

1

00:00:00,000 --> 00:00:10,300

Ladies and gentlemen, first of all, I must express the way in which I feel I've been

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00:00:10,300 --> 00:00:16,100

honoured by being asked to address you again, in view of the way in which you've suffered

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00:00:16,100 --> 00:00:22,600

previously from my scientific analyses. I'm going to try and make it a bit easier tonight

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00:00:22,600 --> 00:00:32,080

by being frankly a lot more speculative, but this in turn comes out of the result of having

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00:00:32,080 --> 00:00:36,600

thought about things very carefully. I think we've got to be a lot more speculative.

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00:00:36,600 --> 00:00:45,960

Most scientific papers, and even speculative ones like this, consist of a large number

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00:00:45,960 --> 00:00:52,840

of dreary data leading up to more or less logical conclusions which the critics or the natural

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00:00:52,840 --> 00:01:00,560

advance of knowledge will eventually refute. Often too, the need to correlate data from

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00:01:00,560 --> 00:01:07,600

diverse disciplines results in a complexity of style which makes it difficult to see how

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00:01:07,600 --> 00:01:13,760

the conclusions depend upon the data. So I'm going to break away from all of this. I'm going to

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00:01:13,760 --> 00:01:19,880

begin with my conclusions and give the dreary data afterwards. One advantage of this arrangement is

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00:01:19,880 --> 00:01:29,400

that instead of having to endure the excuses for my beliefs, you can all get busy with the criticism

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00:01:29,400 --> 00:01:36,720

for question time. And this is fair enough, because in the formulation of any philosophy of life,

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00:01:37,480 --> 00:01:43,960

no matter how scientific the formulator tries to be, there's always some bias,

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00:01:43,960 --> 00:01:52,120

contrary or unconscious, in the selection of data and consequently pure objectivity is very rare.

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00:01:52,120 --> 00:02:01,120

Now for the credo, I believe there are more things in heaven and earth than Horatio dreamed on,

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00:02:02,120 --> 00:02:08,920

or were dreamed of by the philosophers or even the Condom Committee. I believe the human race

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00:02:08,920 --> 00:02:14,760

is not the centerpiece of creation any more than the earth is the center of the solar system,

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00:02:14,760 --> 00:02:22,440

and that the solar system is the center of the universe. And I believe these things not with

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00:02:22,440 --> 00:02:27,960

standing in the fact that much better men than I were incarcerated or even burned to death for

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00:02:28,000 --> 00:02:35,040

believing in such heresies a few centuries ago. I believe that neither our planet, our biological

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00:02:35,040 --> 00:02:43,520

descent or our allegedly civilized society is unique in the universe of more than 10,000 million,

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00:02:43,520 --> 00:02:52,200

million, million stars. I believe there is sound scientific evidence for the existence of planets

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00:02:52,240 --> 00:02:58,920

orbiting many stars and sound scientific evidence for the existence of countless stars similar in

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00:02:58,920 --> 00:03:06,240

time to our sun, but many, many times older, and which could therefore be accompanied by planets

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00:03:06,240 --> 00:03:13,320

which are the homes of races of great antiquity. This does not prove that such races exist.

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00:03:13,320 --> 00:03:20,200

There is at present no proof that such races exist, but there is a very high probability.

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00:03:21,200 --> 00:03:27,000

In saying this we have to be conscious of the fact that the whole of physics and chemistry is

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00:03:27,000 --> 00:03:34,960

based upon probabilities. We can say nothing at all concerning what will happen in any given

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00:03:34,960 --> 00:03:42,760

circumstances to an individual atom, but we can say with great certainty what will happen to atoms

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00:03:42,760 --> 00:03:50,000

or molecules in large bulk. And something of the same kind may very well apply to the macrocosmos,

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00:03:50,400 --> 00:03:59,480

just as it does to the microcosmos. I believe that only people who are appallingly anthropocentric

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00:03:59,480 --> 00:04:04,920

and blinkered in their outlook can deny the probability that there are in the universe

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00:04:04,920 --> 00:04:12,240

millions of communities of intelligent beings, many of them vastly older and more advanced than we,

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00:04:12,240 --> 00:04:18,320

and I believe it is perfectly possible for the manned space vehicles or the unmanned space

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00:04:18,440 --> 00:04:26,280

probes of such races to visit this earth, and indeed that they may have done so many times

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00:04:26,280 --> 00:04:32,440

during history or even in the prehistoric epochs when there was no one there to record the event

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00:04:32,440 --> 00:04:40,560

at all. I believe that advanced communities would establish mutual communication, leading to the

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00:04:40,560 --> 00:04:47,320

existence of vast interstellar consortia, and such consortia would in turn attempt to make contact

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00:04:47,320 --> 00:04:54,120

with the less advanced races in much the same way as we send religious, medical and technological

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00:04:54,120 --> 00:05:00,280

missionaries to the underdeveloped countries of earth. Because of problems of transportation,

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00:05:00,280 --> 00:05:06,560

then she took the enormous time required to journey between stars even at the velocity of light.

