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00:00:00,000 --> 00:00:08,280

Of course it's appropriate to start with the reference to the scientific study of UFOs

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00:00:08,280 --> 00:00:14,320

prepared by Dr. Condon and his 36 members staff at the University of Colorado during

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00:00:14,320 --> 00:00:18,040

1967 and 1968.

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00:00:18,040 --> 00:00:24,160

As Dr. Roberts has already said, this symposium was delayed for a year so that the full content

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00:00:24,160 --> 00:00:29,840

of the Condon report could be read and digested after its publication in January of this

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00:00:29,840 --> 00:00:30,960

year.

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00:00:30,960 --> 00:00:38,720

The Van Dam Book Paperback edition of the Condon report contains some thousand pages,

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00:00:38,720 --> 00:00:44,680

including case studies, analyses along several different scientific disciplines, and a 20

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00:00:44,680 --> 00:00:47,000

year historical summary.

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00:00:47,000 --> 00:00:54,800

My own experience actually goes back to a panel convened by H.P. Robertson in 1953.

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00:00:54,800 --> 00:00:59,620

We issued a very much shorter report and it was classified secret.

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00:00:59,620 --> 00:01:05,780

Another panel, which met under the chairmanship of Brian O'Brien in 1966, also issued a report,

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00:01:05,780 --> 00:01:09,540

but it was not very widely read.

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00:01:09,540 --> 00:01:14,980

The Air Force, which is charged with the responsibility for investigating UFOs, came to realize that

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00:01:14,980 --> 00:01:22,780

public education, public education, mind you, is needed to alleviate the so-called UFO problem.

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00:01:22,780 --> 00:01:28,340

For instance, about 90 percent of the 13,000 reports in Project Blue Book could have been

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00:01:28,340 --> 00:01:33,660

recognized as normal physical phenomena by persons who had studied elementary astronomy

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00:01:33,660 --> 00:01:35,940

in high school or college.

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00:01:35,940 --> 00:01:41,620

Of course, the press and other mass media have influenced public reaction in a manner that

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00:01:41,620 --> 00:01:45,820

will be discussed later in the symposium.

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00:01:45,820 --> 00:01:52,940

As we all know, public demand has helped to build up a large body of published literature,

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00:01:52,940 --> 00:01:58,460

some of which I must admit is fallacious or highly speculative, and it's all of special

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00:01:58,460 --> 00:02:04,180

appeal to readers uneducated in science, particularly youngsters in high school and

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00:02:04,180 --> 00:02:06,820

early college years.

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00:02:06,820 --> 00:02:13,780

At present, it's fair to say that the attitude towards UFOs is highly polarized between what

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00:02:13,780 --> 00:02:20,500

I'll call conservative views of a small group of very senior physical scientists, and these

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00:02:20,500 --> 00:02:26,220

will be discussed in the session tomorrow morning, and the vastly more speculative views

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00:02:26,220 --> 00:02:29,300

of a large fraction of the U.S. public.

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00:02:29,300 --> 00:02:36,620

This symposium is directed towards a middle group, the AAAS membership, who we hope want

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00:02:36,620 --> 00:02:43,580

to learn more about the facts of the UFO problem and to hear a rational discussion of alternative

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00:02:43,580 --> 00:02:50,180

explanations of the peculiar sightings that will be described, and to go over some of

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00:02:50,180 --> 00:02:57,740

the sociological interpretations of the very widespread UFO phenomenon.

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00:02:57,740 --> 00:03:04,780

For instance, I hope the psychologists, some of whom are here today, will take note of what

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00:03:04,780 --> 00:03:11,860

I like to call Page's Law, that a wave of UFO reports seems to move eastward around the

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00:03:11,860 --> 00:03:16,740

world and completes one full circuit in about 17 years.

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00:03:16,740 --> 00:03:22,140

The special committee, which organized this symposium, as Dr. Roberts has already said,

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00:03:22,140 --> 00:03:27,900

is convinced that a logical discussion of a topic that's already had such wide publicity

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00:03:27,900 --> 00:03:35,060

will serve a beneficial educational service, both among the scientists present here today

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00:03:35,060 --> 00:03:40,700

and the general public who will hear some of this discussion through the press and may

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00:03:40,700 --> 00:03:44,780

have, thereby, some of their misconceptions corrected.

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00:03:44,780 --> 00:03:49,340

But it would be ridiculous, as Dr. Roberts said, to claim that in a two-day symposium

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00:03:49,340 --> 00:03:54,460

we can come up with the correct answer to the UFO question.

