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Author(s): Isaac Asimov

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The By-Product of Science Fiction

In the battle against the cult of ignorance a branch of popular literature holds out for the respectability of brains

ISAAC ASIMOV, *Boston University School of Medicine*

ON JUNE 25, 1956, I watched Producer's Showcase on television and witnessed, in striking form, the conflict between the Need for Education and the Cult of Ignorance.

The Need for Education was brought home with the very first commercial, which pulled no punches. The sponsor, it seemed, needed missile engineers and he set about luring such engineers to his Florida factory. He stressed the climate and the beaches, the good working conditions, the cheap and excellent housing, the munificent pay, the rapid advancement, the solid security. He did not even require experience. The effect was such that I, myself, felt the impulse to run, not walk, to the nearest airport and board a plane for Florida.

Having overcome that impulse, and having brooded for half a moment on the shortage of engineers and technical men brought on by the ever-intensifying technological character of our civilization, I prepared to enjoy the play being presented, which was an adaptation of "Happy Birthday" by Anito Loos, starring Betty Field and Barry Nelson. I did enjoy it; it was an excellent play;—but, behold, the sponsor, who a moment before was on his knees, pleading for technically trained men, paid to have the following presented to his audience of millions.

Barry Nelson is a bank clerk who spends much of his free time in a bar because that is where one meets women (as he explains). The one setting is the bar itself and the cast of characters is a wonderfully picaresque group of disreputables with hearts of tarnished gold. Barry Nelson, in the course of the play, explains that he doesn't read books (he is talking to a librarian) although, he admits with seeming embarrassment, he once did. He explains that his father once paid him a sum of money to learn to recite the Books of the Minor Prophets of the Bible and to show he can still do it, he rattles them off, explaining that when he was younger he could recite them much more quickly. Thus, the audience is presented with an example of what book learning is, and it is clear to them that this sort of thing is useless and ridiculous and that Barry is wise to eschew books and confine himself to bars.

The American Stereotype

Betty Field, on the other hand, is a librarian; that is, an educated girl, since she implies, now and then, that she has read books. She is shy, corroded with unhappiness, and, of course, unnoticed by boys. In the play, she violates the teetotaling habits of a lifetime and takes a drink, then another, the another. . . . Slowly, she is stripped of her inhibitions. The stigma of intelligence is removed, layer by layer, as she descends into a rococo alcoholism. The result is that the barflies, who earlier viewed her with deep suspicion, end by making a heroine of her; her alcoholic father, who beat her earlier, takes her to heart; and, best of all, the bank clerk, who had never noticed her earlier, makes violent love to her.

I repeat, I enjoyed it thoroughly. And yet, viewed in the sober gray light of the morning hangover after, the play preached a great American stereotype: that only in ignorance can happiness be found; that education is stuffy and leads to missing much of the happiness of life.

Is there some connection between this and the fact that the sponsor is having trouble finding technically trained men? Yes, we need technicians. Society as a whole needs them or it will collapse under the weight of its own machines. But how are we trying to get them?

Is it sufficient for an industrial concern to lure missile engineers? What it amounts to is that engineers are being lured from one specialty into another, with the total number seriously short. If a community can get rich by taking in one another's washing, this sort of thing can work, but otherwise, not.

The Solutions Fall Short

Other solutions have been suggested. Men advise that science teachers be paid more, that bright students be given scholarships, that industrial chemists and engineers devote time to teaching and so on. All these points are valuable, but do any of them go far enough? And if you did, somehow, get a sufficiency of wonderfully expert science teachers, whom would they teach? A group of students, most of whom have been indoctrinated from childhood on with a thoroughgoing belief in the limitations of educated people and the worthiness of natural ignorance.

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Think for yourself of the literary stereotypes of the "bad boy"—the best of whom were Tom Sawyer and Penrod Schofield (and a more modern example of whom is Henry Aldrich). School is their enemy; schoolteachers hateful; book learning a bore and delusion. And who are the villains of the piece? The Sid Sawyers and Georgie Bassetts—little sneaks who wear clean clothes, speak correct English, and like school (loathesome creatures).