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00:05:06,560 --> 00:05:14,040

I believe attempts at remote communication will be far more frequent than visits from

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00:05:14,040 --> 00:05:20,160

space probes, and visits from space probes will be far more frequent than visits from living

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00:05:20,160 --> 00:05:28,280

entities. I also believe that just as our early ideas of signaling to Mars by means of enormous

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00:05:28,280 --> 00:05:34,920

letters dug in the Sahara desert and covered with petrol and set light to every night, or letters

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00:05:34,920 --> 00:05:42,840

blazed into the forests of Siberia were naive and impractical, so may our modern ideas of

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00:05:42,840 --> 00:05:50,080

communication by microwaves or lasers appear equally naive to more advanced races. A vast

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00:05:50,080 --> 00:05:56,880

range of phenomena, physical, biological and mental, could very well be the result of attempts at

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00:05:56,880 --> 00:06:04,280

interstellar communication, which we are just too ignorant or too obtuse to understand at present.

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00:06:05,280 --> 00:06:14,060

We have all been so conditioned by our upbringing, amid outworn customs and conventions of by

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00:06:14,060 --> 00:06:20,760

our grand days, that even the most open-minded of us must make constantly renewed efforts to be

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00:06:20,760 --> 00:06:26,360

sure that we are not wearing unperceived blinkers, not thinking the same comfortable,

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00:06:26,360 --> 00:06:32,800

convenient thoughts planted in our minds by mass media, not thoughtlessly conforming to

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00:06:32,800 --> 00:06:39,040

orthodox opinion for no better reason than that it is orthodox and because it is orthodox,

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00:06:39,040 --> 00:06:47,440

socially, scientifically and politically acceptable. The former Minister of Technology,

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00:06:47,440 --> 00:06:51,040

Mr. Anthony Wedgewood-Ben, was devastatingly right when he wrote,

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00:06:51,040 --> 00:06:58,560

The greatest enslavement of all is the enslavement of believing that you are enslaved. And we have

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00:06:58,560 --> 00:07:05,160

to heed that warning, we have to be free to know that we are free to observe, to think and to draw

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00:07:05,160 --> 00:07:13,960

inferences for ourselves. We all of us love to laugh at compositity or at the sometimes excusable

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00:07:13,960 --> 00:07:20,640

areas of prominent people. Only 13 years after the astronomer Royal dismissed the idea of late

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00:07:20,640 --> 00:07:27,400

travellers uttered bilge, Neil Armstrong and Buzz Aldrin walked on the surface of the moon and came

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00:07:27,520 --> 00:07:33,920

back to tell the fantastic story. It may well be less than 13 years before the pronouncements of

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00:07:33,920 --> 00:07:40,480

the Condon Committee are found to be not impalatable. But in our delight at seeing the great fall into

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00:07:40,480 --> 00:07:47,680

error, we must not commit even bigger blunders ourselves. I believe that all the reported

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00:07:47,680 --> 00:07:54,000

UFO sightings in the air, on the ground, skimming the oceans, all the reported sightings of alien

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00:07:54,040 --> 00:07:59,680

entities, giants, dwarves, stern-faced males, gorgeous green females and champagne glasses,

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00:07:59,680 --> 00:08:07,120

zombie-like robots and ghost-like visions, all the contactee reports of adventures in spaceships

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00:08:07,120 --> 00:08:14,920

on Mars being a satan's mercury or a prisoner's honour. But all these things do not contain one

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00:08:14,920 --> 00:08:22,080

shred of scientifically acceptable evidence for the existence of visitors from outer space and very

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00:08:22,120 --> 00:08:27,800

little evidence for the existence of anything tangible at all, but note the word tangible.

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00:08:27,800 --> 00:08:34,120

They do, however, provide overwhelming evidence that thousands of people all over the world,

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00:08:34,120 --> 00:08:41,200

of all races and all colours, of all social classes and all degrees of education, of all

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00:08:41,200 --> 00:08:48,720

professions and all shades of political opinion, have experienced what, to them, were utterly real

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00:08:49,160 --> 00:08:56,400

occurrences of a strange nature. There are also a few cases where it is very hard to deny that

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00:08:56,400 --> 00:09:02,520

something tangible has manifested, though there is no scientifically acceptable evidence as to the

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00:09:02,520 --> 00:09:09,480

nature of these things. I believe that these experiences constitute a major psychological

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00:09:09,480 --> 00:09:15,720

problem if they don't constitute anything else. It is absurd to dismiss the hundreds of sworn

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00:09:15,760 --> 00:09:22,680

testimonies as the works of lunatics or persons emotionally unbalanced. It is still more absurd

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00:09:22,680 --> 00:09:29,640

to call them hoaxes. It is the acme of absurdity to say, as the number of parapsychologists has done,

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00:09:29,640 --> 00:09:36,080

that all these experiences appear imaginary and then to put on one's hat and go off to the serious

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00:09:36,080 --> 00:09:42,880

investigation of a ghost or poltergeist. But bearing in mind that countless thousands of people have

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00:09:43,080 --> 00:09:50,520

had what were to them terrifyingly real experiences of ghosts and poltergeists, it seems more realistic

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00:09:50,520 --> 00:09:59,680

to postulate that both ghosts, poltergeists and UFOs are subjective impressions created in

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00:09:59,680 --> 00:10:07,480

different minds by one and the same objective phenomenon. There are, of course, UFO hoaxes,

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00:10:08,240 --> 00:10:15,280

and there were hoaxes of poorly rhetoric. There are also genuine denouement and misinterpretations

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00:10:15,280 --> 00:10:20,080

and all the other things which the orthodox resort to in order to explain away the whole of

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00:10:20,080 --> 00:10:26,680

uphology as the madness of crowds. But behind all that there is the cold factor of numberless