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00:03:54,460 --> 00:04:01,300

The Condon Report, which involves over 50 man years of study, reached a conclusion, which

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00:04:01,300 --> 00:04:06,900

has been disputed by many, that further study is not worthwhile.

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00:04:06,900 --> 00:04:10,780

As already been mentioned, the Air Force has recently discontinued its Project Blue

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00:04:10,780 --> 00:04:15,740

Book files, in case you don't know, they're to be moved from the Wright-Patterson Air

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00:04:15,740 --> 00:04:25,420

Force Base to the USAF Archives at Maxwell Air Force Base in Montgomery, Alabama, where

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00:04:25,420 --> 00:04:29,780

access will be controlled by the Office of Information Department of the Air Force in

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00:04:29,780 --> 00:04:30,780

Washington.

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00:04:30,780 --> 00:04:38,020

Some of us are concerned about these files, which we consider to have considerable scientific

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00:04:38,020 --> 00:04:39,020

importance.

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00:04:39,020 --> 00:04:46,820

Although the Blue Book files were far from perfect, their termination has disappointed

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00:04:46,820 --> 00:04:50,780

many people, including some of the scientists here.

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00:04:50,780 --> 00:04:59,300

I'd like to quote from what Condon himself wrote in the Section 1, Page 2 of the Condon

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00:04:59,300 --> 00:05:00,300

Report.

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00:05:00,300 --> 00:05:01,300

I quote,

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00:05:01,300 --> 00:05:04,500

Scientists are no respecters of authority.

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00:05:04,500 --> 00:05:11,460

Our conclusion, this refers to his conclusion that further UFO studies are not worthwhile,

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00:05:11,460 --> 00:05:15,980

our conclusion will not be uncritically accepted by scientists.

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00:05:15,980 --> 00:05:18,540

Nor should it be, nor do we wish it to be.

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00:05:18,540 --> 00:05:22,780

For scientists, it is our hope that the detailed analytical presentation of what we were able

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00:05:22,780 --> 00:05:28,060

to do and of what we were unable to do will assist them in deciding whether or not they

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00:05:28,060 --> 00:05:32,100

agree with our conclusion.

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00:05:32,100 --> 00:05:38,420

It was nice of him to give us this choice, and I choose to disagree with at least one

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00:05:38,420 --> 00:05:43,460

of his conclusions, that is, the harmful effect of UFO literature.

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00:05:43,460 --> 00:05:48,340

Dr. Condon was not able to be with us here.

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00:05:48,340 --> 00:05:55,300

He devotes the last half page of his conclusions and recommendations to what he calls, Miss

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00:05:55,300 --> 00:06:00,780

Education in our Schools, which arises from the fact that many children are being encouraged

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00:06:00,780 --> 00:06:06,020

to devote their science study time to the reading of UFO books and magazine articles.

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00:06:06,020 --> 00:06:13,340

Now, there can be no doubt that some of the books and articles on UFOs are unsuitable

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00:06:13,340 --> 00:06:20,340

and misleading, just as popular books on science fiction, astrology, drugs, and sex, all of

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00:06:20,340 --> 00:06:25,140

which are equally available, may be vilitarious for young readers.

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00:06:25,180 --> 00:06:35,660

I chose to review the Cato's annotated bibliography of UFO publications.

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00:06:35,660 --> 00:06:37,220

It's that book right here.

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00:06:37,220 --> 00:06:39,900

Cato is in the Library of Congress.

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00:06:39,900 --> 00:06:47,620

This was published by the Air Force Office of Scientific Research, and it's AFOSR,

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00:06:47,620 --> 00:06:57,620

remember, 68-1656, published earlier this year.

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00:06:57,620 --> 00:07:05,820

In this, I found, in the general category of UFO publications, in English, 71 books,

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00:07:05,820 --> 00:07:12,740

28 pamphlets, 73 magazine articles, which have been available and widely read in the

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00:07:12,740 --> 00:07:15,220

United States since 1947.

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00:07:15,940 --> 00:07:21,580

Actually, the pamphlets and magazine articles, I took only since 1960, because it seemed

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00:07:21,580 --> 00:07:25,220

to me that the interest in old magazine articles was minimal.