I have never stolen an apple from a neighbor's apple tree or rifled a watermelon from his watermelon patch (there being little or no opportunity to do so in the depths of Brooklyn) but I thoroughly detested the villainous teacher's pets who wouldn't engage in such lovable and manly little pranks, or who wouldn't play hookey and lie about it, or participate in a hundred and one other delightful bits of what we today call juvenile delinquency.

Plight of the Intellectual

Perhaps it is our pioneer background, when school seemed merely a device to take a boy from his necessary chores and put him to work learning Latin verb declensions, to the thorough exasperation of his overworked father. Whatever it was, many of us can remember the scorn heaped by the newspapers on the "fuzzy-minded professors" of the Brain Trust of early New Deal days. And more recently, there are those who seriously suggest that one of the factors in Stevenson's smashing defeat of 1952 was that, in his public speeches, he was so incautious as to reveal unmistakable signs of intelligence.

Have you ever noticed the role played by spectacles in movies and television? Glasses in the popular visual arts of today are the symbol of developed intellect (presumably because of the belief on the part of the average man that educated men ruin their eyes through over-indulgence in the pernicious and unhealthy habit of reading). Ordinarily, the hero and heroine of a movie or television play do not wear glasses. Occasionally, though, the hero is an architect or a chemist and must wear glasses to prove he has gone to college. In this case, he is constantly whipping them off at every forceful speech he makes. True, he puts them on to read a piece of print, but then off they shoot again, as he bunches his jaw muscles and assumes the more popular role of unpedantic valor.

An even better example is a Hollywood cliché that has been so efficiently ground to dust by over-use that even Hollywood dare not use it again (an almost incredible state of affairs). The cliché to which I refer is the one whereby it is assumed that Betty Grable, with glasses on, is ugly.

This has happened over and over again. Betty Grable (or Marilyn Monroe or Jane Russell) is a librarian or a schoolteacher (the two feminine occupations that, by Hollywood convention, guarantee spinsterhood and unhappiness) and naturally she wears big, tortoise-shell glasses (the most intellectual type) to indicate the fact.

Now to any functional male in the audience, the sight of Betty Grable, or similar female, in glasses evokes a reaction in no way different from the sight of her without glasses. Yet to the distorted view of the actor playing the hero of the film, Betty-Grable-in-glasses is plain. At some point in the picture, a kindly female friend of Betty Grable, who knows the facts of life, removes Betty's glasses. It turns out, suddenly, that she can see perfectly well without them, and our hero falls violently in love with the now beautiful Betty and there is a perfectly glorious finale.

Is there a person alive so obtuse as not to see that (a) the presence of glasses in no way ruined Betty's looks and that our hero must be perfectly aware of that, and (b) that if Betty were wearing glasses for any sensible reason, removing them would cause her to kiss the wrong male since she probably would be unable to tell one face from another without them?

No, the glasses are not literally glasses. They are merely a symbol, a symbol of intelligence. The audience is taught two things: (a) Evidence of extensive education is a social hindrance and causes unhappiness; (b) Formal education is unnecessary, can be minimized at will, and the resulting limited intellectual development leads to happiness.

Stereotype vs. Education

It is this stereotype of good human ignorance versus dry, unworldly education that we must somehow fight and conquer if we are ever to get sufficient quantity of raw material—that is, children who are brought up to respect and admire intelligence—upon which to apply the palliatives we suggest (money, security, prestige) to increase our supply of scientists and technicians.

The battle is not entirely one-sided, of course. The \$64,000 Question has taught us that under rare conditions it is profitable to know a good deal about Shakespeare. The Tomorrowland programs put out by Disney and the Mr. Wizard shows are examples of what television can do. Worthwhile books appear even in paperbacks, side by side with the most unlikely companions.

What seems most important to me, however, is that there is one entire branch of popular literature which is largely given over to the proposition that brains are respectable. That branch is known as science fiction.