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00:10:26,680 --> 00:10:33,120

people, most of whom were mentally normal both before and after the event, who undeniably had

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00:10:33,160 --> 00:10:39,200

a shattering experience of some kind. The experiences may have as little external physical

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00:10:39,200 --> 00:10:47,680

reality of those of unhalused, synergistic trip. The attested physical injuries sustained by

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00:10:47,680 --> 00:10:56,120

some contactees may be just as psychosomatic in nature as the stigma of the saints. But all this

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00:10:56,120 --> 00:11:03,480

does not detract from the seriousness of the basic problem. If at this very moment a majority of

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00:11:03,480 --> 00:11:09,680

people in any large city on earth were convinced that they were stricken with a totally  
incapacitating

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00:11:09,680 --> 00:11:16,760

illness, the effect upon social and industrial life would be just as crippling as if those

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00:11:16,760 --> 00:11:24,640

people were the victims of a known disease. If the military moguls of any major power were

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00:11:24,680 --> 00:11:30,240

convinced that they were under nuclear attack from another power, the extermination of the human

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00:11:30,240 --> 00:11:35,200

race would be just as likely a consequence as if ballistic missiles were really in flight.

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00:11:35,200 --> 00:11:42,760

And finally, before I end this personal confession and get down to brass tacks, I believe that one

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00:11:42,760 --> 00:11:47,360

of the major troubles in the world today is that scientifically and technologically we've

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00:11:47,360 --> 00:11:53,720

bitten off a lot more than we can chew. We are bolting our mental food and there is no health in

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00:11:53,720 --> 00:12:01,520

it. Our men of learning, our libraries and the piling cabinets of the learning societies are all

103

00:12:01,520 --> 00:12:08,840

stuffed full of undigested material. Knowledge like food has to be assimilated for the purposes of

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00:12:08,840 --> 00:12:15,560

any value and we don't assimilate our knowledge. The leading specialist in one field of knowledge is

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00:12:15,560 --> 00:12:22,480

often 20, maybe 30 years out of date in his grasp of other fields. And the poor layman is often in

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00:12:22,480 --> 00:12:28,280

the unhappy position of gaining all his scientific titbits from the television broadcasts of very

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00:12:28,280 --> 00:12:32,280

great authorities who happen at that time to be speaking on a subject on which they are not

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00:12:32,280 --> 00:12:40,760

authorities. And so it goes. It is more than half a century since HG Wales commented that life was

109

00:12:40,760 --> 00:12:46,160

becoming a race between education and disaster and it is a race which we have almost lost.

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00:12:53,480 --> 00:13:00,400

Part one, the argument for a plurality of worlds. It has taken a period of time,

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00:13:00,400 --> 00:13:08,720

variously estimated, between 2,000 or 3,000 million years and one of the people who pushed

112

00:13:08,720 --> 00:13:14,320

up as far as 5,000 million years. Once a few thousand million years more or less,

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00:13:14,320 --> 00:13:20,800

for biological life to evolve on the earth and to attain the state of technological development

114

00:13:20,800 --> 00:13:27,400

where we can escape from the pull of the earth and go off to other planets. It's three years

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00:13:27,400 --> 00:13:35,360

or so since man first set foot on the moon, 14 years in Sputnik 1 orbited the earth. If we then

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00:13:35,360 --> 00:13:40,320

imagine the evolution of living organisms on earth to be compressed into the span of one year,

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00:13:40,320 --> 00:13:48,800

then the evolution of man took about a day and the conquest was faced counting it from Sputnik 1

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00:13:48,800 --> 00:13:56,080

less than a tenth of a second. In the present state of technology and particularly in the

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00:13:56,080 --> 00:14:01,560

light of the perfection of the Apollo flights, very few people would estimate man's exploration of

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00:14:01,560 --> 00:14:08,360

Mars and Venus as being more than about 10 years ahead and perhaps much earlier. But although the

121

00:14:08,360 --> 00:14:13,240

potentialities for interplanetary flight have been with us for about 30 years, that is since the

122

00:14:13,240 --> 00:14:19,000

days of the V-2 rockets, the possibilities for interplanetary communication have only been

123

00:14:19,000 --> 00:14:27,440

known for about 60. Out of the vast time required for evolution, the time that it takes to pass from

124

00:14:27,440 --> 00:14:32,760

the stage where we had no knowledge at all of communication, whether just on the surface of

125

00:14:32,760 --> 00:14:39,600

our own planet or in between stars by electromagnetic radiation, to the stage where we can send back

126

00:14:39,640 --> 00:14:47,880

excellent television pictures from Mars, is less than 100 years. On the same compressed time scale

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00:14:47,880 --> 00:14:56,000

that I used just now, it represents one second out of the year that life took to evolve. And that

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00:14:56,000 --> 00:15:00,840

same brief period also covered the change from no knowledge of electronics to the development of

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00:15:00,840 --> 00:15:07,760

computers which begin to rival man in thinking capacity. In fact, the machine which is being

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00:15:07,800 --> 00:15:14,120

developed now at the University of Kent will be programmed only by example, just as we are,

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00:15:14,120 --> 00:15:21,760

to generalize from example, just as we do, and it will have a distributed memory, every cell of

132

00:15:21,760 --> 00:15:29,640

which can be contacted simultaneously, just as we can. We are still a long way from having control

