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What is more calculated to inspire a thirst for Knowledge, to advance the scale of Leterature Than the pursuit of the math? Their very nature powers me step follows another as a builder would lay one Olive on to predecessor. The Otre deut Commences the tack he adds link by link the the whole chain is If the pleasure to becoved in their alternaments or is difficult to speak Twee impossible to attempt gwing any adequate idea. Is it pleasing to the Botanist To dissect the various plowers, examine their Le the Channel to analyze a murial a measurests component parts? How much mue then is There in the pursuit of our suly ect. To axamine xanalyze Intellectual Properties. To mounts Rules which hold The throughouts the whole course to jund amidel such a rariety no two clashing, It observe the relation between the past slast step. I tunely no me who has we revelled in the lexures of lan Education can deny that Sold pleasure is here To be derived, it is to pleasure legans the bounds of Lenserelity, a higher a nobler sugayments; the sugay-- ment of the Sutabled boultly the proper cultialine of the mather ocques long a universed exerting yet they bring into actite & veg ones play the whole dutellectual powers. There is no the that will day the sup simply of Demanstrative Reasoning will will repuse the first meet that they Thinking of nicety in this tricking & come in The Ex amenation of Rubye ets. That is gives the muid an increased grasp in emprehending The most spependuous difficulties. But the mathe are bemand tratue. They are the source

this improved imode of Reasoning, And its of untiling apparts the mind accomplished to lasts it is relayed, a sweet flow of seleght pours its happy influence into the soul que feel a pude in out mental effects. But in the Ex and of any subject the should look not only to the pleas the derived in to allainment. lift also to its benefits supports There is a vast field opened. In describe this lupmay say the four dation burfit to the out in the disception of mind the afford drow what has been already stated of their tendency. This point. of what benefit them are they to the Alholan. The States man, The Melaphysecan? The more needs that rule over the mind than the Standart? were they more cultivated how many hours would eaved to him who tring the med-- night lamp? of what to the States man ? he must unders land have an nature what could mae in - pears his powers of observation adeductions. What gur Buraparte his transcendent military gensis? What to Chalam that penetralean for which he is Rejustly calabrated. That wurning & ver- powaring Eloquete That thereto damb the standerous Tingues of has accounces? of a rest to the metaphysicain. To use The words of Stewart to give him that scrupulous praces in it use of Sunguage. on which mere thew on any me cucums land whalever the logical ac-- coprany of their seas oning & the justines of the comsancia, depends. There are cases promisenously choen among the myreads. The agricultures. The manufactation. The Commercial man would Equally eles trate que position. In fine then is no wafful branch in which they would not be of Durp assure wholay. The now come to an exceedingly interesting view, one as which the mattis, have Best The most from ded on in which they stand as Beacon, Sights to the Religious world. I dave reformed to their mual affact. From what has been already stated of their touckancy is is wident we would be

lea to institute a careful organing into our own's actions. They force us to furnish reas one you steens Jumorality Count with Tand Reas on Hurfue, It follows we will give the necessity of morals & as we cannot rule ou Conscences, we must be much at least in Principle. have been branded with a tendancy & Inpalety & howard reasonable or may at jest appear, not after a little cy-- annihilation. The cloud of obscurity will be penetrated I the refreshing loceges of muthe rough show afer off. Some have directed that in Christianity we are Tread to occave many things as true which count be proved & which we account for by their sucern - prehens belig . But there has noon been a case trainment or would be supossible he cond nos pursue them with success, unlight would give close attention to memous other brancar. They are applied in those Departments where most we down our the Natural Evidences of Christianidis, tat un mense of-The mugue and of class, the far extended effect of the Oun. The Planets rivolong on their axes & nauring on their axes & nauring on their organism orbits, probably suns to systems. For in their organism orbits, probably suns to systems. boy and the range of human dision. The comet my ing his way throughout the At their orgains. Threatinging Each Gody in to terrific course with after des midlan weste doubts as to their necess andy long an author of this underfully accurate becauses? Does the abquirement of Physics uspine into the love a doubting feeling? Can to have any ench effect when it presents to the Eager mind the laws of natures if it did. Then the basis of Paley's boas ted algument falls & with it the find heper of milling. I were there nothing close . were away thing denied us . Ist the would toelf, observing to regularity, its in turios occurect applacation. The design attibile in it is being to be dis own & its being left to y to discour is would prove the existence of the Downe Being. There is you another point in which the fallacy of their argument can be planly

