6	112 a	114
Beekman.....	200,000	8,000	25	Feb. & Aug.	7	119 a	120
Bowery.....	300,000	12,000	25	June & Dec.	15	183 a	185
Brevoort.....	150,000	3,000	50	July & Jan.	7	105 a	106
Broadway.....	200,000	8,000	25	Feb. & Aug.	6	126 a	128
Brooklyn.....	102,000	6,000	17	Jan. & July.	10	145 a	150
Citizens'.....	150,000	7,500	20	June & Dec.	10	190 a	192
City.....	210,000	3,000	70	Feb. & Aug.	15	180 a	182
Clinton.....	250,000	2,500	100	Jan. & July.	10	117 a	120
Columbia.....	200,000	4,000	50	Jan. & July.	5	105 a	106
Commercial.....	200,000	4,000	50	June & Dec.	6	112 a	113
Commonwealth.....	250,000	2,500	100	Jan. & July.	5	92 a	95
Continental.....	500,000	5,000	100	Jan. & July.	5	112 a	115
Corn Exchange.....	200,000	4,000	50	Sept. & Mar.	6	125 a	126
Eagle.....	300,000	7,500	40	May & Nov.	10	150 a	152
East River.....	150,000	10,000	15	June & Dec.	6	102 a	105
Empire City.....	200,000	12,000	100	Jan. & July.	7	118 a	120
Excelsior.....	200,000	4,000	50	Jan. & July.	10	112 a	115
Exchange.....	150,000	5,000	30	Feb. & Aug.	5	106 a	107
Firemen's.....	204,000	2,000	17	April & Oct.	18	150 a	155
Fulton.....	150,000	6,000	25	April & Oct.	7	126 a	128
Firemen's Fund.....	150,000	15,000	10	May & Nov.	..	105 a	108
Gallatin.....	150,000	3,000	50	June & Dec.	..	100 a	100
Gebhard.....	200,000	2,000	100	Jan. & July.	..	100 a	102
Greenwich.....	200,000	4,000	25	Feb. & Aug.	10	135 a	136
Grocers'.....	200,000	4,000	50	Mar. & Sept.	6	115 a	118
Goodhue.....	200,000	2,000	100	Jan. & July.	..	100 a	103
Hamilton.....	150,000	10,000	15	Jan. & July.	6	70 a	75
Harmony.....	150,000	3,000	50	Jan. & July.	3½	100 a	102
Hanover.....	200,000	4,000	50	Jan. & July.	6	110 a	112
Home.....	500,000	5,000	100	Jan. & July.	10	165 a	175
Hope.....	150,000	3,000	50	Jan. & July.	5	100 a	100
Howard.....	250,000	5,000	50	June & Dec.	15	170 a	175
Humboldt.....	200,000	2,000	100	Jan. & July.	..	100 a	102
Irving.....	200,000	8,000	25	Feb. & Aug.	7	116 a	120
Indemnity.....	150,000	1,500	100	Feb. & Aug.	5	95 a	96
Jefferson.....	200,000	6,667	30	Mar. & Sept.	10	172 a	175
Jersey City, New Jersey...	150,000	3,000	50	Jan. & July.	5	108 a	110
Knickerbocker.....	280,000	7,000	40	May & Nov.	8	130 a	132
Lamar.....	200,000	2,000	100	Jan. & July.	5	110 a	115

Names of Companies.	Capital.	Shares.	Par.	Dividends payable.	Semi-divid'nds.		Latest price.
					p. c.		
Lenox.....	\$150,000	6,000	\$25	Feb. & Aug.	6	105 a	108
Lorillard.....	200,000	8,000	25	Feb. & Aug.	8	132 a	135
Long Island.....	200,000	2,000	100	Jan. & July.	10	169 a	170
La Fayette.....	150,000	3,000	50	Jan. & July.	5	101 a	103
Manhattan.....	250,000	5,000	50	June & Dec.	15	150 a	152
Mechanic.....	150,000	3,000	50	Jan. & July.	7	109 a	111
Mechanics' and Traders'...	200,000	8,000	25	Jan. & July.	10	145 a	150
Mercantile.....	200,000	4,000	50	Jan. & July.	8	125 a	130
Merchants'.....	200,000	4,000	50	Jan. & July.	10	150 a	152
Metropolitan.....	300,000	3,000	100	May & Nov.	6	105 a	106
Market.....	200,000	2,000	100	Jan. & July.	5	108 a	110
Montauk.....	150,000	3,000	50	Jan. & July.	..	80 a	85
Nassau.....	150,000	3,000	50	Jan. & July.	10	135 a	138
National.....	200,000	5,333 $\frac{1}{3}$	37 $\frac{1}{2}$	Jan. & July.	12	184 a	186
New Amsterdam.....	200,000	8,000	25	Jan. & July.	8	130 a	132
New York Equitable.....	210,000	6,000	35	Jan. & July.	15	165 a	170
New York Fire & Marine..	200,000	2,000	100	Feb. & Aug.	15	160 a	165
Niagara.....	200,000	4,000	150	Feb. & Aug.	10	155 a	160
North American.....	250,000	5,000	50	June & Dec.	8	120 a	122
North River.....	350,000	14,000	25	April & Oct.	8	150 a	155
New World.....	200,000	4,000	50	Jan. & July.	5	105 a	106
Pacific.....	200,000	8,000	25	Jan. & July.	8	130 a	135
Park.....	200,000	2,000	100	Jan. & July.	6	125 a	130
People's.....	150,000	8,000	50	Jan. & July.	6	109 a	110
Peter Cooper.....	150,000	7,500	20	Jan. & July.	8	96 a	98
Phoenix.....	200,000	4,000	50	Mar. & Sept.	10	135 a	138
Republic.....	150,000	1,500	100	Jan. & July.	6 $\frac{1}{2}$	100 a	102
Rutgers.....	200,000	8,000	25	Feb. & Aug.	7	100 a	102
Relief.....	150,000	3,000	50	Jan. & July.	8	115 a	116
Resolute.....	200,000	2,000	100	Jan. & July.	..	112 a	114
St. Mark's.....	150,000	6,000	25	Feb. & Aug.	8	128 a	130
St. Nicholas.....	150,000	6,000	25	Feb. & Aug.	..	75 a	76
Stuyvesant.....	200,000	8,000	25	Feb. & Aug.	7	112 a	115
Security.....	200,000	2,000	100	Feb. & Aug.	5	111 a	113
United States.....	250,000	10,000	25	Jan. & July.	7	135 a	137
Washington.....	200,000	4,000	50	Jan. & July.	15	155 a	150
Williamsburg City.....	150,000	3,000	50	Jan. & July.	10	130 a	132

BOSTON FIRE AND MARINE INSURANCE COMPANIES.

Names of Companies.	Capital.	Shares.	Par.	Dividends payable.	Dividends.
American.....	\$300,000	3,000	\$100	Jan. & July.	10 6
Boston.....	300,000	3,000	100	Mar. & Sept.	4 5
Boylston.....	300,000	3,000	100	Apr. & Oct.	8 8
City.....	150,000	3,000	50	Apr. & Oct.	4 4
Eliot.....	200,000	4,000	50	Apr. & Oct.	5 5
Firemen's.....	300,000	6,000	25	Jan. & July.	12 16
Franklin.....	300,000	3,000	100	Jan. & July.	7 5
Hope.....	300,000	3,000	100	Apr. & Oct.	0 0
Manufacturers'.....	400,000	4,000	100	Apr. & Oct.	15 20
Mercantile.....	300,000	6,000	100	May & Nov.	0 5
Merchants'.....	500,000	5,000	100	Apr. & Oct.	8 8
National.....	500,000	10,000	50	Apr. & Oct.	6 8
Neptune.....	300,000	3,000	100	Apr. & Oct.	5 6
North American.....	200,000	2,000	100	Jan. & July.	5 5
Shoe & Leath'r Deal'rs	200,000	2,000	100	Apr. & Oct.	3 4
United States.....	200,000	4,000	50	June & Dec.	6 5
Warren.....	150,000	1,500	100	Apr. & Oct.	0 0
Washington.....	200,000	2,000	100	Apr. & Oct.	0 5

PHILADELPHIA FIRE AND MARINE INSURANCE COMPANIES.

Names of Companies.	Authorized capital.	No. of shares.	Par.	Subscribed capital.	Assets.
American Fire.....	\$277,500	3,472	\$75	\$277,500	\$502,421 68
American Mutual.....	250,000	10,500	12	125,000	100,000 00
Anthracite.....	400,000	8,000	50	100,000	112,880 40
Atlantic Mutual.....	500,000	10,000	10	110,000	156,462 58
Corn Exchange.....	500,000	10,000	50	140,000	200,000 00
Commonwealth.....	500,000	10,000	50	500,000	500,000 00
County Fire.....	400,000	4,000	100	201,000	146,418 89
Columbia Mutual.....	500,000	5,000	100	25,000	100,000 00
Continental.....	.....	20,000	50	200,000	221,000 00
Delaware Mutual Safety.....	100,000	10,000	5	100,000	702,785 37
Equitable Mutual.....	250,000	10,000	25	101,550	169,408 93
Exchange Mutual.....	300,000	6,000	50	150,350	196,505 16
Fame Mutual.....	100,000	2,500	50	100,000	61,262 40
Franklin.....	400,000	4,000	100	400,000	1,888,904 74
Farmers' and Mechanics'.....	250,000	25,000	50	250,000	530,894 94
Girard Fire and Marine.....	300,000	3,000	100	200,000	200,000 00
Great Western.....	500,000	10,000	50	222,300	277,574 05
Howard.....	600,000	6,000	100	600,000	754,095 84
Hope Mutual.....	500,000	1,500	10	75,000	153,000 00
Jefferson.....	500,000	10,000	50	100,000	130,903 38
Kensington.....	300,000	14,200	20	10,000	100,000 00
Manufacturers'.....	500,000	10,000	50	150,000	200,000 00
Merchants'.....	400,000	16,000	25	150,000	226,260 00
Mechanics'.....	100,000	1,000	100	100,000	150,000 00
Merchants' and Mechanics'.....	200,000	4,000	50	26,000	140,000 00
National Safety Ins. & Trust Co.....	250,000	5,000	50	250,000	1,165,145 74
Neptune.....	500,000	1,000	100	100,000	123,000 00
North America.....	500,000	50,000	10	500,000	1,007,825 26
Pennsylvania Fire.....	200,000	2,000	100	200,000	741,678 96
Philadelphia Fire and Life.....	300,000	12,000	25	100,000	170,000 00
Phoenix Mutual.....	120,000	5,200	20	120,000	225,000 00
Quaker City.....	500,000	5,000	100	200,000	277,665 85
Reliance Mutual.....	300,000	6,000	50	178,000	252,500 00
State of Pennsylvania.....	200,000	1,000	200	200,000	447,446 50
Spring Garden.....	200,000	4,000	50	120,000	149,341 14
Union Mutual.....	300,000	6,000	50	225,000	338,000 00
Western.....	200,000	4,000	50	50,000	150,000 00

INSURANCE IN BREMEN.

The amount of insurance risks in the city of Bremen for ten years was as follows:—

1848.....thaler	22,680,800	1853.....thaler	36,222,800
1849.....	24,898,000	1854.....	44,006,800
1850.....	26,712,000	1855.....	49,106,900
1851.....	30,674,000	1856.....	64,043,800
1852.....	30,632,200	1857.....	83,130,000

INSURANCE COMPANIES OF NEW YORK CITY.

