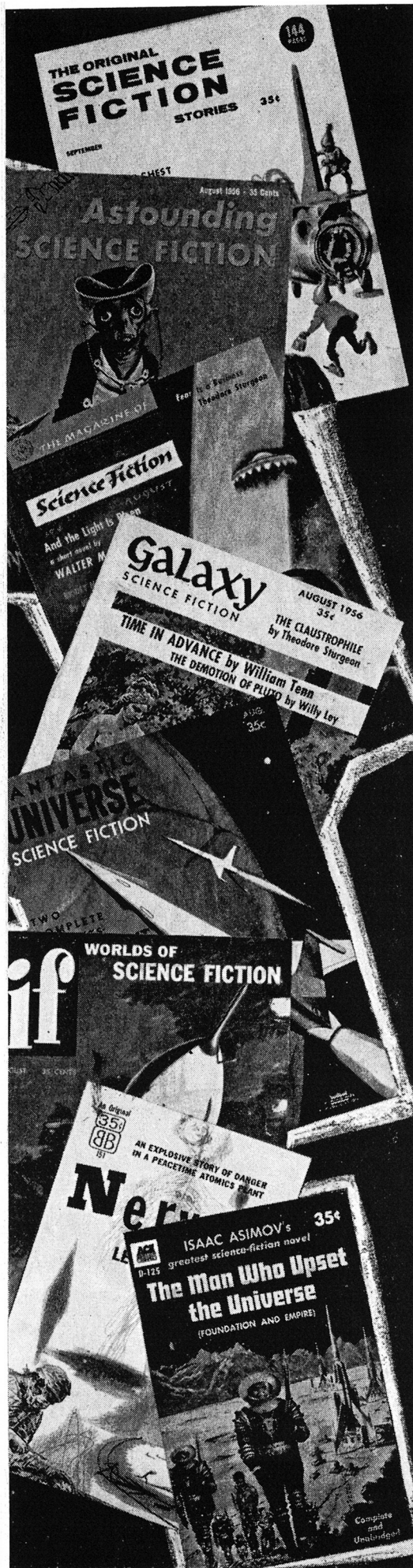




EDUCATION

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

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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 Anita 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 teetotalling habits of a lifetime and takes a drink, then another, then 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 his 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.

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. Worth-while 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-maché 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-maché and the cowering 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 important 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 symp-

thetically. 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



Isaac Asimov, associate professor of biochemistry at Boston University School of Medicine, has been writing science fiction since 1938 and to date has marketed about 120 pieces, ranging from 500 to 70,000 words. His next (and 15th) novel, "The Naked Sun," will appear in January. Born in the U.S.S.R., Asimov was brought to the U. S. at the age of three and became a citizen five years later. He received his B.S. in chemistry in 1939 and an M.A. in 1941, both from Columbia. His doctorate, also from Columbia, was obtained in 1948. Besides his activity in science fiction, Asimov has written and collaborated on a number of textbooks.

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EDUCATION

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 second course on tank truck transportation of chemicals, gases, and other products will be held at Michigan State University from Aug. 27 through 30. A feature of the four-day session**

will be seminars covering the needs and requirements of the chemical shipper and tank truck carrier. The course is sponsored by Michigan State and the National Tank Truck Carriers, Inc., in cooperation with the Manufacturing Chemists' Association and National Truck Tank and Trailer Tank Institute.

► **Seventeen undergraduate scholarships and 15 graduate fellowships in chemistry and chemical engineering will be granted by American Cyanamid during the coming school year. Under the undergraduate program, junior or senior students will receive \$600 for the academic year and the school receives \$300 for unrestricted use by the chemistry or chemical engineering department. The fellowship program includes \$1500 plus full tuition and laboratory fees to graduates in their final predoctoral year. Again, the school receives \$300 for departmental use.**

► **The program for the 25th session in plastics technology at London's Borough Polytechnic has been announced by F. Aylward, head of the department of chemistry. Along with full time courses leading to a diploma or associateship, a six-month course in plastics technology will be offered, and special evening courses will be held in the chemistry of high polymers and in plastics for engineers. In addition, students may take 10-day intensive courses in practical plastics technology.**

► **Registration for the sixth annual evening course in industrial pharmaceutical manufacturing will begin Sept. 17 at Columbia University College of Pharmacy. The class, to meet one evening per week, will deal with the theoretical and practical aspects of the manufacture of compressed and coated tablets, ointments, liquids, and other dosage forms. Further information regarding the course can be secured from the college at 115 West 68th St., New York 23, N. Y.**

► **Ohio State's courses in petroleum engineering, previously taught in a separate department, have been shifted to the department of chemical engineering. According to Joseph H. Koffolt, chemical engineering chairman, the change will strengthen both undergraduate and graduate training in petroleum engineering, through closer cooperation with the chemical engineering staff and use of the department's laboratory facilities. The name of petroleum engineering will be retained for courses, the degree granted, and for the curriculum.**