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00:07:26,460 --> 00:07:34,020

I classified these in eight categories, ranging from conservative science, which is strong

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00:07:34,020 --> 00:07:43,100

effort to debunk the UFO report, and the Air Force position, which was a couple of books

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00:07:43,100 --> 00:07:47,220

about how the Air Force has undertaken its analysis.

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00:07:47,220 --> 00:07:54,980

From that extreme, through descriptive historical reports, and several books, for instance, by

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00:07:54,980 --> 00:08:01,940

Fuller and others, speculative treatments of extraterrestrial visitors, and the most

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00:08:01,940 --> 00:08:09,700

extreme on the speculative side are books and articles about contacts with UFO pilots

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00:08:09,700 --> 00:08:10,700

and whatnot.

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00:08:11,700 --> 00:08:18,940

The statistics, which I have tabulated here, but won't spend too much time on, are interesting

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00:08:18,940 --> 00:08:20,620

in themselves.

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00:08:20,620 --> 00:08:27,820

The publication dates of these journals, magazine articles and books given in Cato's bibliography

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00:08:27,820 --> 00:08:36,700

show the three waves, which had hit the United States in 1950, 1958, and 1966.

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00:08:36,700 --> 00:08:43,140

And then it's interesting to see where the articles were published.

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00:08:43,140 --> 00:08:51,900

There are, of course, seven specific UFO journals, APRO Newsletter, Before a Journal in the United

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00:08:51,900 --> 00:09:00,260

Kingdom, Fate, Flying Saucers, Flying Saucer Review, Saucer News, which is also in Britain,

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00:09:00,260 --> 00:09:02,780

and UFO Investigators.

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00:09:02,780 --> 00:09:10,860

But articles of some length appeared in publications like America, Argosy, Giant Comic Book, The

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00:09:10,860 --> 00:09:17,260

Claims, The New Republic, Life, Look, Newsweek, New Yorker, Playboy, Saga, Spectator, Station,

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00:09:17,260 --> 00:09:23,540

Saturday Even Post, Saturday Review, Time, True, U.S. News and World Report.

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00:09:23,540 --> 00:09:28,940

And interesting enough, in other journals which are less available to the high school

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00:09:28,940 --> 00:09:35,060

students that Connem is worrying about, Bioscience, Bulletin of the Atomic Scientists, Journal

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00:09:35,060 --> 00:09:41,580

of the Optical Society of America, Arrow Digest, Science, the publication is from AAAS, Science

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00:09:41,580 --> 00:09:45,980

Digest, Physics Today, and the AL Scientific Magazine.

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00:09:45,980 --> 00:09:50,500

I didn't read the whole list, but this gives you an idea of the publications we're talking

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00:09:50,500 --> 00:09:53,300

about.

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00:09:53,300 --> 00:10:02,820

The books show a much wider range in specularness than the pamphlets and magazines.

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00:10:02,820 --> 00:10:08,660

About 10% of the books, remember there were 71 of them, are extremely conservative, and

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00:10:08,660 --> 00:10:12,380

about 20% are highly speculated.

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00:10:12,380 --> 00:10:18,220

The pamphlets and magazine articles, for the last nine years anyway, tend to be much more

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00:10:18,220 --> 00:10:24,540

grouped in the center of liberal, scientific, or historical type discussion.

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00:10:24,540 --> 00:10:30,860

And they're, I think, quite suitable for student reading.

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00:10:30,860 --> 00:10:38,180

If you eliminate the books like Adamski's Inside the Spaceships, even the speculative

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00:10:38,180 --> 00:10:45,580

books can be used under supervision of an experienced science teacher as interest browsers.

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00:10:46,020 --> 00:10:53,340

And as any teacher knows, student interest in a topic, even if it drives from misconception,

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00:10:53,340 --> 00:10:56,420

is better than no interest at all.

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00:10:56,420 --> 00:11:05,500

So to test this use of UFOs in the teaching of science, at Westing University, I offered

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00:11:05,500 --> 00:11:13,340

an undergraduate elective course called Science 101 designed to interest non-science majors

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00:11:13,340 --> 00:11:17,860

who would otherwise have had no science courses whatsoever.

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00:11:17,860 --> 00:11:22,100

Along with a number of other science teachers there, I've become very frustrated with the

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00:11:22,100 --> 00:11:25,100

diminishing undergraduate interest in physical science.

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00:11:25,100 --> 00:11:32,900

And I have a table here which shows that, whereas in the class of 1960, 16% of the students

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00:11:32,900 --> 00:11:39,060

graduated with majors in the physical sciences, that means including math, math, physics,

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00:11:39,060 --> 00:11:42,300

chemistry, astronomy, geology.