The aggregate capital of 77 local insurance companies in New York city (being all except the mutuals) is \$16,376,000. This capital is sound and well invested, and it would earn its interest, seven per cent, without being employed in the hazard of insurance against fire. The aggregate amount of premiums received by these 77 companies in 1857, was \$5,322,407. The aggregate amount of losses and expenses paid in same time, was \$3,843,291. The apparent net earning on the *business* of insurance was \$1,479,116. Of this sum there should be deducted for re-insurance on *increased* business during that year, about

\$100,000—actual earning, \$1,379,116. The dividend of all these companies paid during the year was \$1,219,201; averaging on the aggregate capital 12½ per cent. It is evident that about 5½ per cent of this dividend was from insurance earnings, \$821,931. The balance of earnings went to reserved surplus, \$557,185.

RAILROAD, CANAL, AND STEAMBOAT STATISTICS.

RAILROAD PROFITS.

An article in the last number of the *Edinburgh Review*, upon the "Railways of Great Britain," presents many facts and comparative statements which are both new and interesting. The general results of railroad communication over modern society in cheapening conveyance, saving time, increasing production and capital, and diffusing knowledge and intelligence, are matters of universal notoriety. But the comparative success of railroads, as business investments, in different countries, is not so well understood. It is generally supposed that they have proved less remunerative than is actually the case. The fact is, that, upon the continent of Europe more particularly, they are amongst the most profitable forms of investment, as is shown by the following table:—

Years.	Countries.	Cost per mile.	Receipts.	Expenditure.	Net receipts.	Per cent.
1856	Great Britain.	£35,459	£28,165,000	£10,887,000	£12,278,000	3.97*
1855	Germany....	14,529	4,207,116	4,846,744	4,360,372	5.05
1855	Austria.....	21,387	1,901,045	1,023,918	877,127	6.29
1856	Prussia.....	14,101	4,537,602	2,341,005	2,196,597	6.22
1854	France.....	25,668	8,077,846	3,483,642	4,594,204	6.14
1856	United States	8,000	18,996,394	10,148,413	8,847,981	5.46

The enormous expense of the railroads in England will be observed; and it is this more than any other cause which has reduced the percentage of profit to so low a figure. In this table the average cost is given of the roads of both England and Scotland, but between these two countries there is a notable difference in this respect—the cost per mile in England having been £40,288, and in Scotland £27,750. In Ireland it was only £14,808. Benefit has been derived from experience, for the more recently constructed roads have averaged only £12,273 per mile in England, £5,408 in Scotland, and £6,716 in Ireland. The average dividend on the English roads is 3.5 per cent, on the Scotch 2.7 per cent, and on the Irish 4 per cent. The principal causes of the great cost of the English roads have been the exorbitant prices paid for land damages; and the enormous sums invested in operating upon Parliament roads have been made unprofitable too, by the tendency of Parliament to concede competing or otherwise unnecessary lines; the imposition of a passenger tax, amounting to about eight per cent of the net receipts from passengers; heavy parochial assessments, amounting to some fourteen per cent of the net receipts; the infringement on the proper income of railroads by the Post-office in carrying parcels, and the partial and oppressive manner in which the compensation law for damages in cases of accident is administered.

In Europe, as here, the passenger traffic forms a very large proportion of the

* Proportion per cent net receipts to total capital expended.

income of railroads; but this proportion appears to be decreasing; that is to say, the freight business has increased in greater ratio than the passenger business. In Great Britain, the passenger receipts in 1849 were 53 per cent of the total receipts, but in 1856 they amounted to only 44 per cent of the total receipts. Upon the continental railways the proportion varies considerably in different countries. Thus, upon the French railways the receipts from passengers appear to be 52 per cent, while in Prussia and Germany the passenger receipts are scarcely one-third of the total receipts; and on the Austrian railways the fares of passengers amount to only 27 per cent of the total income. In all European countries the passenger traffic is divided into three classes, of which the proportional number travelling by each class is nearly as follows:—

	First.	Second.	Third.	Total.
British Isles.....	13	32	55	100
France.....	9	33	68	100
Germany.....	1.5	21.5	77	100
Austria.....	2	24	74	100

On the German and Austrian railways the first and second classes are nearly identical with the first-class on English railways. On the French railways, the first, second, and third-class carriages are used very much by the same classes as on English railways. In the United States, with the exception of the emigrant class, there is only one class of passengers. The actual number of each class of passengers in the British Isles was in—

	First.	Second.	Third.
1849.....	7,292,812	23,521,650	32,890,322
1856.....	17,117,477	40,666,162	71,531,557

The receipts per mile for each class were:—

	First.	Second.	Third.
In 1849.....	£345	£454	£326
1856.....	352	404	413

and the actual receipts—

	First.	Second.	Third.
1849.....	£1,927,768	£2,530,969	£1,816,476
1856.....	2,992,161	3,488,981	3,512,228

The greatest proportionate increase, it will be observed, is in the third-class business. On the French roads, the increase of the lower class traffic is yet more decided. In 1853, the published returns show:—

	First.	Second.	Third.
Receipts per mile were.....	£337	£327	£496
And the total receipts..	790,701	767,472	1,164,741

The French Minister of Works observed in his Statistical Report for 1856, that "the comfort of the carriages has very little to do with the numbers travelling in the different classes, but that the selection of the class is regulated by the speed of the trains."

OPENING OF NAVIGATION ON THE LAKES.

The *Dunkirk Journal* states, as a curious fact concerning the opening of navigation on the lakes, that "for a long series of years the same thaw or storm has cleared Dunkirk Harbor, Buffalo Creek, and the North River at Albany, of ice, often at the same hour, and seldom varying twenty-four hours. This spring, 1853, the work of breaking at the three points was simultaneous, varying at the farthest no more than the difference in time between the given points."

STEAM ON THE ERIE CANAL.

On Friday, the 6th of August, Governor KING, of New York, and a select party, made a passage from Rochester to Buffalo on board of the steam propeller Sternberg, the first attempt at steam navigation on the Erie Canal.

The Sternberg is modeled in regular canal-boat fashion, but is somewhat smaller, and far more graceful, than the ordinary boats. She is ninety-six feet long, seventeen feet four inches beam, and seven feet depth of hold. She carries 150 tons of freight in the present state of the canal, but when it is wider she can carry 200 tons. She is propelled by two engines of fifteen horse-power each, and has two screws, one at each side of the rudder. This mode of construction is very favorable to canal navigation, as the motion of the screws throws the current into the center of the canal, and hence all damage to the banks by the washing of the waves is avoided. This was particularly observable on the trip of Friday, for while the Whallon, with her single screw, and the lake propeller Governor King, threw a heavy wave to the side of the canal, the Sternberg did not make a rise on the banks of more than three inches, and her builders say that her construction is not perfect, but that they will improve considerably on the next boat. The Sternberg is the first freight-carrying steamboat put on the canal. The Sternberg was built in Buffalo by Van Slyke & Notter, and is but very recently completed. Her engines, a model of machinery, were built by Mr. David Bell, of Buffalo. On Friday and Saturday she ran at an average of five miles an hour from Rochester to Buffalo, and sometimes made six and seven miles in the hour, though she was going against the current, and had eighty tons of freight, besides her passengers, on board. She moved with perfect smoothness, was easily stopped when in full motion, and steered admirably, scarcely making a perceptible swell in the water. As far as damage to the banks of the canal is concerned, it seemed to be the opinion of all on board that there was no danger to be apprehended from such boats as the Sternberg. The quantity of fuel consumed by this boat is inconsiderable. On the trip down from Buffalo to Rochester last week, a distance of ninety-two miles, with 130 tons of freight on board, she consumed only 2½ tons of coal.

It is estimated that a boat supplied with a ten horse steam-engine would require no more hands to manage her than is used with horses, and the only difference in cost would be between an engineer and driver—the former \$30, and the latter \$10, per month. A ten horse steam-engine can be run at an expense of fifty pounds of coal per hour, at \$5 per ton. Therefore, she could be run forty hours with one ton of coal. A distance of 120 miles, at three miles per hour, would cost—

For one ton of coal.....	\$5 00
Extra wages of engineer.....	2 56
One quart sperm oil.....	0 56
Total.....	\$8 12

Same distance done by horse-power would be, for 120 miles towing, done at 20 cents per mile, which is below the present rates of towing, \$24; time, at 2½ miles per hour, 48 hours. Allowing the expenses of the boat to be equal in other respects, the above estimate shows a saving in favor of steam of \$15 88, and a gain of eight hours in the 120 miles.

RAILROADS OF THE UNITED STATES.

Since 1830, we have, says the *Railroad Journal*, built nearly twenty-seven thousand miles of railroad, which have cost, on an average, \$35,000 per mile, or about \$945,000,000.

The following statement will show the number of miles annually opened, to the first of January in each year, since 1848, with their cost each year, and the total cost:—

Years.	Number of miles.	Annual increase.	Cost for year.	Total cost.
1848	5,265	.....	.....	\$184,275,000
1849	5,195	932	\$32,620,000	216,895,000
1850	7,350	1,253	43,855,000	260,750,000
1851	8,856	1,506	53,710,000	313,460,000
1852	10,878	2,022	70,770,000	385,230,000
1853	15,315	2,437	85,295,000	470,525,000
1854	15,511	2,196	76,860,000	547,385,000
1855	18,438	3,927	107,445,000	654,830,000
1856	21,449	2,009	70,315,000	750,715,000
1857	24,290	2,841	99,435,000	850,150,000
1858	26,210	1,920	67,200,000	917,350,000

The total receipts on the roads have been about twelve per cent on their cost, and the net proceeds about five per cent. The following statement will show the receipts, running expenses, and net earnings to the 1st of January in each year:—

Years.	Total receipts.	Working expenses.	Net earnings.
1848	\$22,113,000	\$12,899,250	\$9,213,750
1849	26,026,400	15,181,650	10,844,750
1850	31,290,000	18,255,500	13,037,500
1851	37,615,200	21,942,200	15,637,000
1852	45,979,600	26,716,100	19,261,500
1853	56,463,000	32,936,750	23,526,250
1854	65,681,400	38,312,150	27,369,250
1855	77,579,600	44,838,100	32,741,500
1856	87,017,400	50,760,150	36,257,250
1857	98,949,600	57,720,600	41,229,000
1858	106,013,600	61,424,200	44,589,400

From these tables it will be seen that the amount annually expended in the construction of railroads since 1850 has largely exceeded the whole expenditures of government, and that the railroad receipts for the same years have surpassed the government receipts. Indeed, the working expenses of railroads very nearly equal the working expenses of government; and the entire expenditure is in the hands of a few men, who are accountable to no intelligent head for its use.

WABASH AND ERIE CANAL OF INDIANA.