Shown. There is no me who will day that the 5 matte have the rendency of fixing principles frime of an a sure basis, they do but admit of different degrees y belief. Again we skrow. Some men are oceptical an almost every subject. They doubt their our senses of the fact of their reistunce they her itale in receiving, now is is probable a Mathe in could in receiving, now is be a deeptie when their natures are so diametri--cally apposed to each other, here is an incur is-- tendy too great to be passed over, pulty attended of the Superice share the rower of the Almighty? In acknowledging such a doctrine as this you strike a blow as once impaires Reculigeon & profane, you would be rouse the brutes. Euch opinion are an much to Heaven I would rather be an Dupidels, a Pagan a Health New have a Religion that could not with tund The cewils a bicscungs of the Sceptice. Yet such is the un avondable tendency of their argument. And of the Math? Suprove the oring. The reas aring powers. I have a much effects Why should we prohibit their ex tousine cultivations this way town, this way the foundations this new town, his aldting pile of wis down with all the anothern of a heated & Denselip brain? Is it Reason? Is it bearing Pears on able Beings ? to way condid mint the occupted guich doctors are plane. They see by upholding such penjung They would Throw the world Eentwees out of fil cruse, roll back the tide of Supriment, & immuge us again into the dans Agas. The Agas of Despoterm & Lyranny, Slots them pen-- suit by you ley waste the Caltuate field Let them such a way one who desires Such boughts, apply himself to their conquests who will find their hitteles depths whe will find "Peuls of great price". The will amply remainerate find later the second his labor. They are the curren steriely encesse Set any one under tous. Them well &

he can muster any subject. mountains are but more like to his 6 ophere are to their clear as the Open day line ophere are to their clear as the Open day line in juice to use The Surguege of a Colorado with a sound & sufficient to the surge of a Colorado with a sound & sufficient to the surge of a Colorado with the sound of sufficient to the surge of a colorado with th The math ? is the great instrument of all Exect Inquiry without which no man can our make buch advances in any of the him to am Independent opinion.

Commencement Oration of John A. Wright, Class of 1838
Transcribed by Krista Gray, September 2008
Edited by Meg MacAvoy, September 2008

## Mental and Moral Effects of the Mathematics

Perhaps there is no stranger feeling or one that has more effect on our Passions than Prejudice. We have our National Prejudices & our Fictional Jealousies. We have our Prejudices also in the Literary World.

In observing the progress of the mind, we see it must have some topic, on which it can be strongly exercised. This is proved by our own Experience. Electro Galvanism, Animal Magnetism & Phrenology have successively occupied the public mind, but there is another class which demand greater attention & consequently are of a firmer cast. I have reference to the main studies pursued in cultivating the mind.

In our first Literature we imbibed the feelings & principles of Europe. It is a well Known fact, that the Languages have there been almost exclusively studied, if we except France. We must then put gird on the armor of Reason to defend ourselves against the attacks of Prejudice. The uses of Ages are not Easily to be laid aside. They become interwoven in our very natures & it is only some great counteracting force, some sudden Literary Earthquake, that can bring out the hidden secrets of learning. I do not intend entering on a discussion of the Comparative merits of the Classics & the Math<sup>s</sup>, nor on the ruins of the former to attempt erecting the latter.

What is more calculated to inspire a thirst for Knowledge, to advance the scale of Literature than the pursuit of the Math<sup>s</sup>. Their very nature proves this they are Analytical & Synthetical. They are regular one step follows another, as a builder would lay one stone on its Predecessor. The Student commences the task, he adds link by link till the whole chain is finished

Of the pleasure to [berevid?] in their attainment it is difficult to speak 'twere impossible to attempt giving any adequate idea. Is it pleasing to the Botanist to dissect the various flowers, examine their petals, [Calyxnstamens?] & thereby determine their class? To the Chemist to analyze a Mineral & measure its component parts? How much more there is there in the pursuit of our subject. To examine & analyze Intellectual Properties. To [iniculs?] Rules which hold true throughout the whole course, to find amidst such a variety no two clashing, to observe the relation between the first & last step? Surely as one who has ever revelled in the luxuries of an Education can deny that Solid pleasure is here to be derived, it is a pleasure beyond the bounds of Sensuality, a higher a nobler enjoyment, the enjoyment of the Intellect. Doubtless the proper cultivation of the Math<sup>s</sup> requires long & unwearied exertions, yet they bring into active & vigorous play the whole Intellectual powers. There is no one that will deny the lap sincerity of Demonstrative Reasoning who will refuse the just need that they give the faculty of long, close & calculative thinking, of nicety in distracting & care in the Examination of subjects, that it gives the mind an increased grasp in comprehending the most stupenduous difficulties. But the Math<sup>s</sup> are Demonstative. They are the source

of the improved mode of Reasoning. And is there not pleasure in this when after lengthened & untirering efforts the mind accomplishes its task it is relaxed, a sweet flow of Delight pours its happy influence into the soul & we feel a pride in our mental efforts.

But in the exam<sup>n</sup> of any subject we should look not only to the pleasure derived in its attainment, but also to its benefits & effects & here is a vast field opened. To describe this luxuriant display would be impossible.