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00:11:42,300 --> 00:11:49,300

That dropped down to 7% in 1969, and the numbers in between just right down.

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00:11:49,300 --> 00:11:56,580

See, this is frustrating at a time when, it seems to me, the space exploration, electronic

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00:11:56,580 --> 00:12:01,340

computers, nuclear physics offer much more exciting work than anything in my previous

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00:12:01,340 --> 00:12:03,660

experience.

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00:12:03,660 --> 00:12:08,180

The source of disinterest, or even hostility to the physical sciences, has been traced

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00:12:08,180 --> 00:12:12,140

to the poor teaching of mathematics and physics in grade school and high school.

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00:12:12,140 --> 00:12:15,940

But this scarcely helps to solve the problem of what we should do about a generation of

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00:12:15,940 --> 00:12:20,340

college students who want nothing to do with physical science, at a time when more young

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00:12:20,340 --> 00:12:23,140

physicists, engineers, and astronomers are needed.

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00:12:23,140 --> 00:12:29,020

Of course, my colleagues on the faculty's West End laughed at my offering a course called

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00:12:29,020 --> 00:12:30,520

Flying Saucers.

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00:12:30,520 --> 00:12:33,660

That was in the fall semester of 1967.

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00:12:33,660 --> 00:12:40,540

But it was oversubscribed and reoffered by student demand in the spring of 1968 as Flying

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00:12:40,540 --> 00:12:45,540

Sickles, a reference to the UFO reports in the Soviet Union.

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00:12:45,540 --> 00:12:50,500

The course was maintained for another school year, and then discontinued because I was

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00:12:50,500 --> 00:12:56,260

away from the university down at NASA Man's Spacecraft Center.

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00:12:56,260 --> 00:13:01,340

Very briefly, this one semester course consisted of two lectures and a discussion session each

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00:13:01,340 --> 00:13:05,660

week with a two week reading period near the end.

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00:13:05,660 --> 00:13:11,940

We started with a review of UFO reports, and then spent five weeks on elementary astronomy.

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00:13:11,940 --> 00:13:17,660

The reasoning being that planets, bright stars, and meteors are often reported as flying saucers

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00:13:17,660 --> 00:13:18,660

to UFOs.

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00:13:18,660 --> 00:13:25,140

The importance of slushed coordinates and time was stressed for proper reporting of UFOs.

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00:13:25,140 --> 00:13:30,340

Then the students were interested enough, or villainous enough, to phone me late in the

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00:13:30,340 --> 00:13:33,540

evening every time they saw something look like a UFO.

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00:13:33,540 --> 00:13:39,460

One of my most active evenings was in November of 1967 when I was a bright moon dog, this

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00:13:39,460 --> 00:13:44,700

circle around the moon, was reported to me by every one of the 50 students in my class.

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00:13:44,700 --> 00:13:48,500

I kept the phone busy, though, with our meeting.

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00:13:48,500 --> 00:13:54,220

At this point we shifted to atmospheric physics and discussed ball lightning and refraction

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00:13:54,220 --> 00:13:59,340

and aurorae for a week or two, and then returned to astronomy for a discussion of the extraterrestrial

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00:13:59,340 --> 00:14:00,340

hypothesis.

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00:14:00,940 --> 00:14:04,860

The students learned that conditions on other planets in the solar system are not conducive

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00:14:04,860 --> 00:14:08,740

to life, discussed theories of the origin of the solar system and the origin of life,

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00:14:08,740 --> 00:14:10,940

which was a very popular topic.

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00:14:10,940 --> 00:14:15,460

They learned how stellar distances are measured by parallax, discussed the probability of life

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00:14:15,460 --> 00:14:20,580

on planets around other stars, and recognized the difficult problems of interstellar travel.

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00:14:20,580 --> 00:14:26,300

It's a long way to the nearest star, and if you try to go very fast, the impacts of interstellar

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00:14:26,300 --> 00:14:31,980

hydrogen, which we know about and the students learned about, is kind of difficult.

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00:14:31,980 --> 00:14:39,300

In a two-week reading period, each student wrote a term paper on a topic which he selected

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00:14:39,300 --> 00:14:45,660

from a list that I've reproduced in my paper here that I'll give you some ideas and topics

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00:14:45,660 --> 00:14:50,660

for the toll-make system in astronomy.