The annual statement of the trustees of this canal has just been published. That paper says the result of the year's operations is very unfavorable. In addition to the railroad competition, which has been very disastrous, the canal suffered to the extent of \$50,000 by the flood in the Wabash Valley. The aqueduct over Wea Creek, 140 feet long, was wholly carried away. It was at first supposed that the damage was so great that it would be necessary to abandon the canal entirely. The available means of the trust are barely equal to the expenses and repairs, and the trustees have been forced to postpone the payment of the interest on the six per cent loan to October, when they hope to be able to make the payment. Navigation will be resumed on the 15th instant. The sales

of lands between the 1st of December and 1st of July were 13,547 acres, for \$26,922. The quantity of land unsold in Vincennes District is—

141,387 acres.....	valued at	\$289,418 22
Other lands, &c.....		73,760 26
Suspended debt		66,736 40
Total.....		\$429,914 88

The receipts and expenditures for six months to January 30th, 1858, were as follows:—

On hand December 31, 1857		\$84,346
Receipts.....	\$58,640	
Expenses.....	84,934	
Excess expense.....		25,294
On hand June 30.....		\$53,105

RAILROAD ACCIDENTS IN NEW YORK.

TABLE SHOWING THE SPEED, NUMBER OF PASSENGERS KILLED, PASSENGERS, MILEAGE, RATIO OF KILLED AND WOUNDED, ETC., ON THE VARIOUS NEW YORK RAILROADS FOR THE YEAR ENDING SEPTEMBER 30, 1855.

	—Speed.—		Total killed.	Passengers		Total passengers.
	Ordinary.	Express.		Killed.	Injured.	
New York and Erie.....	26	34	36	3	1	980,452
New York Central.....	28	35	24	1	11	2,636,062
Hudson River.....	33	39	26	2	6	1,540,856
New York and New Haven...	28	34	6		12	1,074,056
Buffalo and State Line.....	38	38	4	1	..	325,536
Canandaigua and Elmira.....	30	32	4	1	1	137,591
Long Island.....	30	35	3	.	2	374,881
Other roads*.....	25	31	20	1	3	3,072,551
Average and total.....	26	34½	123	9	36	9,141,984

	Mileage.	—Ratio to whole number.—		Av. m. each pass.
		Killed.	Injured.	
New York and Erie.....	64,951,794	1 to 326,817	1 to 980,452	66.2
New York Central.....	169,052,341	1 to 2,636,062	1 to 239,642	64.
Hudson River.....	70,041,746	1 to 770,428	1 to 256,803	45.4
New York and New Haven...	41,248,586	.....	1 to 89,505	38.4
Buffalo and State Line.....	14,980,038	1 to 325,536	.....	45.
Canandaigua and Elmira.....	4,338,229	1 to 137,591	1 to 137,591	31.5
Long Island.....	9,479,016	.....	1 to 187,440	25.3
Other roads*.....	43,693,163	1 to 3,072,551	1 to 1,015,776	14 2
Average and total.....	417,784,913	1 to 1,015,776	1 to 253,944	45.6

If the returns of other years were sufficiently full to enable us to prepare a similar table, we believe it would exhibit the same result, *i. e.*, that accidents are not proportioned to speed. Indeed, in very many cases, accidents happen to slow trains which would have been prevented had the trains been running at high speed.

RAILROAD INVESTMENTS.

Governor HAILE, of New Hampshire, in his message of July, remarks thus upon the general results of railroad investments and their influence:—

More than six hundred miles of railroad have been constructed in New Hampshire within the last few years. These roads have more than doubled the

* Except Harlem and city roads.

facilities of business, brought our people into immediate communication with the best markets, have largely contributed to the public convenience, and have materially increased the value of the taxable property of the State. They were constructed at very great expense, but have failed, except in rare instances, to make any return whatever to the stockholders. A large number of the citizens of this and other States sacrificed considerable parts of their estates, and some contributed nearly all their property, to aid the people of this State in these great public enterprises. There is manifest injustice in adding to the embarrassment of railroad corporations, owing more than the value of their property, and resulting in an entire loss to the stockholders, by subjecting them to a high rate of taxation. I submit to you the question, whether some modifications of the law of the State relating to the taxation of railroad corporations are not justly demanded.

JOURNAL OF MINING, MANUFACTURES, AND ART.

MANUFACTURES IN RUSSIA.

The manufacture of cloth in Russia is on an extensive scale. The raw material is principally obtained from the southern governments, and the emporium for the woolen trade is Kharkov, where, in the market seasons, immense quantities of wool are accumulated. By these markets the woolen trade of the whole country is regulated, and as at the last one, held about a month since, the prices were very low, the same is the case throughout the entire empire. The prices for the common sorts are from \$10 25 to \$14 25 per pood of 36 pounds. Better qualities are brought to Kharkov, especially from Bessarabia, which bring from \$17 to \$23. These, however, bear a small proportion to the whole, being scarcely one-eighth.

The factory hands are better recompensed in Russia than anywhere else. The best receive from \$3 50 to \$4 50 weekly, and women from \$1 13 to \$2 25. They are almost all serfs, and they enjoy the privilege of being exempt from the *obrok*, or tax to the proprietors, while they work in the factories. They already supply wares which rival the most excellent of foreign manufacture, as was seen last year in the great exhibition in Warsaw; but the prices are almost without exception 50 per cent higher than in Germany. The high tariff insures these high prices, and the extensive smuggling that has hitherto been carried on is accordingly not to be wondered at; for, if out of every four transports one should fall into the hands of the Custom-house officers, the profits to the owners would still be enormous.

Many other manufactures are conducted in Russia as extensively as that of cloth. Of these we will only cite the beet sugar factories. There are already a great number of these, and in the southern governments there are some that consume nearly thirty-six million pounds of beets yearly. Even though these do not as yet manufacture one-half of what the country requires, still, considering the progress of the people and the many improvements going on, it may safely be conjectured that at a period by no means distant they will be able to supply the greater part of the domestic need.

Most of the workmasters in the Russian factories are Germans and Englishmen, who, as may be imagined, are well recompensed, and will soon lay by fortunes, and often associate together and reap a brilliant reward.

As regards the price of food in Moscow, only the commonest articles, such as bread and meat, are cheaper than in Germany. Everything else is very much dearer. But as the workmen live almost entirely on the former, a whole family can subsist on from \$2 to \$3 weekly, and they could, if both husband and wife worked, and would practice such economy unceasingly, lay by almost twice as much as they do.

LOCATION OF THE LAKE SUPERIOR MINES.

Companies.	Shares.	Sections.	Towns Range	
			north.	west.
Adventure.....	\$10,000	35 & 36	51	38
Aztec.....	20,000	31	51	37
Copper Falls.....	10,000	14	58	31
Central.....	20,000	23	58	31
Clark, Montreal, and Bell.....	8,000	..	58 & 59	28
Clinton.....	10,000	17 & 18	49	41
Evergreen Bluff.....	20,000	6	50	38
Flint Steel River.....	20,000	11 & 12	50	39
Fire Steel.....	10,000	22	51	37
Fond du Lac.....	10,000	8	47	31
Fulton.....	20,000	27, 33, & 35	..	..
Garden City.....	20,000	20 & 29	58	31
Gogebic.....	20,000	22, 23, & 21	49	42
Huron.....	20,000	2	54	34
Isle Royale.....	12,000	1	54	34
Mass.....	20,000	6	50	38
Minnesota.....	20,000	15	50	39
Merrywether.....	20,000	9 & 10	48	43
Metropolitan.....	20,000	26	49	42
North American.....	10,000	1 & 2	57	32
Northwest.....	10,000	15	58	30
Northwestern.....	9,000	24	58	31
Norwich.....	20,000	11, 12, 13, 14, & 25	49	41
Nebraska.....	20,000	12	50	39
National.....	10,000	16	50	39
Phoenix Copper.....	10,000	19	58	31
Pittsburg and Boston.....	6,000	32	58	32
Portage.....	20,000	36	54	34
Quincy.....	8,000	26	54	34
Ridge.....	10,000	35	51	38
Rockland.....	20,000	11	50	39
Superior.....	20,000	14	50	39
Toltec Consolidated.....	20,000	25 & 26	50	30
West Minnesota.....	20,000	17, 18, & 19	50	39
Windsor.....	20,000	12	49	41

MANUFACTURES OF THE STATE OF NEW YORK.

We have prepared from the report of the New York State Census a summary of the manufacturing interests of this State, showing some interesting features. The general relations between the number of persons, capital and value of products, appear to be fifteen hundred dollars as the annual production, and five hundred dollars as the necessary capital to each person employed. It is also shown that the annual production is three times in value the capital employed. If we allow the raw material to be one-half of the value of the manufactured article, which is about the general proportion, and allow two hundred dollars as the yearly value of the labor of each person, we shall find the net annual profit of manufactures to be over one hundred and sixty millions of dollars, or over one hundred and fifty per cent upon the capital employed. Statements showing the number of establishments, the persons employed, capital invested, and the annual value of manufactured articles in each branch of manufacture where the value of the products is over one million of dollars, in the State of New York—compiled from the State census of 1855:—

	No. of establish- ments.	Persons employed.	Capital employed.	Cash value of manufactures.
Agricultural implements	59	1,065	\$580,000	\$1,737,000
Blacksmith shops	1,921	3,314	1,404,000	2,073,000
Brass and copper foundries	48	554	472,000	1,304,000
Furnaces	388	8,752	4,973,000	9,725,000
Gold and silver refining establishments	7	80	135,000	2,190,000
Iron manufactories	78	5,395	2,281,000	6,556,000
Iron railing manufactories	31	955	451,000	1,224,000
Machine shops	189	3,669	2,196,000	3,411,009
Safe manufactories	11	528	226,000	1,076,000
Silverware manufactories	1,336	449	802,000	4,322,000
Tin and sheet-iron manufactories	458	5,009	934,000	3,000,000
Carpet manufactories	18	1,891	659,000	2,079,000
Cotton factories	86	8,332	4,250,000	4,621,000
Paper mills	109	1,674	1,544,000	2,813,000
Rope manufactories	29	872	493,000	2,448,000
Woolen cloth and yarn factories	184	3,185	1,841,000	3,392,000
Bakeries	196	1,044	1,111,000	3,356,000
Breweries	128	1,133	2,239,000	4,448,000
Camphene distilleries	3	85	240,000	1,670,900
Chandleries and soap factories	111	685	1,127,000	4,096,000
Cotton printing establishments	7	510	204,000	2,352,000
Distilleries	88	805	1,187,000	8,681,000
Fish and whale oil manufactories	11	159	355,000	1,904,000
Gas manufactories	26	1,214	4,459,000	3,279,000
Lard oil manufactories	8	87	121,000	1,897,000
Malt manufactories	30	241	467,000	1,355,000
Oil mills	27	170	231,000	1,316,000
Salt manufactories	193	1,143	1,161,000	1,488,000
Sugar and syrup refineries	15	1,631	2,532,000	12,175,000
White lead manufactories	9	370	341,000	1,542,542
Stove manufactories	35	1,568	698,000	1,908,000
Steam-engine and boiler manufactories	28	3,518	2,132,000	3,841,000
Ship-building	86	3,286	1,516,000	4,664,000
Ship-rigging	2	86	78,000	1,700,000
House building	88	1,496	559,000	1,217,000
Sash and blind manufactories	213	1,211	638,000	1,189,000
Car factories and repair shops	26	1,547	684,000	1,274,000
Coach and wagon manufactories	1,397	6,391	2,136,000	5,005,000
Grist mills	1,475	3,447	10,173,000	51,531,000
Carpenter shops	232	1,346	363,000	1,482,000
Cooper shops	661	2,857	470,000	1,190,000
Planing mills	93	1,134	1,069,000	3,121,000
Saw mills	4,946	13,087	9,892,000	14,655,000
Brick manufactories	269	4,700	1,103,000	1,719,000
Marble manufactories	139	1,983	713,000	1,836,000
Stone cutting manufactories	60	1,407	430,000	1,165,000
Boot and shoe shops	1,463	10,372	1,061,000	6,063,000
Harness, trunk, and saddle manufactories	594	1,613	481,000	1,580,000
Morocco factories	30	509	222,000	2,899,000
Tanneries	863	5,525	3,366,000	15,642,000
Cabinet making shops	606	4,746	1,311,000	4,510,000
Piano-forte manufactories	67	1,594	649,000	2,611,000
Glove and mitten manufactories	69	3,350	72,000	1,202,000
Hat and cap manufactories	123	3,186	541,000	4,029,000
Tailor shops	561	21,361	1,796,000	11,842,000
Umbrella and parasol manufactories	21	863	88,000	1,176,000
Butcher shops	87	351	142,000	3,113,000
Tobacco and cigar manufactories	142	1,920	584,000	2,261,000
Unenumerated manufactories	133	2,475	1,698,000	1,595,000
Total	20,108	161,923	\$85,632,000	\$258,801,000
All others	4,725	52,976	22,718,000	58,627,000
Grand total	24,833	214,899	106,350,000	317,428,000

CONSUMPTION OF COAL IN THE LAKE REGIONS.