133

00:15:29,640 --> 00:15:35,240

of our environment, but it is very improbable the final entainment is going to take less than

134

00:15:35,360 --> 00:15:42,080

the century or so. And after that, unless we commit race suicide with nuclear bombs,

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00:15:42,080 --> 00:15:48,320

we can look forward to a long period during which we will enjoy mastery of the environment and

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00:15:48,320 --> 00:15:53,600

let us hope of ourselves. Earth will remain habitable for thousands of millions of years

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00:15:53,600 --> 00:16:00,120

yet, firing accidents, and taking a bird's eye view of time from the earliest days of earth to

138

00:16:00,120 --> 00:16:07,600

a distant future, it seems that the transformation from a totally non-technological society to one

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00:16:07,600 --> 00:16:14,920

with complete control of its planet and facilities for interplanetary travel occupies just a snap

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00:16:14,920 --> 00:16:21,480

of the fingers in the time scale of the globe and life. I have the first few pictures.

141

00:16:31,120 --> 00:16:40,280

The first one is very familiar to you all, see, you are under the nebula when it arrives,

142

00:16:40,280 --> 00:16:52,240

and I am putting it on as a reminder of the size of the universe. Good, it is still there,

143

00:16:52,360 --> 00:17:00,480

hasn't gone, good. We don't know any more than we know the precise age of the earth,

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00:17:00,480 --> 00:17:08,160

the precise distance of any of the nebula. The latest guess at this is that it is somewhere

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00:17:08,160 --> 00:17:20,800

around 2500 or 3000 million light years distant, which means that we see it as it is, was,

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00:17:22,400 --> 00:17:27,440

at the time when life was first evolving on earth, or in other words, since it is supposed to be

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00:17:28,720 --> 00:17:37,040

almost a twin of our own Milky Way system, if someone on the star in that galaxy is looking at us,

148

00:17:38,080 --> 00:17:45,840

he sees us before there is any life on earth. Now, I want to get this idea across, it is

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00:17:46,800 --> 00:17:55,360

one that has been stressed many times before, but unless you are going to start philosophizing

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00:17:55,360 --> 00:18:05,600

about multiple dimensions for which there is absolutely no justification except as a convenient

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00:18:05,600 --> 00:18:12,800

mathematical way of solving various problems, these things are utterly remote from us, not

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00:18:12,800 --> 00:18:21,600

only in space, but in time. They are not only unknown, but unknowable, and we have got to

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00:18:21,600 --> 00:18:30,320

confine our thinking in terms of communication with other beings to things very much nearer home.

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00:18:32,720 --> 00:18:33,600

Next one please.

155

00:18:36,880 --> 00:18:40,720

Until it occurred to men that there could be other worlds,

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00:18:40,720 --> 00:18:46,640

and he could not philosophize about the possibility of life on them, and the idea that there were

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00:18:46,640 --> 00:18:53,520

other worlds and that the stars weren't just holes in the floor of heaven, however romantic it may be,

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00:18:54,240 --> 00:19:04,800

is only two or 3000 years old. Boris Dattel, around about 350 BC, was still practically

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00:19:04,800 --> 00:19:09,600

rejecting the idea that there could possibly be any other worlds, he did not give any reason for it.

160

00:19:11,120 --> 00:19:18,640

This one is Bishop Francis Godwin's idea, 1638, that was the date of his posthumous publication

161

00:19:18,640 --> 00:19:27,680

of the Man in the Moon. The hero Speedy Gonzalez flew to the moon with the aid of birds called

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00:19:27,680 --> 00:19:35,120

gansers, which were kind of wild swan, oblivious of the fact of course that the air doesn't extend

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00:19:35,120 --> 00:19:43,040

the whole way, or if the peculiar problem is going to occur when you're at the point where the gravity

164

00:19:43,040 --> 00:19:54,320

is balanced out. But it was a pretty idea. Next one please, even prettier. Serrano de Vergara,

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00:19:54,320 --> 00:20:01,360

who's better known for his nose and his sword, published his voice to the moon in 1657,

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00:20:01,360 --> 00:20:07,200

and his natives of the moon talked to music, but not in words, and as a means of getting there,

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00:20:07,200 --> 00:20:13,360

he'd noticed the steam rising off ponds in the early morning, so he packed his skirt with bottles of dew

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00:20:14,480 --> 00:20:18,800

and was then lifted up to the moon. Can I have the next one please?

169

00:20:20,960 --> 00:20:28,240

When he got to the moon, it was inhabited by a race of giants. He even managed to figure it out that

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00:20:29,200 --> 00:20:33,760

the moon being a lot smaller in earth gravity was not as heavy and it was easier to grow bigger,

171

00:20:34,720 --> 00:20:41,200

but the giants didn't talk in words, they talked in musical notes. Next one please.

172

00:20:43,760 --> 00:20:52,000

This is a painting by Goya of the Flying to the Sabbath, and this reminds us of the Keplasmnium,

173

00:20:52,960 --> 00:20:58,080

which didn't appear until 1640, although it had been written a great deal earlier.

174

00:21:00,400 --> 00:21:06,000

Of course, at the time that he started writing it, he was still in hot water for putting forward

175

00:21:06,000 --> 00:21:15,440

this terrible idea that the sun was at the center and not us. The hero in this book, the heroine's

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00:21:15,440 --> 00:21:22,160

face on his mother, Fjord's Hilda, is a witch and she's taught by a demon how to fly to the moon.

