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By

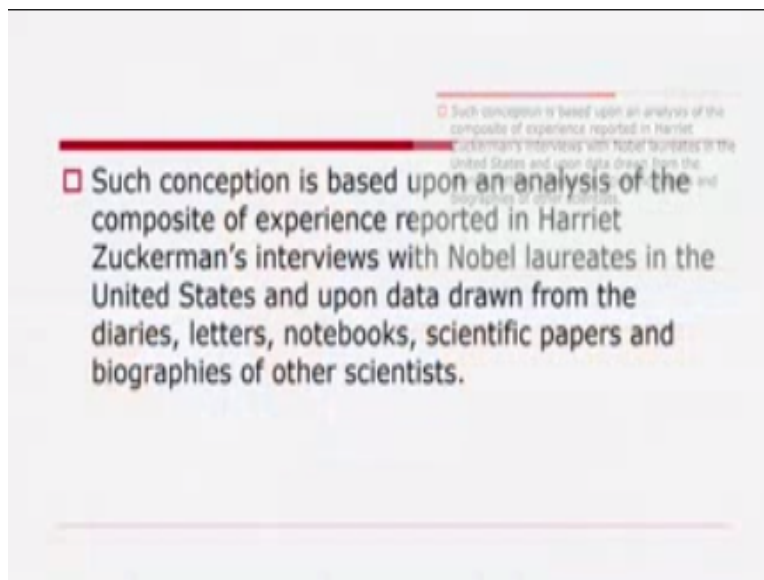
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Now if you look at these the Nobel Prize the most coveted prize okay.

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The Nobel prize retains it last year because errors of the first kind according to Martin where scientific work of dubious or inferior words has been mistakenly honored or uncommon listen yet limitations of the second kind cannot be avoided the small number of odd means that particularly in times of great scientific practices there will be many of them occupants of a particular creature okay.

And the kind of gap that is created if you look at the kind of gap that is created in the order of the ultimate price is only partly filled by other odds for scientific accomplishment since these do not

carry the same prestige either inside the scientific community or outside it furthermore what has been noted about the effect of fixed numbers producing occupants of the most coveted or one of the most coveted prizes or award holds in principle for other hours providing less prestige though sometimes this is more gas.

Sometimes reflecting on the specification which because we live in stratified society hierarchical Society okay reflecting on the stratification of honor and esteeming the world of science know all these the Nobel laureate included in then the study carried out by Martin and Jack ermine that the themselves know and emphasize it and the members of the Swedish royal academy of times and the Royal Caroline Institute who face the unenviable task of making the final decisions know it okay.

In the stratification system of honor in science there may also be a ratchet effect okay operating in the carriers of scientists such that once having achieved a particular degree of eminence they do not let her fall much below that level although they may be out distanced by newcomers and so suffer a relative decline in prestige one Nobel laureate always a Nobel laureate according to Martin.

I am just quoting Martin here once a Nobel laureate always a Nobel laureate okay yet that your system based on recognition for work accomplished work accomplished tends to induce condemned continued effort which serves both to validate the judgment that the scientist has unusual capacities and to testify that these capacities have continuing potential what appears from below to be the summit becomes in the experience of those who have reached it only another wasted the scientists.

Here and other associate regards each of his scientific achievement as only the pollute to new and greater affinity such social pressures do not often permit those who have climbed the rug mountains of scientific achievements to remain contained it is not necessarily the fact that their old fossil expeditions are ever escalating that keeps eminent scientists at work more and more is expected of them and this and this more and more is expected of them creates its own measure of motivation and stress okay.

Less often than might be imagined is the repose at the top enzymes they recognize the recognition accorded scientific achievement by the scientist field is rewarding the strict sense

identified by Alcott Parsons as well as we shall discuss now such recognition can be converted into an instrumental asset as enlarged facilities are made available to the honored scientist for further work without deliberate intention the part of any group the reward system that influences our class structure of science okay.