The following is the first statement of the amount of mineral coal consumed on the waters of the northern lakes. At some of the ports where it is received from the interior it is not practicable to ascend to the very first receipts, but the quantity which arrived prior to the dates below given must have been small. A large portion, probably one-half, of that for Buffalo and Oswego, is the *anthracite* or hard coal, and the remainder bituminous.

It is only recently that railroads have delivered coal in large quantities, but they are already competing with the canals for that business. At Chicago, prior to 1857, the railways had brought in 13,559 tons only; in 1857, they delivered 30,671 tons, and the canal only 6,566. Of the amount that reached Buffalo in 1857, 13,778 came by rail. At Cleveland during the year next previous to January 1st, 1858, the roads delivered 185,574 tons, and the canals 135,816.

About one-half of all the coal business of the lakes has been done at Cleveland. Of this there had been, prior to January 1st, 1856, only 78,048 tons brought in by railroads. The column of totals shows a remarkably rapid and uniform increase in the use of coal. In the interior of the country, especially in the mining regions, the same thing is observed. The stack furnaces of Northern Ohio, that use raw coal in making pig iron, consume about 50 tons a day each.

As the metal thus produced from Lake Superior ores is nearly equal in value to charcoal pig, we may expect a large increase of such furnaces. The demand for coal is not likely therefore to diminish.

MINERAL COAL RECEIVED AT THE LAKE PORTS FROM CANALS AND RAILROADS.

Years.	Cleveland.	Erie.	Buffalo.	Chicago.	Oswego.	Total.
1829.....	708	.....	.....	.....	.....	708
1830.....	178	.....	.....	.....	.....	178
1831.....	294	.....	.....	.....	.....	294
1832.....	431	.....	.....	.....	.....	431
1833.....	1,719	.....	.....	.....	.....	1,719
1834.....	3,347	.....	.....	.....	.....	3,347
1835.....	1,776	.....	.....	.....	.....	1,776
1836.....	2,944	.....	.....	.....	.....	2,944
1837.....	6,421	.....	.....	.....	.....	6,421
1838.....	2,496	.....	.....	.....	.....	2,496
1839.....	4,901	.....	.....	.....	.....	4,901
1840.....	6,028	.....	.....	.....	.....	6,028
1841.....	16,744	.....	.....	.....	.....	16,744
1842.....	16,339	.....	.....	.....	.....	16,339
1843.....	13,574	.....	.....	.....	.....	13,574
1844.....	18,901	.....	.....	.....	.....	18,901
1845.....	31,136	15,000	.....	.....	.....	46,136
1846.....	28,133	27,500	.....	.....	.....	55,633
1847.....	44,401	51,000	.....	.....	.....	95,401
1848.....	66,351	70,000	.....	.....	.....	136,351
1849.....	66,801	79,613	.....	.....	.....	146,414
1850.....	83,850	57,541	.....	.....	.....	141,591
1851.....	107,135	72,943	.....	.....	.....	180,078
1852.....	137,926	76,650	.....	3,310	.....	217,886
1853.....	173,915	103,031	23,313	2,195	1,204	323,658
1854.....	170,975	95,610	35,313	4,621	26,398	332,924
1855.....	299,803	141,184	43,371	9,569	27,617	521,544
1856.....	246,995	112,011	51,381	9,295	48,871	468,557
1857.....	321,390	126,159	71,374	37,327	65,569	621,819
Total.....	1,875,611	1,048,443	224,752	66,327	169,659	3,334,792

TOBACCO IN FRANCE.

The quantity of tobacco used in France is now, as seen in the operations of the "Regie" for 1855, as follows:—

	Per 100 kilos., f. c.	Quantity, kilogrammes.	Value, francs.
Domestic leaf	76 27	15,318,915	11,684,000
European leaf.....	103 11	4,093,432	4,220,974
American leaf.....	105 43	10,851,609	20,931,337
Cigars—37,981,875.....	2,563 11	151,927	3,894,066
" manufactured	723 05	4,990	36,081
Taken back from debtors.....	132 56	100,588	133,348
Total.....		39,521,462	40,899,807

To this cost of raw material was to be added transportation, 287,777 francs, and other expenses, making together 53,746,326 francs. The sales of the Regie were as follows:—

	Kilogrammes.	Francs.
Refuse, &c	872,102	1,240,639
Lost and damaged	62,553	72,668
Ordinary, sold at 7.25 francs per kilogramme ...	14,894,536	107,994,838
Snuff, " 2.24 " "	5,851,592	13,149,448
Common, " 1.30 " "	1,148,095	1,496,655
Choice & cigars, 45.32 " "	1,701,133	28,524,748
Total.....	24,530,093	152,478,698
Add sundry receipts and duties.....		718,717
Total.....		153,197,415
Less expenses, as above		53,746,326
Profit.....		99,451,089
Add increase of stocks and buildings		14,365,494
Total profit of year.....		113,816,583

The stocks of tobacco on hand at the close of the two years were as follows:—

	December 31, 1854. Kilogrammes.	December 31, 1855. Kilogrammes.	Francs.
Domestic leaf.....	15,437,874	16,541,172	16,166,669
European.....	1,126,720	3,501,848	4,318,195
American.....	18,582,534	26,665,959	28,388,056
Other	12,101	2,325	6,619
Partially made.....	15,654,403	15,502,857	22,037,860
Manufactured.....	4,116,144	2,272,598	6,283,081
Havana cigars	142,124	118,763	2,866,539
Returned	8,176	11,392	19,093
Refuse.....	258,430	239,355	.....
Total.....	55,338,507	65,856,171	80,030,110
Buildings and machines.....			13,771,740
Total.....			99,801,851

In 1835 the receipts were 74,000,000 francs, and every year since has shown an increase of profits, which have risen from 51,000,000 francs to 99,000,000 francs, or an average of 2,000,000 francs annual increase of profits. This is a very singular result for a government operation, and would afford an example of integrity for employees of governments in some countries. It will be observed that American leaf is the great staple of the manufacture, being rather more than one-half, but that the stock of it on hand has much increased at the close of the last year. It also commands the highest price which the government pays for raw tobacco, being 30 per cent more than French growth. The sales of cigars seem to be small; they are of a size 250 to the kilogramme of 2.2 pounds, which would give 9 pounds to the thousand. The average prices of these is 45f. 32c. per kilogramme, or 181 francs (\$34 50) per thousand.

STATISTICS OF AGRICULTURE, &c.

VINE-GROWING IN MISSOURI.

A correspondent of the New York *Tribune* thus describes a visit to the vineyard of Missouri. That class of industry is destined, no doubt, to reach a great magnitude in this country. In Ohio 400,000 gallons are made annually, worth \$1,000,000. In California the business receives an immense development, but Missouri is described as peculiarly fitted for it:—

I stopped first at Herman, (about eighty miles from St. Louis,) and in waiting at the tavern for a vine-grower, whose place I was to visit, I watched the people coming in. There was something extremely social and careless about them, yet at the same time they seemed like thrifty, well-to-do people. Very few called at the bar for whisky or brandy; but the most took a glass together of the light native wine, and chatted socially over it, sometimes sitting at a table to do so, which civilized custom has yet to be introduced in most parts of the United States.

The talk was a good deal of vines and land. At length the vine-grower whom I expected came in, and I accompanied him through the village. It is a very comfortable, thriving-looking little town, the houses built mostly of brick, with pleasant gardens surrounding them. The population is about 1,200, of which I understand there is not one an American. The place has two or three schools, supported by public funds, and two churches—one Lutheran and one Catholic. My friend's vineyard lies upon one of the hills overlooking the Missouri. "*Ein herrliches land!*" "a glorious country!" he says, with enthusiasm, as we reach the top and cast our eyes over the landscape. For miles away on the side of the river where we were, there was a broken view of vine-topped hills, while the lower slopes were heavy with rich woods, and the valleys green with grain. Beyond the river a luxuriant growth of cottonwood and sycamore covered the rich flats. In the country beyond these, Mr. R. said, were some of the richest plantations of the State, worked by negroes.

Mr. R.'s house was a little house, such as any new settler might have, but you notice the contrast to the usual American's cabin in the few flowering trees left near by, and some truly German garden-beds laid out under the windows. Otherwise, the whole hill-slope was covered with vines, usually trained on two poles bound together, about five feet apart. This German had been there some twelve years, and now possessed a most valuable little property. His wine had taken the prize lately in St. Louis, even over Longworth's Catawba. Most of the settlers, he said, were very prosperous, and their wine was coming into great demand. They covered the barren hill-tops far in the interior with their vineyards. They lived a good deal by themselves, and had nothing to do with the slaveholding Americans, and he believed had a happier life than any other Germans in the Western country. The town had produced last year some 80,000 gallons of wine.

The good situations for vineyards, he states, cost from \$1 to \$5 an acre; those which are already improved, \$15 or \$20. It needs three or four years' preparation before a vineyard pays its cost. During this time the vine-grower can support himself by farming and other work. Still, to succeed, each new immigrant should have some \$200 or \$300 capital to build his wine cellar and house, buy his cattle, and pay extra labor. After three or four years, the vineyard will yield on an average from 250 to 300 gallons of wine to the acre; a very favorable site has been known to produce 1,000 gallons, and 400 was the lowest Mr. R.'s place had given. One man, with industry, can manage five acres. The wine is worth from \$1 25 to \$1 35 per gallon, so that \$400 an acre is a common return. Mr. R. had sold his wood on the place the first year for \$300, and had received one

year 400 gallons from half an acre. It will be seen at once that no other agriculture of the United States presents such returns. Of other expenses, the wages of labor are now from 75 cents to \$1 a day, or \$12 to \$15 a month; a cow costs from \$18 to \$20; a pair of oxen, \$45 to \$50; a horse, \$60 to \$70. Wood is worth about \$2 50 a cord; potatoes, 10 cents a bushel, and wheat 50 cents. Labor is always in demand, and, as may be seen from the prices of food, is exceedingly well paid. The best varieties of vines he had found to be the North Virginia Seedling, Catawba, and Isabella.