177

00:21:22,160 --> 00:21:27,360

One of the interesting things, it's the first time at all that anyone gave the correct distance,

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00:21:27,360 --> 00:21:34,640

we don't know how he got it, and her moon was populated with bug-eyed monsters. Next one please.

179

00:21:36,880 --> 00:21:43,920

This one is much more entertaining. This is the world of fat men and fat women who spend most

180

00:21:43,920 --> 00:21:51,920

of their life making love and live in little gold-roofed huts and live on honey and fruit.

181

00:21:54,080 --> 00:22:01,040

All supposed to be true. It's the story that was published in the New York Sun in 1835 by Richard

182

00:22:01,040 --> 00:22:07,280

Adams Lough, one of the New York Sun reporters, who said that he had all his information from the

183

00:22:07,280 --> 00:22:13,520

Edinburgh Journal of Science with permission to reprint. Nobody ever checked up. This was all

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00:22:13,520 --> 00:22:19,040

possible by means of a great new light-infusing telescope which committed enormous powers of

185

00:22:19,040 --> 00:22:23,680

amplification which ordinary lenses couldn't give. It was totally good stuff, you know.

186

00:22:26,560 --> 00:22:31,680

And he didn't, of course, get sent down, but he got promoted, as you'd expect.

187

00:22:33,120 --> 00:22:38,800

Next one please. Jules Verne, 1865, The Earth to the Moon.

188

00:22:39,280 --> 00:22:44,560

A shell fired by the Baltimore Gun Club from a gun barrel 900 feet long,

189

00:22:44,560 --> 00:22:50,880

stuck right down in the earth to support it. One or two things of interest about it.

190

00:22:50,880 --> 00:22:54,960

One is the dead dog floating outside. They couldn't keep the poor, rich thing inside.

191

00:22:54,960 --> 00:23:00,800

It would have stifled them, and it reminds you of the fact that the astronauts have come up against

192

00:23:00,800 --> 00:23:06,960

the same problems with waste matter in their first flights. But the thing which is more

193

00:23:07,040 --> 00:23:11,680

interesting, I think, is that all the scientists broke their long, grey beards and said,

194

00:23:11,680 --> 00:23:16,240

ah, yes, well, quite apart from fact, of course, the concussion would kill everybody inside it.

195

00:23:16,240 --> 00:23:20,560

You couldn't even build a shell that would stand the shock necessary to project it into orbit.

196

00:23:20,560 --> 00:23:27,680

In 1964, Project Harp in Barbados successfully launched satellites from a 16-inch naval gun,

197

00:23:27,680 --> 00:23:33,680

and they're still doing it. Next one please. And the last one of this series.

198

00:23:34,560 --> 00:23:42,160

A modern satellite launch in vehicle, which is a great deal different in concept to those

199

00:23:42,160 --> 00:23:50,160

which have gone before. But not remarkably more successful. Thank you.

200

00:23:50,160 --> 00:23:50,640

Thank you.

201

00:23:57,360 --> 00:24:05,200

Well, the consequences of the fantastic leap in just a few years from agriculture to astronautics

202

00:24:06,240 --> 00:24:11,200

is that the only race which we are ever likely to discover, if we penetrate beyond the bounds of

203

00:24:11,200 --> 00:24:19,680

our solar system, is one which is either in a very primitive phase or one which is so far advanced,

204

00:24:19,760 --> 00:24:25,440

it's much more likely it will have found us first. The chances of finding anyone at our

205

00:24:25,440 --> 00:24:32,720

particular point where you just go whoosh from savagery to civilization is very remote.

206

00:24:35,040 --> 00:24:40,800

When all the factors are being considered, it appears that about 2% of binary and multiple star

207

00:24:40,800 --> 00:24:49,520

systems and 10% of single stars could all have habitable planets, which makes about 4.5% of all

208

00:24:49,520 --> 00:24:57,040

the stars that you can see. So if we can find our attention to our own Milky Way, the figures

209

00:24:57,040 --> 00:25:04,720

indicate that there could be 4,000 million stars capable of supporting planetary systems with

210

00:25:04,720 --> 00:25:12,320

habitable planets. I don't want to be greedy, I should think 4,000 million stars is enough for

211

00:25:12,320 --> 00:25:24,480

anyone of these stars, many of them are far older than the solar system, as much as 10,000 million

212

00:25:25,040 --> 00:25:33,280

years older. Which implies that very, very ancient superior communities could have landed on Earth

213

00:25:33,280 --> 00:25:40,720

long before there was any life on it, let alone present times. The next one please.

214

00:25:44,800 --> 00:25:52,560

The thing that I mentioned a little earlier on that I believe that superior communities would

215

00:25:52,560 --> 00:25:59,600

establish consortia and the place where they're most likely to do it of course is the place where

216

00:26:00,160 --> 00:26:05,680

it's easiest to do it and the place where it's easiest to do it is the place where the packing of

217

00:26:05,680 --> 00:26:17,920

the stars is close. Where we are, the stars are comparatively thin. Towards the center of the galaxy,

218

00:26:17,920 --> 00:26:26,480

that is in the direction of the constellation Sagittarius, the packing is about 700 times closer

219

00:26:26,480 --> 00:26:33,760

to the per unit of space. So we have this idea that somewhere out there or in there,

220

00:26:33,760 --> 00:26:40,000

perhaps since it's towards the center of the Milky Way, there may already be a number of

221

00:26:40,000 --> 00:26:47,280

superior communities which are linked up. And the thing is, can we detect the way in which they're

222

00:26:47,280 --> 00:26:57,680

linked up and can we join in? But the possibility, as I hope to show later, is that the means of

223

00:26:57,680 --> 00:27:06,000

communication or the semantics of that communication may be such that we just wouldn't understand it.