A Respect for Brains

Those who are not acquainted with the field must immediately be informed that it has many branches and aspects. Of these, the least advanced are, alas, the best known. The rash of science fiction movies that deal with papier-mache monsters and young men and women who display their scientific proclivities by whipping glasses on and off are nothing much, but even here is some attempt to value intelligence.

The scientist stands (however Hollywoodishly jut-jawed) between the terrors of papier-mache and the covering peoples of Earth. He is not, as in most nonscience-fiction movies that feature him, merely a humorous figure who speaks in long words and betrays a comic and nearsighted innocence when confronted with the statistics of the baseball season. Much the same can be said even for the comic magazine version of science fiction.

Science fiction at its worthiest and most intelligent, however, is found in the magazines devoted to the genre. The science fiction published by these magazines deals, in varying degrees of literary excellence and scientific accuracy (both, on occasion, astonishingly high), with life in societies more technologically advanced than our own.

Naturally, a science fiction story can be entirely frivolous, as for instance would be the case of a story dealing with a man who invents a device whereby he may unobtrusively see through walls and clothing. It should be obvious that, properly handled, a great deal of enjoyable ribaldry may result, but nothing much beyond that. A science fiction story can even be antiscience, as were a great many, several years ago, which described atom-shattered Earths with scattered and primitive survivors, all yielding the pretty obvious moral that all this would not have happened if only men had avoided poking their nose into science and had stayed close to the simple things of life.

But a significant fraction of science fiction stories have as their chief motivating force some kind of technical problem, and as their chief characters, technically trained people.

I can cite some examples. One deals with a party of scientists who travel to a distant planet to find the reason for the mass-death of an earlier colonizing party despite the planet's apparently ideal nature as a home for man. The answer turns out to be that the planet's crust is high in beryllium compounds and death is the result of insidious beryllium poisoning.

The second story deals with the efforts of a historian to gain permission to use the government's "time-viewing" machine in order to gain data on ancient Carthage. On the government's refusal, he engages the services of a physicist to build him such a machine,—with totally unexpected and tragic results.

In the first story, there is a consideration of the problem of the expanding quantity of scientific data and the increasing realization of the inability of the human mind to cope with even a fraction of it. In the second, there is a description of what might take place in a society where government grants become the sole financial support of research.

The By-Product

This sort of thing is, as you see, a step above "The Monster from Twenty Thousand Fathoms."

But both the story itself and the sociological background are, in a way, less im-

portant than the mere fact that although the individual scientist in such stories may be hero or villain (depending on whether he is intelligent and reader-sympathetic or intelligent and reader-unsympathetic), science and intelligence, themselves, as abstract forces, are represented sympathetically. Scientific research is presented, almost invariably, as an exciting and thrilling process; its usual ends as both good in themselves and good for mankind; its heroes as intelligent people to be admired and respected.

Naturally, science fiction writers do not deliberately go about doing this. If they did it deliberately, the chances are that their stories would play second fiddle to their propaganda and prove quite unpublishable; or if published, quite boring, and thus do more harm than good.

It merely happens that this sort of thing comes about almost unwittingly. However much a science fiction writer may think primarily of writing a good story and secondarily of making an honest living, he inevitably finds that every so often he cannot escape making intelligence, education, even a scientific career, attractive. That is the by-product of science fiction.

Means for Recruiting

It is false snobbery, then, to affect to despise science fiction and to cite as excuse

the more childish versions of it produced by Hollywood and the comic magazines. It may not appeal to the individual scientist as personal reading matter, but to ignore or revile it for that reason, is to ignore or revile an ally in that sector of the field where our enemy, the cult of ignorance, is strongest.

I can only wish that even more technologically trained people were interested in science fiction and that even more tried to write it, if only to raise the quality of the field and make it still more efficient as one means of recruiting future scientists. The armed forces frequently interest themselves in motion pictures dealing with the services in order that technical details be correctly presented and that military traditions not be made to appear ridiculous. It seems not too unreasonable to hope that some day scientists as a group will be interested in having themselves presented with reasonable accuracy. Why not see to it that the alchemical retort is removed from the movie version of the chemistry laboratory and that the notion be discouraged that a nuclear physicist prepares a new type of atomic bomb by mixing water and dry ice in a test tube and staring earnestly at the mysterious smoky bubbles that result?