Thus far the climate has been more favorable to the vineyards than it is in Germany. They have had no year in which the yield has not paid the labor; while on the Rhine, as is well known, there will be years in which the proprietors of the vineyards get no return at all, and the poor tenants, who make up the population of vine-dressers, fall into great distress and poverty. The worst weather in Missouri is the sultry, moist heat of July—only a few sorts can survive this; but the frosts and storms of September and October, which destroy the vines or fruit in Germany, the American vineyards entirely escape. I asked Mr. R. what effect he considered this culture of the vine to have on the habits of his countrymen. He thought that those living in this vine region were much more sober than the Germans of the cities, and that the native wine was already driving out whisky and brandy from use among the Americans.

WINE CROP OF AUSTRIA.

The culture of the vine in Austria is second in rank only to that of France, notwithstanding which, with the exception of some of the finest Hungarian wines, the Austrian products are nearly unknown to the general markets. Some of the largest wine dealers have lately undertaken to extend the sales of Austrian wines, but as yet with more honor than profit. The following shows the annual products of the different States:—

Ungarn.....ohm.	18,582,000	Tyrol.....ohm.	764,000
Woiwoidie.....	4,431,000	Karnten.....	710,000
Croatien und Slavonien...	3,608,000	Militar Grenze.....	636,000
Venedig.....	3,525,000	Mahren.....	565,300
Lombardie.....	2,250,000	Krain.....	377,000
Nieder Oesterreich.....	1,577,000	Bohmen.....	13,000
Siebenburgen.....	1,506,000	Ober Oesterreich.....	300
Stiermark.....	1,365,000	Bukowina.....	200
Delmatien.....	1,200,000		
Total.....		.....ohm.	41,110,800

The ohm is of various capacities—that of Cologne is 36 gallons, which would give a product of nearly 1,500,000,000 gallons for a population of 60,000,000 people, or 25 gallons per head.

In the French wine districts the grape disease is said to be renewing its ravages, although in but few localities, and may be controlled by the application of sulphur. The demand for consumption has been more active in Bercy. In Bordelais the fine promise of the crops keeps down the price. The promise is also good in Beaume, Macon, and Burgundy. The prices of old wines are very firm. In Paris, however, prices are lower.

THE GOVERNMENT AND AGRICULTURE.

The House of Representatives at Washington has passed a bill donating land to the several States for the benefit of agriculture and the mechanic arts. The bill was introduced by Mr. Morrill, and passed by yeas 104, nays 101. It grants six millions three hundred and forty thousand acres of land, to be apportioned to each State in a proportionate degree with its number of Senators and

Representatives—which is equal to twenty thousand acres for each Senator and Representative in Congress—to which the States are now respectively entitled. The proceeds of the sales of these lands are required to be invested in stocks of the United States, or of the States, or some other safe stocks, and the money so invested to constitute a perpetual fund, the interest of which shall be inviolably appropriated by each State to the endowment, support, and maintenance of at least one college, where the leading object shall be, without excluding other scientific or classical studies, to teach such branches of learning as relates to agriculture and the mechanic arts, in such manner as the Legislatures of the States may prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life.

IRISH AGRICULTURAL STATISTICS.

The annual tables are published by the Registrar-General, Mr. Donnelly. They now appear in a much better arranged form, the acreage and the produce per acre being placed side by side, thus enabling the reader, at a single glance, to make the requisite comparison. They also show “the estimated average produce of the crops for the year 1857, and also of the diversity of weights used in buying and selling corn, potatoes, and flax in Ireland.”

With regard to the first, the extent, the estimated total produce, and the estimated average yield per statute acre of the principal crops grown in Ireland, in each year, from 1851 to 1857, both inclusive, are shown in the following summary:—

EXTENT UNDER CROPS IN STATUTE MEASURE.

	Wheat.		Oats.		Barley.	
	Acres.	Quarters.	Acres.	Quarters.	Acres.	Quarters.
1851.....	504,248	1,493,525	2,189,775	10,771,236	282,617	1,375,518
1852.....	353,566	1,154,205	2,283,449	11,712,528	249,476	1,257,398
1853.....	326,896	1,133,585	2,157,849	10,690,881	272,614	1,398,705
1854.....	411,284	2,452,467	2,045,298	11,293,101	236,293	1,212,047
1855.....	445,775	1,520,819	2,118,858	10,266,350	226,629	1,097,631
1856.....	429,050	1,629,963	2,037,437	9,236,869	182,796	757,536
1857.....	559,646	1,662,957	1,980,934	8,895,347	211,288	848,783

EXTENT UNDER CROPS.

	Bere.		Potatoes.		Turnips.	
	Acres.	Quarters.	Acres.	Tons.	Acres.	Tons.
1851.....	53,347	286,149	868,501	4,441,022	383,548	6,081,326
1852.....	40,933	231,075	876,532	4,255,604	356,790	5,675,897
1853.....	28,380	153,765	898,733	5,741,538	399,377	6,562,471
1854.....	16,920	89,066	989,660	5,061,654	329,170	5,207,636
1855.....	11,185	56,848	982,301	6,235,281	366,953	6,073,598
1856.....	6,554	32,773	1,104,704	4,408,543	354,451	4,581,172
1857.....	6,026	28,553	1,146,647	3,509,344	350,047	4,360,197

EXTENT UNDER CROPS.

	Mangel Wurtzel.		Flax.		Hay.	
	Acres.	Tons.	Acres.	Tons.	Acres.	Tons.
1851.....	25,847	466,235	140,536	33,861	1,246,408	2,518,977
1852.....	30,830	557,139	137,008	35,462	1,270,713	2,690,598
1853.....	33,283	588,988	174,579	43,863	1,270,742	2,518,984
1854.....	21,351	366,427	151,403	35,606	1,257,864	2,494,951
1855.....	22,839	402,958	97,075	23,428	1,314,807	2,662,046
1856.....	22,071	287,838	106,311	18,791	1,302,787	2,492,732
1857.....	21,449	298,515	97,721	14,475	1,369,892	2,566,644

The above figures show that throughout Ireland there was a falling off in the acreable produce.

STATISTICS OF POPULATION, &c.

POPULATION OF THE MISSISSIPPI VALLEY.

From the speech of T. C. REYNOLDS, Jr., at a meeting at St. Louis, January 17, 1858, we take the following table of the growth of the "valley" :—

GROWTH OF NON-SLAVEHOLDING VALLEY STATES.							
	1790.	1800.	1810.	1820.	1830.	1840.	1850.
Ohio.....	45,365	230,760	581,434	937,903	1,519,467	1,980,329
Indiana	4,875	24,520	147,178	343,031	685,866	988,416
Illinois...	12,282	55,211	157,445	476,183	851,470
Michigan..	4,762	8,896	31,639	212,267	397,654
Wisconsin	30,945	305,394
Iowa	43,112	192,214
Total	50,240	272,324	792,719	1,470,018	2,967,840	4,715,474
GROWTH OF SLAVEHOLDING VALLEY STATES.							
Kentucky.	73,077	220,955	406,511	564,317	687,917	779,828	982,405
Tennessee.	35,791	105,602	261,727	422,813	651,904	829,210	1,002,717
Alabama..	127,901	309,527	590,756	771,623
Mississippi	8,850	40,352	75,448	136,631	375,851	606,626
Louisiana.	76,556	153,407	215,739	352,411	517,762
Arkansas.	14,273	30,388	97,574	209,897
Missouri...	20,845	66,586	140,455	383,702	682,044
Texas.....	212,592
Total...	108,868	335,407	805,991	1,424,745	2,202,551	3,409,132	4,985,666

Of German born residents in the United States in 1850, there were 44,352 in Missouri, 38,160 in Illinois, 28,584 in Indiana, 7,152 in Iowa, and 4,319 in Massachusetts. Even in Wisconsin there were fewer (34,519) than in Missouri. The numbers of the German population in the several States ranked in 1850 as follows :—New York, 120,609 ; Ohio, 112,032 ; Pennsylvania, 79,005 ; Missouri, 45,049. Missouri, a slaveholding State, and the tenth in rank in respect to population, contained more German born than any of the States except the three largest.

The population born in Great Britain and Ireland was distributed in 1850 as follows :—New York, 458,931 ; Pennsylvania, 205,983 ; Massachusetts, 137,285 ; Ohio, 88,303 ; Illinois, 51,647 ; Wisconsin, 47,841 ; New Jersey, 44,898 ; Connecticut, 33,807 ; Louisiana, 29,060 ; Michigan, 26,538 ; Maryland, 24,377 ; Rhode Island, 21,434 ; Missouri, 21,338 ; Indiana, 19,847. Missouri was thus the thirteenth in point of population from the British Isles, but was more favored by them than the free State of Indiana has been. Of the whole foreign born population in the United States in 1850, New York had 651,801 ; Pennsylvania, 294,871 ; Ohio, 218,512 ; Massachusetts, 160,909 ; Illinois, 110,593 ; Wisconsin, 106,695 ; Missouri, 72,474. Thus Missouri was the seventh State in rank in regard to the number of foreign born population ; Indiana having 54,426 ; Iowa, 21,232—both less than Louisiana, which had 66,413.

POPULATION OF THE GRANADIAN CONFEDERATION.

On the 22d of June, by the going into effect of the new constitution, the "Republic of New Granada" ceased to exist, its place being taken by the

“Granadian Confederation,” consisting of the States of Antioquia, Bolivar, Boyaca, Cauca, Cundinamarca, Magdalena, Panama, and Santander. The population of these States, their representation in the National Congress, and their general revenue, are shown in the annexed table:—

	Inhabitants.	Representatives.		Revenue.
Antioquia.....	244,441	3	4	\$143,000
Bolivar.....	182,157	3	3	109,000
Boyaca.....	379,682	3	9	58,000
Cauca.....	330,331	3	6	.....
Cundinamarca.....	517,648	3	9	132,000
Magdalena.....	73,093	3	1	60,000
Panama.....	138,108	3	2	93,000
Santander.....	378,376	3	6	83,000
Total.....	2,243,837	24	40	\$678,000

The general limits of the confederacy are the same that divided the Vice Royalty of New Granada, in 1810, from the Captain Generalities of Venezuela and Guatemala, and from the empire of Brazil; and provisionally, on the other side, the boundary established by treaty with Ecuador, in 1856, and those at present dividing it from that republic. By the new constitution, the term of office for the president is four, and of the senators and representatives two, years. All are to be elected by a direct popular vote.

NORTH AMERICAN PROVINCES.

Four great political events have taken place in the history of North America—the overthrow of the French power by the capture of Quebec in 1759; the American Revolution of 1776; the settlement of our Northeastern Boundary dispute by the Ashburton Treaty in 1842; and the Reciprocity Treaty of 1854. Another one of equal importance is foreshadowed in the movement of Mr. Galt, in the Canadian Parliament, for a Federal Union of British North America. Some will venture to extend these speculations still farther, and predict a final union with the Northern States, and a new political division of the continent. The Provinces and territories of British North America are as follows:—

	Square miles.	Population.
Canada East.....	201,989	890,261
Canada West.....	148,832	952,004
New Brunswick.....	27,700	193,800
Newfoundland.....	35,913	101,600
Nova Scotia.....	18,746	276,117
Prince Edward's Island.....	2,134	62,673
Total of Provinces.....	435,314	2,476,460
Hudson's Bay territory.....	2,480,000	180,000
Labrador.....	5,000	100,000
Vancouver Island.....	8,000	2,000
Total.....	2,928,314	2,758,460

POPULATION OF KANZAS.