By providing stratified distribution of chances or opportunities ok among scientists for enlarging their role as investigators okay what is that class structure inside I mean if you if you use a Marxist notion of class that classes are manifestations of economic differentiation and such differentiation in terms of rewards and recognition has led Merton to conceptualize such class structure now of science by providing a stratified distribution of opportunities or chances.

The process this such the process of class structure of science no white differential access to the means of scientific production and this becomes all the more important in the current historical shift from little signs to big signs if you look at during DJ solar prices work on little signs big sense of course this is not a part of this course but one can look at solar prices.

So work on little science big science and such in such circumstance I mean such instead becomes all the more important in the current historical shift now from little science to big sensitive expensive and often centralized equipment needed for research there is a continuing interplay between the status system based on honor and esteem and the class system based on differential life chances Webber in turn life chances and components while determining of class.

So thank you ok which is which locates science in differing positions within the opportunity structure of time I mean then the status system is based on honor and class system is based on different life chances okay if we come back come to the second point if you look at the slide that after reward system enzymes.

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- Reward system in science
 - The Matthew effect in the reward system
 - The Matthew effect in the communication system
 - The Matthew effect and the functions of redundancy
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We are going to discuss the massive effect in the river system the second point the Matthew effect in the river system ok in this case I menthe social structure of science provides the context for this inquiry into a complex psychosocial process that affects both the reward system and the communication system in fact let us let us start by noting a theme that runs through the interviews which must earn and joker man are carried out with the Nobel laureates.

They repeatedly observe that eminent scientists get disproportionately great credit frothier contributions to science while relatively unknown scientists tend to get disproportionately little credit for comparable contributions as one I am quoting this interview carried out by it was conducted by both Martin and Jacqueline that is one Nobel laureate in physics put it the world is peculiar in this matter of how it gives credit

I mean the world is peculiar the society is peculiar in this matter of how it gives credit it tends to give the credit to already famous people and those who are less famous than those who do not have so much of name and fame okay they also get disproportionately late little credit but as we examine the experiences reported by eminent scientists we find that this pattern of recognition cube in favor of the established scientist appears principally first in cases of collaboration and secondly in cases of independent multiple discoveries made by scientists of distinctly.

Then different ranks in papers courted by individuals of decidedly unequal reputation another laureate in physics report the man who is best known gets more credit and inordinate amount of credit in the words of a laureate in chemistry when people see my name on a paper they're apt to

remember it and not to remember the other names and the laureate in Physiology and medicine describes his her arenas own pattern of response to jointly authored papers.

Let me quote this that you usually notice the name that you are familiar with even if it is lost it will be the one that sticks in some cases all the names are unfamiliar to you and they are virtually anonymous but what you note is the acknowledgement at the end of the paper to the senior person for his advice and encouragement so you will say this came out of green slab or so-and-so slab you remember that rather than the long list of others almost as though see or he had been listening to this account.

Another laureate in medicine explain why see or he will often not put her his name on the published report of collaborative piece of work let me quote again that people are more or less tempted to say oh yes so-and-so okay is working the on soil such-and-such in X Y Z laboratory okay.

It X Y heads idea I try to cut that down still another laureate in medicine alludes to this pattern and goes on to observe how it might prejudice the career of the junior investigator if someone is being considered for a job by people who have not had much experience with him or her if she or he has published only together with some known names well it detract it naturally makes people ask how much is really heard his own contribution how much the senior show will she or he work out once he or he goes out of miss.

That is laboratory okay that is why this collective spirit of work also tends to influence the credit system I mean the devotee system under certain conditions this adverse effect on recognition of the junior residents or junior author of papers written in collaboration with prominent scientists can apparently be counted and even converted into an asset suit the younger scientists for martin move ahead to do autonomous insignificant work this workers retro actively affect the appraisal of her or his role in earlier collaborators in the words of the laureate in medicine who returned.

