gists in combating disease by the development of resistant strains, but it seems highly desirable that this useful weapon be utilized in the fight against leucosis. Numerous poultry breeders are now attempting to develop their own resistant strains. Records in the first 2 New York Random Sample Laying Tests, in which chicks from leading poultry breeders are deliberately exposed to leucosis, show that some of them have already succeeded to remarkable degrees (*1*). It is to be hoped that such tests will be duplicated elsewhere, and that the encouragement thus given to the production of genetically resistant strains will eventually lead to a wider distribution of such desirable stock.

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Manuscript received December 5, 1952.

Comments and Communications

"True" Scientists

I AGREE with Dr. Hammett (SCIENCE, **117**, 64, [1953]) that a degree of detachment or objectivity is desirable in the pursuit of science. However, his letter makes four points with which I cannot agree, and which I think deserve comment in times such as these. These points are: (1) that scientists practice science for diversion; (2) that "true" scientists are judged by standards different from those applied to other people; (3) that a "true" scientist should not be interested in ". . . wages, fame, or fortune . . ." or in the conditions under which he lives; (4) that "true" scientists are disappearing. For a scientist, detachment in his work is fine, but detachment from his environment may be fatal.

The *American Collegiate Dictionary* gives two definitions for "diversion," either of which, if accepted, makes me take a cloudy view of those scientists whom Dr. Hammett uses as bases for his statement: "Diversion, *n.* 1. act of diverting or turning aside, as from a course . . . 2. distraction from business, care, etc.; recreation; entertainment; amusement; a pastime." Neither of these represents the motivation of the scientists I know; are they representative of Dr. Hammett's "true" scientists?

I cannot deny the statement that a true scientist is concerned with following his vocation to the best of his ability within his capacities. So is a true sausage-stuffer or a true bank-robber. Certainly this spirit does not differentiate the scientist from his fellow humans. I object violently to the idea that the scientist is set apart from the rest of mankind by virtue of what he does. The idea of the scientist as a funny man in an ivory tower, who doesn't care of what form of government he is a part, was dispelled from the minds of scientists, press, and public by the last war. In addition to being untrue, such a belief is prejudicial to the interests of science, since in these days to be different is to be suspect.

Dr. Hammett's "true" scientist would be much too busy in his ill-equipped laboratory ever to sit with a plebeian bottle of beer (domestic, of course) and watch his small-screen table-model TV set, or to take his undoubtedly large family for a ride in the Austin. The few hours per day at home would be spent in deep thought, punctuated intermittently by trips to the outside plumbing. Who can set the scientist apart from his neighbor by stating that he cares little about the conditions under which he lives? Why should possession of a certain standard of living divert a scientist from practicing science any more than it diverts a carpenter from practicing carpentry? The professional scientist is not different from others in needing a satisfactory standard of living, in desiring rewards commensurate with his training and productivity, and in wanting to play a part in his own future and that of his family, if a "true" scientist is allowed one. Any scientist, as any other mature person who works for a living, is very properly concerned with ". . . wages, fame, or fortune . . .", since they help shape the society in which he lives.

Dr. Hammett is worried because "true" scientists are becoming extinct. I cannot dispute this, because I have no notion of what "true" may mean applied to scientists. However the race of practicing scientists is certainly increasing. I can cite, for example, the extent of support of "fundamental" research, numbers of research papers in various fields, etc. Research today is a major industry, dependent upon the output of the serious scientist.

Whatever the motivation of Dr. Hammett's letter, at least one practicing scientist disagrees with it. If

Dr. Hammett is serious, he is misled, or is living in the days of the patrons. If he is facetious, the facetiousness is untimely. The future of science and scientists in this country may well depend upon the scientists' being able to convince others that their work is not and cannot be detached from society.

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There is much sense in the Comment from F. J. Hammett (SCIENCE, **117**, 64 [1953]), but I think he overlooks one vital point. The flow of time is inexorable and is likely to remain so. It is important therefore that we make good use of it and we must therefore consider to what extent the spending of money can save time and also to what extent it does so.

To take the second point first. The true scientist would find it difficult to justify any time-wasting gadget; to use Dr. Hammett's example therefore he has no business having a TV set at all whether table or console. This illustrates an outstanding defect of money; it tempts people to buy things with which they then waste time that could have been spent with more advantage and entertainment on research. But money also has the opposite quality that with it a prudent person can save time. A few "labour-saving" devices do in fact save labour; with money they can be bought and so can services of many kinds. When adequately paid, a scientist can use the most effective form of transport without worrying about the cost and he can throw things away rather than spend time tinkering with them. All that is to the good if he spends the time saved in further scientific work. This he will do if he is in fact a scientist.

The case for better salaries for scientists rests on the assumption that a productive scientist should never have to waste time to save money and so should get what money is needed to safeguard him from this. The case fails if scientists are then found to behave like their fellows and use the extra money to waste more time.

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"The breed of scientists [not interested in adequate reward for their contributions] is," according to Frederick J. Hammett, "dying out." May it!

It is a disgrace for this country that it is one of the few who by underpaying and otherwise humiliating their scholars, are undermining their own existence as civilized and free nations.