The St. Louis *Democrat* gives the following figures in relation to the population of Kansas:—

The population of Kansas is 80,000—of which Leavenworth City furnishes 8,000, and Leavenworth County 15,000. The portion of the Territory north of Kansas River embraces over half of the population of the Territory, and only

one-third of the settled country. Atchison County contains 8,000 population; Doniphan, 8,000; Nemaha, 2,000; Brown, 2,000; Marshal, 1,500; Calhoun, 3,000; Potawatamie, 2,500; Riles, 2,000; Jefferson, 3,000. Leavenworth, Jefferson, Potawatamie, Brown, and Doniphan contain Indian reservations, unsettled by the whites. The population of Indians who still retain their tribal relations is about 3,000. Leavenworth County is the most wealthy in the Territory—Atchison, Doniphan, and Douglas next in order. The principal towns along the river are, commencing at the mouth of Kansas River, Wyandotte, situated at the junction of the Kansas and Missouri, population 1,200; Quindaro, on the Wyandotte lands, population 800; Weimar, settled by Germans, probable population 400; Delaware, population 500; Leavenworth, population 8,000; Fort Leavenworth, permanent population 500; Kickapoo, population 500; Sumner, population 450; Atchison City, population 1,500; Doniphan, population 1,000; Palermo, population 800; Elwood, population 1,000; Iowa Point, population 800; White Cloud, population 600.

SERF POPULATION OF RUSSIA.

The Russian Minister of the Interior has recently made a report upon the new movement of the government in relation to the freedom of the serfs. From that report we extract the following interesting statistics of the number and condition of the serfs of that empire:—

In Great Russia there are 30,000 serfs who are not to be farmed with the ground; they belong to 5,000 masters, who, if they do not employ them themselves, are to receive from them two-thirds of what they earn by their labor and their industry. The practice of selling them is allowed. The women of that class, called *ludi bassemelei*, (persons without land,) are much to be pitied. The number of owners who have from one to twenty serfs is 49,708, with 742,420 serfs. The latter, belonging to owners in poor circumstances, are in a very unfavorable position. The owners who have from 21 to 100 serfs are 36,024 in number, with 3,271,648 souls. The fate of the serfs of that category is scarcely better than the preceding one. The number of owners in easy circumstances, who have from 100 to 1,000 serfs, is 19,808, with 7,807,000 souls. That of the rich owners, having from 1,000 to 2,000 souls, is only 2,468, having altogether 3,230,268 souls. There are only 1,447 lords who possess more than 2,000 serfs; the total number of these latter is 6,567,066 souls. The official report adds that out of the twenty-three-and-a-half millions of serfs belonging to the nobility, more than thirteen millions are mortgaged to the crown, as guaranty of loans amounting to 397,879,459 roubles.

POPULATION OF THE WORLD.

HERR DIETRICH, a distinguished professor of the University of Berlin, quoted by the Philadelphia *Bulletin*, has lately addressed a paper to the Academy of Sciences of that city, in regard to the world's population, and it is generally agreed that it is the most carefully prepared and most reliable work that has yet appeared on this interesting subject. After some detailed estimates in regard to the five great divisions of the world, he arrives at the conclusion that its present population is about twelve hundred and eighty-three millions, as follows:

Population of Europe.....	271,000,000
“ Asia.....	730,000,000
“ America.....	200,000,000
“ Africa.....	80,000,000
“ Australia, &c.....	2,000,000
Total population of the globe..	1,283,000,000

This estimate is somewhat larger than had been before made.

MIGRATION FROM GREAT BRITAIN.

The annual report of the British Emigration Commissioners, just published, states the total emigration from the United Kingdom for the past year to have been 212,875, showing a moderate increase on the two preceding years, but still a falling off of 126,649 from the average of the four years from 1851 to 1854. The number of emigrants who returned from the United States during the year was 15,448, of whom 11,154 arrived in the last half of the year, during the progress of the commercial crisis. Last year the remittances from the United States by previous Irish emigrants, to enable their friends to join them, amounted to only £593,165, while the average of the preceding ten years was about a million sterling.

MERCANTILE MISCELLANIES.

OCEAN STEAMSHIPS.

The New York *Shipping List* remarks that the United States have but 57 ocean steamers, measuring 94,795 tons, while Great Britain has 1,670, with 666,330 aggregate tons. We have 22 steamers, of 45,000 tons, engaged in the foreign and domestic mail service, while Great Britain has 121, of 235,488 aggregate tonnage, engaged in the foreign mail service almost exclusively. We have 37 steamers engaged in the coasting trade, while she has 1,548 similarly employed. So much importance does Great Britain attach to postal and passenger facilities, as connected with her commercial prosperity, that she expends annually for her foreign steam mails nearly six millions of dollars, while they do not return to her treasury much above three; and the disparity is constantly increasing.

Ocean steamships are not suitable for the general transportation business, but only for the rapid conveyance of mails, passengers, specie, and costly freights. To obtain a high rate of speed makes necessary a greatly increased strength in all parts of the vessel, more frequent and costly repairs, and an enormous consumption of fuel.

The Collins steamers have been running but six years, and yet their repairs have amounted, in all, to more than the prime cost of the ships, or to about 18 per cent per annum. They were as well and as strongly built as any ships in the world.

The depreciation, with all these repairs, has not probably been above six per cent per annum. They will, however, probably depreciate ten per cent during the next six years, and at the age of twelve or fourteen years will be unfit for service. The steamers Washington and Hermann, which had strong hulls, have been run eight years, and are now nearly worthless. Their depreciation has been, at least, ten per cent per annum. The steamers Ohio and Georgia, which Commodore Perry and other superintending navy agents pronounced to be well built and powerful steamers, ran only five years, and were laid aside, and said to be worthless.

It is said that American steamers do not, upon the average, last above ten years. The great cost of coal is apparent from the single fact that the 270

steamers in the British navy, with about 50,000 aggregate horse power, consumed in 1856, 750,000 tons. It is laid down as a rule of general application, that the power of coal necessary to produce speed, increases as the cube of the velocity. Taking a Collins steamer of 3,000 tons, we find that in running fourteen miles per hour, as they have frequently done, the consumption would be 128 tons per day, or 1,252 tons for the passage. And yet one of those steamers could make twelve miles per hour on 80.4 tons per day, or eleven miles per hour on 61.9, or less than half that used at fourteen; all going to prove that fast mail steamers cannot live upon their own receipts on the ocean.

The greater the speed of a steamer, the less is it able to carry freight; and the time will doubtless soon come when the fast mail packets will take nothing except a few express packages. The Persia now takes scarcely any freight, and the Vanderbilt cannot think of doing it when she makes fast trips.

The trip of the Arago or Fulton to Havre and back, costs about \$45,000.

To put a new set of boilers in one of the Collins steamers costs about \$110,000, and this must be done every six years.

The facts in this matter are obtained from a treatise on Ocean Steam Navigation, by Thomas Rainey, Esq. Mr. Rainey, having been long stationed on the Coast of Brazil as United States Commercial Agent, where English lines of steamers monopolize all the most valuable carrying and passenger trade, he is enabled to speak intelligently on the subject.

PRINCIPLE AND INDUSTRY.

In a great commercial community, the temptations to moral obliquity and practical dishonesty are so strong as to require great watchfulness on the part of the tempted to resist the allurements. Many have fallen. Many probably will hereafter fall, who would have stood firm, had they acted on principle. There is no guiding-star like principle for a young man to keep his eye on, while so many doleful meteors are dancing before his vision. Principle may have often to contend with formidable difficulties, and must frequently practice self-denial. But great is its reward. Dexterity and deception may go around difficulties, or conceal them from view, but nothing is gained thereby, not even the comfort of having striven well, and of being invigorated in the process. Inherited wealth is not desirable to our young men who go into business. The poorest young man should not be discouraged. We know such an one, whose father was an indifferent countryman, taking little interest in the moral and intellectual progress of his children, and barely provided for their bodily wants. His son, a lad of fourteen or fifteen, was seized with a desire of being something. But he wore patched clothes, knew nothing of the world, had no apparent recommendation but his poverty and greenness. Really, however, he had principle and industry. These were led on by resolution, and these scarcely-developed attributes were better to the youth than a "fortune." He resolved to try his hand in a commercial city, started on foot with his pack, and walked a hundred and fifty miles to "find work"—a thing almost always to be found in this happy country. The boy on arriving in this city, first directed his steps to the house of a citizen, who had some acquaintance with his father, or his father's friends. The gentleman was astonished at his temerity. Finding him without letter of recommendation, without any specific plan, with little prospect of being acceptable to any one in

the city, wearing, as he did, patched pantaloons, he was about to advise him to return home, but thought he would at least make the trial for the place. Accordingly, he started out, and inquired from shop to shop, but no one wanted the boy. At last, a common grocer consented to take him, to do menial jobs about the store—to carry water and the like. The boy entered upon his duties, humble as they were, with alacrity and hope. He summoned to his support principle and industry. What he did, he did well, and he was content with his condition, till a broader field should be opened. He was honest and active, studious of usefulness, ingenious in promoting the interests of his employer in various humble ways—in a word, filling the lowly sphere he occupied, as one who is “faithful in little.” This was the secret of his success. He was observed, and invited to a somewhat better situation. This he felt it his duty to strive to fill still better, and he succeeded. He began to be in demand for business of a superior kind. It was found that he was capable of serving the dry goods dealer with skill and success.

All his patches had disappeared, (though he kept them privately in remembrance of his poor mother;) he was engaged about neat work; he made himself pleasant to customers, and profitable to employers. He scorned the habits which have ruined so many clerks; drank no liquors of any kind; visited no places of play; kept no guilty secrets; sought his female company openly among the pure and virtuous of the sex, and went to church on the Sabbath. He began with principle, and principle grew in habit. He was sober, active, industrious. He could not conceal, though he sought not to display, his silent qualities. Men in solid and extensive business made him large offers, and a noted firm even sought him in partnership. We need scarcely add that the poor boy, now a grown and married man, is among the wealthiest in one of our commercial cities, and more than this, a really useful citizen. As he adhered to principles, his principles have exalted and promoted him. As he “wielded the hand of the diligent,” it hath “made him rich,” in a sense beyond that of silver and gold. Let our young men ponder this example.

IRON MOUNTAIN OF MISSOURI.