A specific example of what I am trying to prove is illustrated by a letter from Steven R. Miller of Flushing, N. Y., to

John W. Campbell, Jr., editor of *Astounding Science Fiction* (which, of all the science fiction magazines, is the most technical in content). The letter read, in part:

"I feel I owe you and *'Astounding'* a great deal. Unknowingly, your magazine in particular, and science fiction in general, have been a great influence in the shaping of my life. The credit is due mainly to the articles that appear regularly in *ASF*, and to your editorials. I have just won a scholarship to the University of Chicago and I will take up biochemistry or, more likely, biopsychology. . . ."

In my profession, I help teach medical students every year, but these are young men who have already chosen their vocation. These young men have been won for science long before I see them.

By way of my spare-time occupation as science fiction writer, however, I now have evidence that occasionally I help to win the initial victory and encourage a youngster to go into science who might otherwise not do so. Extrapolate this to science fiction in general and think of the many youths who are won silently and who do not bother to advertise the victory. It is then that the writing of science fiction becomes more than merely a pleasant way to add to my income.

The Handbook of Biological Data

T. C. BYERLY, *U. S. Department of Agriculture*

THE Handbook of Biological Data, in preparation by a National Academy of Sciences-National Research Council committee for the past seven years, was published by W. B. Saunders in October 1956. More than 17,000 biologists have contributed to the preparation of the first Handbook of Biological Data. The need for such a handbook, including selected, authoritative, standard values and estimates of variability for such values, is obvious to every biologist who needs information outside the immediate field within which he may himself be authoritative. The teacher, the student, and the industrial user of biological materials have equal need with the research worker. The Handbook was prepared for all these biologists and it will be useful to them.

The initiation of the Handbook and its accomplishment during the seven years of its preparation are the result of the imagination, confidence, and perseverance of a few biologists who have planned and executed the task and the vision and funds of sponsoring agencies, as well as the voluntary contributions of data, and selection, summary, and evaluation of data by thousands of biologists.

To Dr. J. W. Heim, Aero Medical Laboratory, Wright Air Development Center, Wright-Patterson Air Force Base, Ohio, and to Paul Weiss, then Chairman of the Division of Biology and Agriculture, belong the principal credit for development of the idea that in one handbook there should be the standard values for biological materials and processes in all areas of biology. Dr. E. C. Albritton, the first editor, and his staff developed procedures for selecting, obtaining, summarizing, and evaluating data. No man ever set more exacting and precise standards for preparation of a compendium than did Albritton. The willingness of the thousands who have contributed time and thought to the preparation and evaluation of Handbook tables is recognition of the confidence instilled by the standard of excellence set by Albritton. There was no compromise on Albritton's part in his search for the most reliable data and their confidence limits. The Handbook is no clerical summation of averages, it is a series of tables of authenticated values, authenticated by persons wholly competent in the field covered by the specific table or, more narrowly, of particular values within a table. The standards set

and the procedures initiated by Albritton have been carried out by William Spector, the present editor, and a dedicated staff. Spector has made himself a living part of the Handbook undertaking. For him, the Handbook is not a task but a challenge; completion of the first edition is a first milestone in the establishment of this basic book of biology.

The Handbook Committee has served effectively as an advisory and review board. Its basic task was the definition of scope and of audience to whom the Handbook is addressed. It was their decision that the Handbook should be abridged and that it should be addressed primarily to persons with frequent need of information outside their own area of specialization. Every member has contributed to definition of the parameters within which the first edition has been abridged. They have aided in selection of topics, in evaluation of proposed tables, and in the weighing of areas to be covered. They have reviewed procedures for selection and authentication of data.

This first edition of the Handbook contains some tables in each of the major areas