224

00:27:06,880 --> 00:27:18,320

Now we've come to types of intelligent entity. Within the limits of our present knowledge,

225

00:27:18,320 --> 00:27:22,880

we can conceive of three groups of intelligent organism not counting ourselves.

226

00:27:24,320 --> 00:27:34,240

That is, biological organisms which have evolved out of some kind of complex inorganic chemical.

227

00:27:36,080 --> 00:27:45,360

Humanoid or non-humanoid. Mechanical intelligences which could be involved by prosthetic

228

00:27:45,360 --> 00:27:50,640

replacement of our bits and pieces. We started off with false teeth and peg legs.

229

00:27:51,280 --> 00:27:58,720

As a lot of you probably know, it's comparatively recently, a man in America was cut off right

230

00:27:58,720 --> 00:28:04,800

across here just below the diaphragm and given a totally false lower half.

231

00:28:07,520 --> 00:28:12,000

Probably not all that remote before we can take our brains out and stuff them to some kind of

232

00:28:12,000 --> 00:28:20,160

cabinet if we feel like doing it. And then of course there's also the possibility of a computer

233

00:28:20,160 --> 00:28:27,760

being developed which is capable of making other computers and therefore could be called

234

00:28:27,760 --> 00:28:35,040

living in a sense. And the third one is the possibility of intelligence in plasmoids that is

235

00:28:35,040 --> 00:28:42,960

highly ionized clouds of gas. If we assume that physical properties of materials are much the same

236

00:28:43,680 --> 00:28:50,000

wherever they're found, then we can draw inferences concerning the way in which the physical form

237

00:28:50,000 --> 00:28:56,320

of biological organisms will vary according to the sort of planet they're on. There are of course

238

00:28:56,320 --> 00:29:01,600

conditions under which the properties of materials must change completely, conditions where hydrogen

239

00:29:01,600 --> 00:29:07,840

is a metal or tungsten is a gas. But here our knowledge is too limited for there to be any

240

00:29:07,840 --> 00:29:13,520

point in speculating. The limit of height of the living creature will be reached when it can't

241

00:29:13,520 --> 00:29:21,840

support its own weight. Giant planets must be inhabited by very squat creatures possibly like

242

00:29:21,840 --> 00:29:30,480

a cross between a tortoise and a centipede. Whereas planets are very small mess like Mars,

243

00:29:30,480 --> 00:29:35,840

if it hadn't suitable atmosphere, might give rise to tall flimsy creatures on whistvilliams,

244

00:29:35,840 --> 00:29:42,320

something like a cross between a jellyfish and a giraffe. And the physical characteristics of

245

00:29:42,320 --> 00:29:48,480

biological organisms bear a direct relationship to the probability of their being intelligent

246

00:29:48,560 --> 00:29:53,920

or becoming intelligent. Because intelligence is related to the number of interconnections

247

00:29:53,920 --> 00:29:59,200

between neurons whether they're like ours or in any other form, and the neurons themselves

248

00:29:59,200 --> 00:30:05,920

must be complex structures. So any brain of human intelligence, built of biological materials,

249

00:30:06,560 --> 00:30:13,120

is unlikely to differ vastly from a human brain in either complexity or in size. And it also has

250

00:30:13,120 --> 00:30:20,800

to have organs to support it. All of which tends to limit the possibilities to some extent.

251

00:30:22,160 --> 00:30:27,840

Limbs whilst they're a great help for locomotion unless you can imagine some way in which an organism

252

00:30:27,840 --> 00:30:35,840

have wheels, living wheels, are also a requirement for intelligence. The story of man's early struggle

253

00:30:35,840 --> 00:30:41,840

towards intelligence was mainly the story of his struggle to develop tools. Or first to

254

00:30:42,160 --> 00:30:46,560

develop hands to use those tools. You don't have to be walking around on his hands.

255

00:30:48,080 --> 00:30:54,800

Moreover, it has clearly been established for mammals including man, that almost nothing is

256

00:30:54,800 --> 00:31:00,960

learned from a relaxed kaleidoscope of experience. You don't learn as much as you think just watching

257

00:31:00,960 --> 00:31:07,520

the telly. Learning comes mainly from active participation. And for this purpose you must

258

00:31:07,600 --> 00:31:14,080

have motor organs to enable you to do it. All of which goes to show that functionally there must

259

00:31:14,080 --> 00:31:20,160

be similarities between biological organisms anywhere in the universe. Although structurally

260

00:31:20,160 --> 00:31:24,080

there could be very great changes. The next series please.

261

00:31:24,640 --> 00:31:37,200

Camp Bearing on Communications and Semantics. There is this whole question of how we come

262

00:31:37,200 --> 00:31:44,480

to know anything about our environment. We think we've got six senses including ESP.

263

00:31:45,840 --> 00:31:51,520

In fact, even the most orthodox physiologist knows that we've got about 23.

264

00:31:51,600 --> 00:32:00,960

You think of touch. It isn't just touch. Touch is touch. Press a bit harder. Press a bit harder.