The Iron Mountain of Missouri is probably one of the greatest natural curiosities on the surface of our globe. Think of a mammillary formed mound or mountain of iron three miles in circumference, rising in the form of a cone or pyramid, three hundred feet high above the surrounding valleys—a great mass of the richest specular iron known, wedged in between a country formed of magnesian limestone on the one side, and porphyritic granite on the other. Where did this great mountain of iron come from? was it formed in the iron age of our globe? and when did the iron age have its commencement and end? Let us take the lights that the science of the rocks has revealed, and go back with the geologists in the early ages of the Iron Mountain region. Geologists say that the rock on the west side of the mountain belongs to the lower silurian limestone era. The boring of Belcher's Artesian Well, tells us that this same bed of rock, which forms the surface of the country on the west side of the mountain, is in the well 2,000 feet below the bed of the Mississippi River, a dip of 2,800 feet from the mountain to St. Louis. Geologists say that this dip was necessary to form the great basins which contain coal in the central part of Illinois. On the east side of the mountain a granite country is found. Is this granite older or newer than the limestone? and is the mountain of the same age as the granite? These are questions that present themselves in the study of this great iron center. The Iron Mountain is the period or terminus of what is known

as the Ozark Mountains, a range of granite ridges and table lands that reach through Missouri, Arkansas, and the Indian country, to the Rocky Mountains. One fact may be kept in view in the study of the age of the Iron Mountain. It is found that all the developments in the vegetable or mineral kingdoms on our globe have been corresponding to the wants of animal organisms that existed at the same era. In the time of the mastodon and huge saurian dynasties, the vegetation was of a corresponding gigantic growth, the atmosphere was also suited to that class of animal life. Reasoning from this analogy, we might conclude that the Iron Mountain was formed at a comparatively recent geological epoch, as it was evidently formed to supply with iron the wants of the present race of man, and there was no necessity of its existence until man was in a position to use it. Let us go back to the age of our globe, when commenced the era of silurian system of rocks. The district where now stands the Iron Mountain was at that period a tabular mass of stratified rocks in the bed of an ancient ocean; no valley, ridge or mountain had yet come into existence. The beautiful system of physical geography, the abrasion of valleys in the solid rock, the fountain from which now break out a thousand springs in this iron district, were yet in embryo. But this tabular mass of rock in the beds of this ocean is not always to remain in repose. The elevating and abrading forces, the great working laws of nature, are to act. This region of country is placed under their influence—and silently and quietly the stratified rocks are raised; granite ridges come to-day above the surface of this ocean. Meteoric forces, connected with the sun and every planet in our solar system, are in action—we might say that electricity and its active partner, magnetism, are prime agents—age after age rolls round. The Devonian system of rocks is formed. The wonderful era of the formation of the coal-bearing rocks, and the growth of the vegetation entombed in our coal fields, has its comment and end; following this comes the tertiary era, with its mastodons and huge saurian monsters—after them the aborigines, and then the present race of man. Let us look again. The horizontal table of rock of the silurian era in the bed of that ancient ocean is now the Iron Mountain region, modeled by the great working laws of nature to one of the most interesting mineral centers on the surface of our globe. The task of the geologist for coming ages will be to trace out by observation the changes through which this country has passed, and map out and mark down in each era spoken of, the changes of the Iron Mountain from the silurian era down to the present time.

END OF THE BRITISH EAST INDIA COMPANY.

The events of the past few years having put the seal to the fate of this most stupendous commercial institution, the *London Times* notices its close as follows:—

The India bill was read a third time and passed in the House of Commons last night. No opposition is expected in the Lords, and we may accordingly consider that the measure will, in a few days, become law. So ends the great East India Company. It is impossible to contemplate the extinction of so mighty and historical a corporation without a feeling similar to that with which Gibbon heard the monks chanting in the Flavian amphitheater, and beheld the cows feeding in the Roman forum. For good or evil, a power has passed away from the earth. After an existence of more than two centuries and a half, the corporation, which was called into being by a charter of Elizabeth, will be extinguished by the royal assent expressed by the Commissioners of Victoria. Every one must feel that the East India Company had lived its allotted term; and that if it now descends, full of years and honors, into the grave, it is best for its own reputation and for the public good. In fact, the East India Company had for many years ceased to exist as an independent power. What was called by the name of the company was an apparatus, by which a certain number of men, in some degree conversant with Indian affairs, were brought together and allowed a voice in the government of the British possessions in Asia. Since the act of William Pitt, the independence of the company has been but a shadow. Legis-

lation, within the present century, took away the exclusive trade to India and China, then prohibited trade altogether; and within the last few years has given the crown the nomination of a portion of the directors. The other directors have been elected by the stockholders, a body whose dividends are guaranteed, and who have no more connection with India than the holders of consols or of railway shares. In fact, the so-called company has been only a cumbersome machine of double government, having a nominal identity with the corporation which sent out Clive and Coote to conquer. Any friend of the company who does not wish it to realize the line—

Superfluous lags the veteran on the stage,

might well be glad that its existence has been brought to a close at a period when it has become powerless for good, and can only exist as the instrument of intriguers and the obstacle of efficient administration.

HOARDING SPECIE.

There is evidently a great abundance of silver and gold coin in circulation, particularly gold; and it is probable that the amount of specie in the country which is not circulated, but carefully hoarded in old stockings, tin boxes, cavities in brick and stone walls, and in various out-of-the-way places, nearly equals that which is in actual circulation. Now and then some very remarkable cases of hoarding come to light. A few days since we learned the particulars of one of these cases, from a Boston broker. He had just purchased a quantity of coin of which the history was as follows:—The coin was purchased of the heirs of an old man who died recently in Barnstable County. He was an old resident of that county, and lived to be 94 years old. He was the owner of the house and land which he occupied; but it was not supposed that he had much property beyond this real estate, although it was known that he was very close and miserly in his habits. After his death, his premises were searched and specie of various kinds was found to the amount of about *fifty thousand dollars!* Many of the Spanish dollars were of ancient date; but they showed by their color and perfect stamp that they had not circulated much since their coinage. The Spanish gold pieces were enclosed in scraps of parchment, on which the value of each was marked; and the date indicated that they had been thus hoarded for a long period. In all probability a large part of this gold and silver had been in his possession more than half a century.

THE AMOUNT OF FOOD CONSUMED BY A MAN DURING HIS LIFETIME.

Mr. Alexis Soyer, the celebrated professor of the gastronomic art, entered into a calculation, which he published in the London *Times*, as to the amount of flesh, fowl, and fish eaten by a man in an average lifetime, and among the items we find the following enormous quantities:—

Thirty oxen, 200 sheep, 100 calves, 200 lambs, 50 pigs; in poultry, 1,200 fowls, 300 turkeys, 150 geese, 400 ducklings, 263 pigeons, 1,400 partridges, pheasants, and grouse, 600 woodcock and snipe, 600 wild pigeons and teal, 450 plovers, ruffs, and reeves, 800 quails, ortolan, and dotterills, and a few guillemots and other foreign birds; also 500 hares and rabbits, 40 deer, 120 guinea fowl, 10 peacocks, and 360 wild fowl. In the way of fish, 120 turbot, 140 salmon, 120 cod, 260 trout, 400 mackerel, 300 whittings, 800 soles and slips, 400 flounders, 400 red mullet, 200 eels, 150 haddock, 400 herrings, and 5,000 smelts; and some hundred thousands of those delicious silvery whitebait, besides a few hundred species of fresh water fish. In shellfish, 20 turtle, 30,000 oysters, 1,500 lobsters or crabs, 300,000 prawns, shrimps, sardines, and anchovies.

TENDENCY OF DEBT.

The *Presbytery Reporter* remarks upon this question which is of interest to all :

Let us look at the tendency of debt, in its bearing on the debtor himself, and those dependent on him. It is admitted that debt is sometimes very necessary. We will now go further, and say that it is sometimes highly praiseworthy. As examples, two cases may be specified in which debt is to be preferred to the want of the things it may secure. One is debt contracted for an education, which could not be otherwise acquired; the other, debt for the support of a sick or aged parent, or other relative, who must otherwise suffer. But in general, debt is a great and grievous evil to the debtor himself. It destroys a man's independence, harasses his mind, eats up his resources with that ever-gnawing moth, interest-money, damps the spirit of enterprise, and, what is worst and strangest of all, it often prevents the practice of economy just in proportion as the necessity for economy increases. A man who owes a thousand dollars will buy many things which another who has as much at interest—or even himself if he should ever be worth so much—will feel that he cannot at all afford. How many families there are whose head is involved in debt, whose members seem to have conspired to make the debt inextinguishable! The wives and daughters appear in new dresses, new bonnets, new shawls. They surround themselves with new furniture, and perhaps even persuade to the building of new houses and the giving of expensive parties. No one would suspect that all this was done with other people's money, unless he should by accident become acquainted with the fact, or unless, perchance, he should come to them with a subscription paper, which sometimes brings such persons to their bearings. When females, whose husbands or fathers are known to be in debt, are found sporting rich silks and other expensive articles of superfluous extravagance, there are those who see among the flowers which adorn their heads numerous little serpents, whose shining eyes look out expectant, as if waiting for their time; there are those who hear in the rustling of such silks the hissing of other larger serpents, yet more venomous and destructive. There is reason to suppose that much of the sin of this kind which is committed is to be ascribed to ignorance and thoughtlessness—that if the frivolous creatures who are guilty of this folly understood the real circumstances of those relatives whom they tease for indulgence in unreasonable gratifications—that if they saw clearly the risks which would be run by those relatives, and even by themselves, in the debts accumulated by their extravagance—and the dreadful consequences which might easily come upon them—they would shrink from the exposure, and give up gratifications that could be purchased only at such a price.

 HOW GOLD LACE IS MADE.

In an interesting description of the method of manufacturing gold lace, an exchange pointedly says that gold lace is *not* gold lace; it does not deserve this title, for the gold is applied as a surface to silver. It is not even silver lace, for the silver is applied to a foundation of silk. The silken threads for making this material are wound around with gold wire so thickly as to conceal the silk. The making of this gold wire is one of the most singular mechanical operations imaginable. In the first place, the refiner prepares a solid rod of silver about an inch in thickness; he heats this rod, applies upon the surface a coating of gold leaf, burnishes this down, applies another coating, burnishes this down, and so on, until the gold is about one-hundredth part the thickness of the silver. Then the rod is subjected to a train of processes which brings it down to the state of fine wire, and it is passed through holes in a steel plate, lessened step by step in diameter. The gold never deserts the silver, but adheres closely to it, and shares all its mutations. It is one-hundredth part the thickness of the silver at the beginning, and it maintains the same ratio to the end. As to the thinness to which the gold-coated rod of silver can be brought, the limit depends on the delicacy of human skill; but the most remarkable example ever known was brought forward by Dr. Wollaston. This was an example of solid gold wire, entirely free from silver. He procured a small rod of silver, bored a hole

through it from end to end, and inserted in this hole the smallest gold wire he could procure. He subjected the silver to the usual wire-drawing process, until he had brought it to the finest attainable state, being, in fact, a silver wire as fine as a hair, with a gold wire in its center. To isolate this gold wire, he subjected it to warm nitrous acid, by which the silver was dissolved, leaving a gold wire one-thirty-thousandth of an inch in thickness—perhaps the thinnest round wire that the hand of man ever produced. But this wire, though beyond all comparison finer than any employed in manufactures, does not approach in thinness the fine film of gold on the surface of silver in gold lace. It has been calculated that the gold on the finest silver wire for gold lace is not more than one-third of one-millionth of an inch in thickness; that is, not above one-tenth the thickness of ordinary gold leaf.

AMERICAN EXTRAVAGANCE.