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00:14:50,660 --> 00:14:55,700

The Earth's atmosphere, aurorae and how they work, the explanation of the aurorae, is celestial

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00:14:55,700 --> 00:15:00,980

mechanics, how close other planets get to us and how fast they're moving, space probes,

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00:15:00,980 --> 00:15:07,700

how long it takes to get to the moon and Mars, the moon and planets, all the surface conditions

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00:15:07,700 --> 00:15:13,740

of the moon, this was before we had Apollo data on the lunar surface, the solar system

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00:15:13,740 --> 00:15:19,380

and its origin, and the origin of life, and then a historical summary of the flying saucer

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00:15:20,100 --> 00:15:28,100

reports. So each student wrote a paper of three or four thousand words about this, about one of

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00:15:28,100 --> 00:15:38,100

the topics. This was passed to another student to criticize, and in all but very few cases,

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00:15:38,100 --> 00:15:45,140

these critiques of the second student revealed a clear understanding of the astronomy involved

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00:15:45,220 --> 00:15:50,420

and in the physics. The three best papers each semester were published and there's some

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00:15:50,420 --> 00:15:57,860

copies still over on that table of studies of UFOs that were considered by the students

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00:15:57,860 --> 00:16:02,820

themselves to be the best in the class. We sold them for twenty five cents in middle town,

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00:16:02,820 --> 00:16:10,820

but we're giving them away for years. At each semester we had a TV show in Hartford,

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00:16:11,380 --> 00:16:18,020

and the three best authors appeared with me on a half hour show explaining their views on UFOs,

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00:16:18,020 --> 00:16:23,780

and they gained first-hand experience with the publicity aspects of the UFO phenomenon.

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00:16:23,780 --> 00:16:32,420

And by the way, earlier in the semester we'd had two speakers from outside. The first semester

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00:16:32,420 --> 00:16:37,300

was Dr. Heineck who talked to us tomorrow, and Dr. Menzel who may talk to us tomorrow,

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00:16:38,180 --> 00:16:42,900

lectured to the class and the students had a chance to ask me questions and learned a good

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00:16:42,900 --> 00:16:47,700

deal more about the publicity difficulties. While I'm convinced the students learned a good

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00:16:47,700 --> 00:16:53,860

deal of astronomy, physics, and biology in my flying saucer course, although I must admit that

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00:16:53,860 --> 00:17:00,260

such a course is not suitable for regular science program and that it loses its appeal after

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00:17:00,340 --> 00:17:06,180

three or four repetitions, which is what we're trying. For lab work the students learned constellations,

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00:17:07,140 --> 00:17:12,980

spotted an earth-orbiting spacecraft, looked at bright planets through a small telescope,

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00:17:13,620 --> 00:17:21,380

and several of them searched for the evidence of UFOs on pictures taken by the cameras of the

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00:17:21,380 --> 00:17:28,580

Prairie Network, which will be discussed later this afternoon. After one session on this we decided

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00:17:29,220 --> 00:17:35,220

all the astronomical telescopes in the world have almost no chance of photographing a UFO passing

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00:17:35,220 --> 00:17:44,580

through a telescope field by chance. On the other hand this Prairie Network has a much better chance

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00:17:44,580 --> 00:17:53,540

of photographing UFOs. The Canadians have recently established a similar network,

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00:17:53,540 --> 00:17:59,140

and the Czechs had a network for both all three of them, designed of course for studying meteors

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00:17:59,140 --> 00:18:05,060

rather than UFOs, but certainly available for getting hard data on UFO appearances.

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00:18:06,260 --> 00:18:11,780

So in conclusion, I think that the general advancement of science depends heavily on the

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00:18:11,780 --> 00:18:19,220

public's education in science, and most of the significant research today depends on public

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00:18:19,220 --> 00:18:26,500

support, obviously, at universities, the foundation support, or government financing, and it's

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00:18:28,180 --> 00:18:34,660

obvious that all students and older citizens also must be given enough science education to recognize

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00:18:34,660 --> 00:18:40,740

what's worthwhile and what's in the science ethic. For a number of reasons, a large fraction of the

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00:18:40,740 --> 00:18:46,340

students in the public are interested in UFOs, and I think that the teachers can certainly

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00:18:46,340 --> 00:18:53,060

capitalize on this interest in teaching courses abroad appeal. Scientists in general should take

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00:18:53,060 --> 00:18:58,420

advantage of the public interest in UFOs to correct public misconceptions about science.