265

00:32:00,960 --> 00:32:08,320

It's pain. This isn't just a matter of how it seems. But there are separate nerves for each of

266

00:32:08,320 --> 00:32:14,640

those functions. You think of smell. There are seven separate channels of smell. You think of

267

00:32:14,640 --> 00:32:19,920

taste. There are three separate channels of taste. You think of sight. There are three basic color

268

00:32:19,920 --> 00:32:25,600

senses and black and white vision which is separate giving you four. And then you've got proprioceptor

269

00:32:25,600 --> 00:32:31,680

senses. If you wake up with your hands behind your back you don't have to get someone to come

270

00:32:31,680 --> 00:32:35,920

and count your limbs for you to tell you where they are. You know where they are. But you have

271

00:32:35,920 --> 00:32:43,280

to have some means of sensing that. Again, if you didn't have organs inside your joints to tell you

272

00:32:43,280 --> 00:32:49,680

what the stress on joint is you can never jump to the weight of anything. And you've got a sense

273

00:32:49,760 --> 00:32:57,280

of balance altogether some 23. When you go over to the other animals they've got senses that we

274

00:32:57,280 --> 00:33:04,160

haven't got any kind at all. The electric eels and most of them aren't really eels at all.

275

00:33:05,680 --> 00:33:11,440

Class of fish known as the kimmated. The ones which can kill their prey by giving it a shot

276

00:33:11,440 --> 00:33:16,480

they just didn't develop an electrical organ for killing their prey. It evolved as a navigational

277

00:33:16,480 --> 00:33:22,480

organ for use in waters that were too muddy for sight to be of any use. And they had evolved

278

00:33:22,480 --> 00:33:29,520

this little organ where they sent out a voltage pulse. It's rather like radar except that it's

279

00:33:29,520 --> 00:33:37,760

static electricity and not high frequency waves. And then they look for the field that is reflected

280

00:33:37,760 --> 00:33:42,400

and this will be distorted according to the properties of the materials which reflect it.

281

00:33:43,360 --> 00:33:50,400

So here's a sense that it's very difficult for us to imagine the sense of what your surroundings are

282

00:33:50,400 --> 00:33:55,040

like. That means of reflected electrical fields. Next one please.

283

00:33:58,800 --> 00:34:09,680

The bats and also swift flits and quite a range of other birds find their prey by emitting ultrasonic

284

00:34:09,680 --> 00:34:16,480

pulses. Pulsars which usually are somewhere in the range of 20,000 to 40,000 cycles a second

285

00:34:16,480 --> 00:34:25,600

whereas our hearing cuts off at somewhere between 10 and 16. And they do so well at it that very

286

00:34:25,600 --> 00:34:32,480

small bats, little brown bats, will often catch their own weight in insects in the course of a

287

00:34:32,480 --> 00:34:40,560

couple of hours flight in the evenings. Mozz are perhaps even cleverer. They've developed

288

00:34:41,120 --> 00:34:47,280

ultrasonic sense which can detect the ultrasonic transmissions of a bat when the echoes are still

289

00:34:47,280 --> 00:34:52,960

too faint for the bat to be able to make any use of it. So now we're getting back more than ever

290

00:34:52,960 --> 00:35:02,000

to our own forms of stupid warfare. Next one please. The pit vipers which include the rattle snakes,

291

00:35:02,480 --> 00:35:08,640

have a little organ up by their snouts known as the pit organ which contains a very clever

292

00:35:10,400 --> 00:35:16,560

infrared receptor. It's a little air filled chamber with a delicate membrane. When the heat

293

00:35:16,560 --> 00:35:22,400

warms the air in the chamber the membrane is slightly distorted and a nerve ending like a

294

00:35:22,400 --> 00:35:31,520

strain gauge reports the strain. In this way in total darkness they can detect a change of temperature

295

00:35:31,520 --> 00:35:37,360

of less than a degree at a range of something like six feet and since they've got one each side

296

00:35:37,360 --> 00:35:43,440

which gives them a sort of stereoscopic vision they can strike accurately at their prey in total

297

00:35:43,440 --> 00:35:54,720

darkness by its body heat. Next one please. Daphnia the water flea is only one of a group of organisms.

298

00:35:55,680 --> 00:36:03,200

A lot of sand hoppers, some shrimps and bees can all see polarized light which means that they can

299

00:36:03,200 --> 00:36:08,960

see the sun even when the sky is totally covered with clouds because the light is polarized differently

300

00:36:08,960 --> 00:36:14,560

in the direction of the sun. This is something which is very difficult for us to understand.

301

00:36:15,360 --> 00:36:16,240

Next one please.

302

00:36:17,120 --> 00:36:23,840

This is a cross between sensory mechanisms and effector organs and I mention that both of these

303

00:36:23,840 --> 00:36:28,160

come into the question of whether you can ever understand the psychology of another race.