Among their greatest advantages & I may say the poor [dation?] benefit to the rest is the discipline of mind the [affixed?]. From what has been already stated of their tendency, it were needless here entering on a discussion of this point, of what benefit then are they to the scholar, the States man, the Metaphysican? Who more needs that rule over the mind than the Student? Were they more cultivated, how many hours would saved to him who trims the midnight lamp? Of what to the States man? He must understand human nature. What could more improve his powers of observation & dedudion. What gave Bonaparte his transcendent military genius? What to Chatam that penetration for which he is so justly celebrated. That warming & overpowering eloquaece that struck dumb the slanderous tongues of his enemies? Of what to the Metaphysican, to use the words of Stewart to give him that scrupulous precision in use of language on which more than on any one cucumstance whatever the logical accuracy of their seasoning & the justness of the conclusion, depends. These are cases promiscuously chosen among the myriads. The Agriculturalist, the Manufacturer, the Commercial man, would equally illustrate our position. In five there is no useful branch in which they would not be of surpassing utility.

We now come to an exceedingly interesting view, on which the Math<sup>s</sup> have been the most branded & in which they stand as Beacon Lights to the Religious wuld I have reference to their moral affect. From what has been already stated of their tendency it is evident we would be

be to institute a careful inquiry into our own actions. They force us to furnish reason for and for then Immorality cannot withstand reason, therefore it follows we will find the necessity of Morals & as we cannot rule our Consciences we must be Moral, at least in Principle.

Again the Math<sup>s</sup> have been branded with a tendency to Infidelity & however reasonable it may at first appear, yet after a little examination, the cloud of obscurity will be penetrated & the refreshing breezes of truth waft them afar off.

Some have objected that in Christianity we are forced to receive many things as true, which cannot be proved & which we account for by their Incompreheusbility. But there has never been a case where one has devoted his whole time to their pursuit attainment it would be impossible, he could not pursue them with success, unles he would give close attention to numerous other brances, they are applied in those Departments where most we derive our ne natural Evidences of Christianity.

Will the contemplations of that immense space the myriads of stars, the far extended effect of the Sun. The Planets revolving on their axes & nawing in their regular orbits, probably suns to systems far beyond the range of human vision, the comet urging his way throughout the AEtherial regions, threatining each body, in its terrific course with utter destruction excite doubts as to their necessarily being an Author of this wonderfully accurate [bucanism?] Does the acquirement of Physics inspire into the soul a doubting feeling? Can it have any such effect when it presents to the eager mind the laws of Nature? If it did, than the basis of Paley's boasted argument falls & with it the fond hopes of Millings & were there nothing close, were every thing denied us, yet the work itself, observing its regularity, its extensive & current application, the design exhibited in is its being to be discovered & its being left to us to discover it, would prove the existence of the Divine Being. There is yet another point in which the fallacy of their Argument can be plainly

shown. There is no one who will deny that the Math<sup>s</sup> have the tendency of fixing principles firm & on a sure basis. They do not admit of different degrees of belief. Again we Know some men are scepticals on almost every subject. They doubt their own senses & the fact of their existence they hesitate in receiving. Now is it probable a Math<sup>n</sup> would be a Sceptic when their natures are so diametrically opposed to each other, here is an incusistency too great to be passed over.

And is Religion afraid of Reason? Can the paltry attacks of the Infidel shake the towers of the Almighty? In acknowledging such a doctrine as this you strike a blow at once impiuius, sacriligeous & profane, you would be worse than brutes. Such opinions are an insult to Heaven I would rather be an Infidel, a Pagan, a Heathen than have a Religion that could not withstand the [coils?] & bickerings of the Sceptic. Yet such is the unavoidable tendency of their Argument.

And if the Math<sup>s</sup> improve the mind, the reasoning powers, & have a moral effect, why should we prohibit their exclusive cultivation? Why brand this foundations, this key stew, this skeeting pile of wisdom with all the another as of a heated & senseles brain? Is it Reason? It is becoming Reasonable Beings? To every candid mind the results of such doctrines are plain. They see by upholding such opinions they would throw the world [centuries?] out of her course, roll back the tide of Improvement, & immerge us again into the dark Ages, the Ages of Despotism & Tyranny. Stop their pursuit & you lay waste the cultivated fields of Literature.

Set them each & every one who desires Such benefits, apply himself to their conquest drive into their hidden depths & he will find "Pearls of great price", that will amply reimburse his labor. They are the cornerstone of excess Set any are understand them well &

he can master any subject.

Mountains are but Molehills to his Mental Grasp & the movements of the Celestial sphere are to their clear as the Noon day Sun.

In five to use the language of [CaleRialn?] uniten a sound & sufficenit Knowledge of the Math<sup>s</sup> is the great instrument of all exact Inquiry, without which no man can even mke such advances in any of the higher branches of Service, as can entitle him to an Independent Opinion.