To the virtual anonymity of junior authors of co-authored papers and coating now people who have who have been identified with such joint work and who often go on to do work later on do get the proper amount of recognition indeed as another laureate implies this retroactive judgment may actually hike and designation for later accomplishment that is the junior person is sometimes lost sight of but only temporarily if she or he continues in many cases.

She or he actually gains in acceptance of further his work and in general acceptance by having once had such Association awareness of this pattern of retroactive recognition may account impart for the preference described by another laureate of some young fellows who feel that to have a better known name on the paper will be of help to them but this is an expressive as well as a merely instrumental preference as we see also in the price of which laureates themselves speak of having worked with their mentors.

The mentors of those Nobel laureates so much for the miss allocation of credit in this reward system in the case of collaborative work such missile occasion also occurs in the case of independent multiple discovery when approximately the same ideas or findings are independently communicated by a scientist of great repute and by one not yet widely known it is the first.

We are told who ordinarily receives prime mechanism and approximate and approximation to this patters reported by a laureate who observed it does not happen let me again quote it does not happen that two men have the same idea and one becomes better known for its X suppose X who had the idea went the circling round to try to get an experiment for nobody will do it and so.

It was forged in ethically finally a and B and C did it became symbols and got the Nobel Prize if things had gone just a little differently if somebody had been willing to try the experiment when X initially suggested it then they probably could have published it jointly and she or he would have been a famous man famous person as it is she or he is your footnote now okay the video originator of that idea has been reduced to footnote the battens of this process at the expense of the young scientist and to the benefit of the famous one is remarkably summarized in the life history of a laureate in physics.

Who has experienced both phases at different times in her or his career when you are wreck or when you are not recognized she or he recalls it is a little bitirritating to have somebody come along and figure out the obvious which you have already figured out and everybody gives her or him credit just because her he is a famous physicist or a famous man in her or his suit he or she or he is giving the case that she or he is reported from.

The perspective of one who had this happened to him before she or he had become famous the conversation takes a new turn as she or he notes that her or his own position has greatly changed

shifting from the perspective of her his earlier days when she or he felt victimized by the pattern so to the I mean I mean to the perspective of his present high status she or he goes on to say like this again let me quote this often happens and I am probably getting credits now if I do not watch myself for things other people figure out.

Because I am not odious and when I say it will say well she or he is the one that thought this out well I may just be saying things that other people have already have thought out before in the end then a sort of return zone injustice has been done by the compounding of two compensating in justices her or his earlier accomplishments have been underestimated her or his later one overestimated this complex pattern of the misallocation of credit of scientific work most quite evidently be described as the matching effect for as will remember the Gospel according lost.

Matthew puts it this way for unto every one that hath shall be given and he shall have abundance but from him that has not selfish shaken now it that even that which he has I mean it's a biblical it has a biblical origin as we have already discussed the lectures the Gospel of Matthew that that's the biblical origin and the return them massive attracting of them the Methenyfact and put in less stately language okay.

The metal fact consists in the accruing of greater increments of recognition for particular scientific contributions to scientists of considerable repute and the withholding of such recognition from scientists who have not yet made their mark noble laureates often presumptive a mineral laureate provides presumptive evidence of the effect since they testified to it occurrence not as victims which might make their testimony suspect but as unwitting beneficiaries the laureates and other eminent men individuals of science are sufficiently aware of this aspect.

The metal effect to make special efforts to counteract it at the extreme they sometimes refuse to author a paper reporting research on which they have collaborated in order not to diminish the recognition accorded the less known or less well known associate and as Harriet joker man has found they tend to be first is jointly authored papers to one of their collaborators she discovered the Ackerman discovered moreover that the laureates who have attained emmalinbefore

receiving the Nobel Prize begin to transfer first of a step to associate earlier than less eminent laureates to do.

And that both sets of laureates the previously eminent and not so eminent greatly increased this practice after receiving the prize yet the latter effort I mean after this event price letter effort is probably more expressive baccalaureates good intentions than it is effective in addressing the imbalance of credit attributable to the metal effect as the laureate coated by jock ermine acknowledges if I publish my name first then everyone thinks the others are just technicians if my name is last people will credit me anyway for the whole thing.