The Liverpool *Albion* copied some remarks we made on this subject some months ago, in reviewing the work of Mr. Robertson on the United States. We find the following in the same journal, transferred from the New York *Commercial List* :—

The institutions of the present century, with their tendencies of an almost equal distribution of comforts and luxuries amongst numerous classes, have also, for obvious reasons, created a desire to grow suddenly rich, and without adequate effort. This has been particularly apparent since the development of the gold mines of California and Australia. To this desire it is owing that men occasionally endeavor to establish a fictitious credit by an ostentatious display of sham prosperity; and to this it is also owing that a thousand airy schemes of speculation, without the remotest prospect of remunerative returns for the investment made in them, are got up to dupe the unwary. And, worse even than the tricks and stratagems and devices of those who strive to obtain wealth without being willing to undergo the drudgery of honest accumulation, are the extravagances which the evil examples of some, and the imitative dispositions of many, have introduced into modern habits of living. Houses over-stocked with glittering furniture—tables groaning under expensive brands—persons clad in garments of unparalleled richness, are indications of a social demoralization which requires to be corrected by a wholesome public sentiment, and which may possibly prevail as we grow older and wiser; but of which, we must confess, there is not much indication at present.

BRITISH FISHERIES.

The official return respecting British fisheries for the year ending the 31st December, 1857, shows that the total quantity of herrings cured during the period was 580,813½ barrels; the total quantity branded, 218,992; and the total quantity exported, 367,160, being a decrease upon the preceding year of 29,174½ barrels in the quantity cured, of 4,289 in the quantity branded, but an increase of 19,549½ barrels in the quantity exported. The quantity of herrings caught, but not cured, amounted to 86,121 barrels, showing a decrease upon the preceding year of 21,564 barrels. These two quantities give the total produce of the herring fisheries for 1857 at 666,934½ barrels, presenting a decrease upon the preceding year of 50,738½ barrels or crans. The returns in the cod and ling department show for the past year that 104,668½ cwt. were cured-dried, and 4,393½ barrels cured in pickle, and the total quantity exported was 34,310 cwt., being a decrease in 1857, as compared with 1856, of 5,836½ cwt. in the quantity cured-dried, and 2,248½ barrels in the quantity cured in pickle, but an increase of 4,680½ cwt. in the total quantity exported. The number of boats employed during the year was 12,377, manned by 43,014 fishermen and boys, and with those engaged in the shore curing and other departments of the fisheries, the total number of persons employed was 93,596.

THE BOOK TRADE.

- 1.—*Cyclopedia of Commerce and Commercial Navigation.* Edited by J. SMITH HOMANS, editor of "Bankers' Magazine." With maps and engravings. Royal 8vo., pp. 2,000. New York: Harper & Brothers.

While we congratulate the public on the possession of a work which goes so far towards supplying a great want in a condensed form for ready reference, we are nevertheless disappointed to find that very much of the important matter by no means comes down to the most recent dates. Thus, under the head of Banks, the most recent dates of the official reports of the banks of the United States are for December, 1856, although the reports up to January, 1858, have long been laid officially before the public, and that period covers a most interesting era. Of the several States, few of the reports are brought down later than 1855. The Bank of France is brought down only to September, 1856, although the same returns are published monthly, and are before the public to July, 1858. The banks of Germany are brought down only to 1855, and the general returns of the Bank of England only to 1853. Under the general heads the same omissions are visible. The trade of France is brought down only to 1853, except whatever figures are derived from the United States reports, and they are only to 1855. The trade of Great Britain, so accessible down to the last month, is given no later than 1853, though, as we approach the close of the work, the dates, especially in regard to the United States trade, are brought down to the latest official publication. In some respects, too, there is a lack of uniformity in the figures—that is, they fail to prove. Thus, on page 1771, under the head of Sugar, the consumption of which in the United States in 1857 is given at 435,000 tons, on page 1774, the consumption of the same commodity in the United States for 1857 is set down at 280,765 tons—a difference of 156,000 tons. These are doubtless errors which unavoidably creep into so extensive a work, necessarily one of compilation from authors who do not always agree. Still it can be looked upon as a valuable work, containing much that it is important the merchant should know in relation to prices, quantities exported and imported, production here and elsewhere, and should have a place in every American merchant's library, as a representative of American trade.

- 2.—*Elements of Inorganic Chemistry*, including the Applications of the Science in the Arts. By THOMAS GRAHAM, F. R. S. L. & E., late Professor of Chemistry in University College, London. Edited by HENRY WATTS, B. A., F. C. S., and ROBERT BRIDGES, M. D. Second American edition. 8vo., pp. 852. Philadelphia: Blanchard & Lea.

This new American edition of Graham's *Inorganic Chemistry*, is from a second English edition recently published. Since the appearance of the first edition of this work in 1843, the subjects of which it treats have greatly increased in development and importance, so that nearly four hundred pages of new and important matter have been added, rendering it the most complete, while it is at the same time the most recent, work on inorganic chemistry. It contains the fullest investigations of heat, light, and electricity; of diffusion of liquors, chemical affinity of metallic and non-metallic elements. The indefatigable industry of Professor Graham, in investigating the new discoveries and appliances of inorganic chemistry for the last fifteen years, has enabled him to give clear and complete explanation of the relations of inorganic chemistry to science and art, with a utility to the student not to be found in any other work. Not only the knowledge, but the uses of chemistry, are here displayed with remarkable clearness. The additions by the American editors are chiefly such as to give a corresponding progress to the latest advancements in the science of chemistry—the first part of the English edition, of which this is the republication, having been published in parts several years ago. The pure white paper and clear type in which the book is got up, show a worthy appreciation of the subject by the publishers.

- 3.—*Two Millions*; an Epic Poem. By WM. ALLEN BUTLER, author of "Nothing to Wear." New York: D. Appleton & Co.

The popularity which attended the advent of Mr. Butler's poem "Nothing to Wear," as well as the dispute which arose as to who was its author, has doubtless given rise to this last production. It is written much in the same strain, and "drawn at a venture" with the same carelessness to praise or censure which seems so readily to attach itself to the pen of the author, and may be considered a slap at the follies of the times. Like the other, it is both satirical and quizzical, containing many pointed hits, which go to prove Mr. Butler both a poet and a wit. As a sample, we give below Satan's rebuke to sin, in a rhetorical effusion, in a poetical strain, of poor old Firkin's lawyer, in his friendly admonitions to the contending heirs to that old gentleman's princely estate :—

"But if you find, between conflicting views,
And jarring claims, too great disparity,
Give the whole fortune (which they won't refuse)
To some deserving city charity ;
Or if this fails, then, as a last resort,
Stay all proceedings, cut the matter short,
Fly from the law and juries and reporters,
Change the two millions into solid metal,
And sink the bullion in the deepest waters
This side the Narrows—rather than not settle !
Far better thus than make your names a handle
For public ridicule and private scandal ;
Far better thus than drag through all the courts,
To point opinions and to swell reports ;
To make the rich man shudder as he sees
How swift a curse, what dire calamities,
May wait upon the wealthiest, for whom—
Equal with beggars in the final doom—
Death is appointed, with its unknown ills,
And after death the probate of their wills ;
The ruinous vices, or the endless hate,
Too oft distributed with their estate,
Or the hot haste which, in one generation,
Squanders a lifetime's slow accumulation.
To make the poor man, in his worst despair,
Thank God, at least, he's not a Millionaire !
To lie—scarce confined in his marble vault,
Scarce hushed the echo of the funeral prayers,
Ere, overhead, begins the fierce assault,
And deadly struggle of contending heirs ;
Ruthless of memory or of honest fame ;
Reckless of virtues, earlier or later ;
And sinking even the once honored name,
In that post-mortem title—the Testator."

- 4.—*The Laws of Health*, in relation to Mind and Body. A Series of Letters from an old Practitioner to a Patient. By LIONEL JOHN BEALE, M. R. C. S. Royal 12mo., pp. 295. Philadelphia: Blanchard & Lea.

Among the many works on health addressed to the public, this is, as far as it goes, the best. "There are many diseases which may be altogether prevented by attention to the laws which govern animal life; and of those disorders dependent on some affectionous property in the air, or other mysterious causes, we are the better able to resist the influence, the more we are guided by the laws of health." The principles of this extract from the preface are lucidly evolved in the "Laws of Health," by Dr. Beale, and the book cannot fail to be of vital interest to all who will attentively read it.

- 5.—*New American Cyclopædia*; a Popular Dictionary of General Knowledge. Edited by GEORGE RIPLEY and CHARLES A. DANA. Volume III. Royal 8vo., pp. 768.

The third volume of this stupendous work has made its appearance with commendable promptness. It is now nearly thirty years since a complete cyclopædia was published in this country. Since that time we have doubled both our population and our area; peopled the gold regions; discovered a new continent; gone through a war; buried our third generation of great statesmen, in Clay, Calhoun, Webster, and Benton; built new cities, like Chicago; all our railways and ocean steamers; invented the photograph, the electric telegraph, and the lightning press; introduced cheap postage, steel pens, gummed envelopes, lucifer matches, omnibuses, chloroform, &c., &c. These matters are all dealt with in these volumes in the fullest possible manner, for a work of such magnitude, and with that comprehensiveness and ability which the editor's names were a sure guaranty in the outset. In volume III. will be found numerous articles interesting to every profession in life—lawyers, farmers, mechanics, merchants, military men, clergymen, and physicians: and among the contributors the names of Edward Everett, Professor J. H. Holcombe, George Ticknor, Charles H. Hazewell, and many others of equal authority.

- 6.—*Moveable Circle for finding Coins, Weights, and Measures*, of all Commercial Places in the World, compared with the standard of the United States. By L. SIMONSON. Baltimore, 1858.

This ingenious method of arriving at the relative value of coins, weights, and measures of each commercial place in the world, has only to be tested to satisfy one of its usefulness and adaptability. It is a lithograph on pasteboard, and consists of a plain and well devised circle, traversed by an inner one, and in order to ascertain the comparative relations of weights, measures, and currency between any two commercial places, you have but to turn the name of the given place on the moveable inner circle until it rests directly opposite that of the country or place to be compared on the outer circle, and you have the result in 100 pounds, 100 bushels, 100 dollars, &c., which can be readily reduced to any fractional part sought for. It is an ingenious and complete thing in its way, and to the merchant, banker, or statistician, who so frequently have balances to adjust, will be found a ready reckoner.

- 7.—*Tilden & Company's Book of Formulæ*, for making Tinctures, Infusions, Syrups, Wines, Mixtures, Pills, &c., from the Fluid and Solid Extracts, prepared at the Laboratory of Tilden & Co. 8vo., pp. 162. New Lebanon, N. Y., and 98 John-street, New York city.

This book is chiefly intended for apothecaries, but it is of equal benefit to all who would become acquainted with the indigenous and naturalized medicinal plants of our country, of which it contains a better digest than any other ever before printed. And besides this, it comprehends a condensed account of such plants of foreign growth as are known to be of greatest utility in medicine. To the history of botanic medicines, here briefly given, is added Messrs. Tilden & Co.'s list of condensed preparations, and the *formulæ* for their adaptation to standard dispensaries. The publishers promise a continuation of *formulæ* in their *Journal of Materia Medica and Pharmaceutical Formulæ*, in such a form that they can be cut out and preserved with the others in the Book of Formulæ. We cannot forbear to state, in connection with this notice, that there is much need of a special work on our native medicinal plants, and from the acknowledged reputation of Messrs. Tilden & Co., and from what they have already done towards developing the medical resources of the country, a more extended work from them on this subject would fill a long unwanted vacuum.