In most other countries, scholars are respected as they should be, since they are the ones who make the most important contribution to the progress of mankind. Here, one is frequently obliged to apologize to one's more highly respected fellow citizens, the salesmen and the brokers, with the bashful words, "Well, I am only a professor."

It is less the ownership of a Cadillac or a yacht which is at stake, it is the general negative attitude of the population toward learning which is based on the very fact of underpayment. Knowledge and culture, in the eyes of many, are superfluous, even ridiculous. The plumber who owns the new Packard and the salesman who owns the new Buick can only look with pity upon their learned neighbor, the professor, who can hardly afford to keep up his Austin.

This reflects itself upon the educational system since it appears obvious that highly educated persons earn little while persons who had little schooling get rich. Thus, it is not astonishing that our schools have reached the lowest standard found in the western world.

It is my conviction that low salaries for teachers and professors are one of the major contributing forces to our impending doom.

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R. I. P.

There writes a man from Provincetown
  With vehemence and vim
About the joys of poverty
  For other men . . . not him.

He tolls the bell both loud and long
  Indeed he feels the need
To note, at last, the passing of
  A great and noble breed.

The scientist of yesteryear
  A noble soul was he
No heed he gave to hunger's pangs
  When he at work might be.

His wife attired in garments old
  Was never known to fret
And if she did, he never knew,
  They very seldom met.

His ragged children moved him not
  What care for them had he
His mind was set on higher things
  Than mere paternity.

He often toiled the clock around
  Even as you and I
And gladly thanked his Maker good
  That fortune passed him by.

He had no economic pains
  His life it was a lark
And if he couldn't pay the rent
  There always was the park.

He got his education free
  He only paid with work
The process nearly wrecked his health
  But taught him not to shirk.

He never dreamed of Cadillacs
While on financial skids
An Austin was sufficient for
His wife and seven kids.

His joy was all in simple things
If he had not renown
He had the admiration of
The man from Provincetown.

And when he was too old to work
That brought to him no fear
He had a princely pension of
One thousand bucks per year.

Bewail, ye winter winds, bewail
A breed that is no more
For scientists are waking up
Today they know the score.

When general practitioners
As all can plainly see
Can make twelve thousand bucks a year
They wonder, why can't we?

And if the goodly businessman
Is not destroyed by wealth
It's possible, if we had some
It would not harm our health.

For freedom from financial stress
Might let our ulcers heal
And keep our minds on scholarship
To aid the common weal.

So let us shed a passing tear
For the mighty men of old
And keep our minds on higher things
But get our share of gold.

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DDT Detoxification Product in American Cockroaches[1]

RECENT studies (*1*) on the detoxification mechanism of DDT in American Cockroaches have revealed that as much as 55% of DDT injected into the body of a cockroach was converted to an unknown compound which did not respond to the test Shechter's (*2*) used for detecting DDT, DDE, and some of their derivatives. In this laboratory, 2-C^{14}-labeled DDT with a specific activity of approximately 1.5 mc/mM has been synthesized (*3*) and administered to cockroaches by means of injection. Among 29 of the roaches injected each with 3 μl of ethanol containing 20 μg of radioactive DDT, 22 survived after 48 hr in a respiration chamber at 30–35°. The respiratory CO_2 collected in this period was found to be nonradioactive. Practically all the radioactivity in the pulverized roaches was recovered by 80% ethanol extraction. The ethanolic extract after removing the alcohol by distillation was in water and extracted with ether for 36 hr. Radioactive assay of the extracted water phase revealed that as much as 43% of the radioactivity remained in the aqueous phase and cannot be readily removed by continued ether extractions. However, upon refluxing with 20% sulfuric acid for 3 hr, the radioactivity in this fraction was completely extracted by ether in 4 hr. This finding has led the authors to speculate that the water-soluble radioactive principle in this case is probably a conjugated compound composed of a derivative of DDT and another fragment possible carbohydrate in nature.

Similar experiments carried out at lower temperatures further indicated that the formation of this water-soluble conjugated compound was reduced to 7% at 25–30° accompanying a higher mortality of roaches over the same length of time. This could mean that the formation of the "conjugate" is directly related to the detoxification mechanism of DDT in American cockroaches. The nature of this conjugated compound is currently under investigation.

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[1] Published with the approval of the Monographo Publication Committee, Research Paper No. 219, School of Science, Oregon State College.

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Academic Origins of AAAS Presidents and Recipients of AAAS Awards

SEVERAL surveys have been made recently on the academic origins of outstanding leaders of American science. Sixty-seven members of the National Academy of Sciences received their undergraduate training in liberal arts colleges (*1*). One in five of the presidents of the American Chemical Society since 1900 received his training in a liberal arts college, and the same ratio holds for the recipients of ACS administered awards (*2*).

The most interesting conclusion from the present study of leaders of the AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE is that the same ratio of one in five of the Association's presidents since 1900 has had a liberal arts background. The eight liberal arts institutions training AAAS presidents are: Augustana, Beloit, College of Wooster (2), Denison, Hanover, Oberlin, Ohio Wesleyan, and Wesleyan (2).

Only 10% of the recipients of two of the Association's major awards are graduates of liberal arts col-