So I want the other others to have a bit more close the problem of achieving the public identity in science may be detained by the great increase in the number of papers with several authors in which the role of young collaborators becomes obscured by the brilliance that surrounds their illustrious co-authors who are still into those juniors so great is this problem that we are tempted to turn again to the scriptures to designate the status in enhancement and status suppress and components of the Mathildewe can describe it as the I mean if you can look at this I mean it will surely have been noted.

That the laureates perceive massive effect primarily as problem in the just allocation of creditor scientific accomplishment they see it largely in terms of its action in anon thing a rank or suppressing the state as leading to an unintended double injustice in which unknown scientists are unjustifiably victimized and famous once unjustifiably benefited in sort they see the method effect in terms of a basic iniquity in the river system that affects the carriers of individual scientists but it has other implications for the development of science.

And we must shift our angle of theoretical vision in order to identify them okay then Myrtle while welling up an inequality in science he moved on to the massive effect in the communication system okay we have already discussed the Matthew effect in and in the reverse system now let us see the massive effecting the communication system okay now let us look at the same social phenomena from the perspective of the communication system not from the standpoint of individual carriers

And the workings of the reward system but from the standpoint of science conceived of as a system of communication and this perspective yield a further set of in inferences it leads us to

propose the hypothesis that a scientific contribution will have greater visibility in the community of scientists when it is introduced by scientist of high rank than when it is introduced by one who has not yet made this or her mark in other words considered in its implications for the reward system the methyl effect is dysfunctional for the carriers of individual scientists who are penalized in the early stages of their development.

But considered in its implications for the communication system the Matthew effect in cases of collaboration and nice coverage may if then it may operate to heighten the visibility of new scientific communications there is not there is not the first instance of asocial pattern being functional for certain aspects of a social system and dysfunctional for certain individuals within that system that indeed is a principle theme of classical tragedy according to what several laureates have sensed this social function of the Matthew effect speaking of the dilemma that confronts the famous individual of science person of science.

Who direct the work of a junior associate one of them observes let me coach here it raises the question of what you are to do you have a student should I put your name on that paper or not you have contributed to it but is it better that you shouldn't or should there are two sides to it if you do not and here comes the decisive point on visibility if you don't there is the possibility that the paper may go quite unrecognized nobody needs it if you do it might be recognized but then the student does not get enough credit okay.

Studies of the reading practices of scientists indicates that the suggested possibility nobody reads it is something less than sheer hyperbole it has been found for example that only about half of 1% of the articles published in journals of chemistry are read by any one chemist according to much and much the same pattern has been found to hold in psychology again a growing tumor I mean how.

Let me quote here the data on current readership that is within a couple of months after distribution of the journals suggested that about 1/2 of the research reports in your journals will be read or tipped by 1% or less of random sample of psychologists at the highest end of the current leadership distribution no research report is likely to be by more than about 7% of such a sample okay.

Several of the core findings theretangentially on the hypothesis about the communication function of the magician the evidence is tangential rather than central to the hypothesis since their data deal with the degree of visibility okay of the entire corpus of each physicist's work in the national community of physicists rather than the visibility of particular paper shredded it still in gross terms that findings are at least consistent with the hypothesis the higher the rank of physicists and measured by the prestige of the hours.

They have received for scientific work the higher their visibility in the national community of physicist Nobel laureate have visibility score okay other members of the National Academy of Science or score of that they are placed different I mean they're placed with different scores placed at different scores and this is all I mean odd I mean in scientific quest our consensus are killed out.

I mean the polls also find out fine that the visibility of physicists producing work of high quality is heightened by their attaining honorific odd more prestigious than those they have previously received further investigation is required to discover whether this same pattern sold for differences in the visibility is measured by readership or individual papers published by scientists of different rank.

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