304

00:36:29,520 --> 00:36:37,520

The class of flies known as diptero which includes the horse fly shown here are not truly two winged

305

00:36:37,520 --> 00:36:43,120

as the name implies but the second pair of wings at the back have been modified into those club-shaped

306

00:36:44,080 --> 00:36:49,360

appendages that they know as halteres after the weights which Greek jumpers used to hold in their

307

00:36:49,360 --> 00:36:56,160

hands to assist them in jumping. They beat up and down like the wings do but not at the wing

308

00:36:56,160 --> 00:37:01,920

frequency at a quite independent frequency and it relies on the fact that the angular momentum

309

00:37:01,920 --> 00:37:08,160

changes if the thing is out here is that the weight is distributed mainly at the end of it

310

00:37:09,120 --> 00:37:14,320

it's got a greater angular momentum effect than when it's at the top of its beat or the bottom of

311

00:37:14,320 --> 00:37:21,760

its beat so if the insect turns in your in plane you get a different stress on the halter on the

312

00:37:21,760 --> 00:37:28,560

left to that on the right and they're cross linked by a nervous mechanism so if the fly yours to the

313

00:37:28,560 --> 00:37:33,520

left the wing on that side takes a stronger beat and pushes it back online that's a kind of automatic

314

00:37:33,600 --> 00:37:40,240

pilot system that worked out by professor Pringle at Oxford who had the job of dissecting out all

315

00:37:40,240 --> 00:37:45,600

the nerves it was promptly seized upon by the Sperry company of course to design the Sperry

316

00:37:46,320 --> 00:37:54,320

gyro compass in which they replaced the halteries with tuning forks which is a very clever way in

317

00:37:54,320 --> 00:38:00,400

which man manages to follow along only about 5 000 million years behind. Next one please.

318

00:38:01,040 --> 00:38:08,400

This is an idea of course of what it would be like for us if we had infrared vision. This is a

319

00:38:08,400 --> 00:38:15,840

picture taken with a thermographic camera and you're seeing the man's face by its radiated heat

320

00:38:16,560 --> 00:38:21,840

the radiated heat is greatest where either the fat is leased or where the blood vessels come

321

00:38:21,840 --> 00:38:27,600

closest to the surface you can see the distribution of the external branch of the crotted artery

322

00:38:27,680 --> 00:38:34,160

around the jaws and the inner cancels of the eye is always the warmest spot

323

00:38:35,440 --> 00:38:40,560

in a person in normal health. You can get a very early warning of strokes when it begins to dim

324

00:38:40,560 --> 00:38:49,360

on one side. Next one please. And finally a woman's torso showing the, well she managed to get the

325

00:38:49,360 --> 00:38:55,120

wrong way around. It's actually the right breast which is the hot one which is the lighter colour

326

00:38:55,120 --> 00:39:03,360

because black is cold and white is hot and what you see there is a cancer because the skin over the

327

00:39:03,920 --> 00:39:12,320

surface of a malignant tumour is hotter than the skin over a normal site. This is not only how

328

00:39:12,320 --> 00:39:17,440

things might look totally different but one can't help wondering in view of the fact that it's known

329

00:39:17,440 --> 00:39:24,000

that a proportion of normal human beings can see slightly into the infrared whether some of the

330

00:39:24,000 --> 00:39:30,080

people like Tase who seem to have paranormal powers of diagnosis without any medical training

331

00:39:30,720 --> 00:39:37,120

might not in fact be seeing something which is perfectly normal. Is that the end of that group?

332

00:39:44,240 --> 00:39:46,240

No.

333

00:39:47,200 --> 00:39:54,000

No, there's a couple more to come in here. No, that's in the next group.

334

00:39:57,760 --> 00:40:05,520

Oh dear, we've lost a couple. We've lost a couple. Well I'll have to discuss them if they tell later.

335

00:40:06,320 --> 00:40:13,200

It's just too bad. What should have come in next was a picture of a meteorite which is a no

336

00:40:13,200 --> 00:40:18,720

significance except to remind us of the Barlow meteorite which a lot of you will have heard of.

337

00:40:19,840 --> 00:40:27,760

It caused a big gaffuckle in the press. It's the one that shot over the country on Christmas Eve

338

00:40:27,760 --> 00:40:36,160

1965 and came down in Lancashire and it was heard by thousands of people and again all the greybeards

339

00:40:36,160 --> 00:40:40,160

stroked their greybeards and said what a lot of nonsense. The thing was trying,

340

00:40:40,240 --> 00:40:45,600

he was flingulated at 40 kilometers height and there's no air at 40 kilometers so you couldn't

341

00:40:45,600 --> 00:40:51,600

possibly hear anything but the people still insisted that they had heard it and lots of

342

00:40:51,600 --> 00:40:57,520

old granddabbies who can remember the early days of radio said, yes well I can remember when the

343

00:40:57,520 --> 00:41:06,720

first broadcast occurred, I heard some funny noises too. Well one perfectly orthodox scientist

344

00:41:06,720 --> 00:41:12,400

and a medical scientist that led to his great credit because Byron Lars is the most conservative.

345

00:41:13,120 --> 00:41:20,080

Fry at Johns Hopkins in Baltimore thought he'd do something more about it than that. He took a

346

00:41:20,080 --> 00:41:24,320

class of medical students and stuck them in a dark room and said I'm going to leave you in here for

347

00:41:24,320 --> 00:41:29,920

about an hour. In the meantime I'm going to do something. I want you to tell me what you perceive.

348

00:41:30,000 --> 00:41:35,680

No he didn't say what you see, smell, touch, hear or anything else, what you perceive.

349

00:41:36,800 --> 00:41:43,120

At the end of it they all said that they had heard whistling noises. Some of them were able to give

350

00:41:43,760 --> 00:41:48,720

some idea of the frequency of those whistling noises. The interesting thing was that all he had

351

00:41:48,720 --> 00:41:55,120

done was to irradiate the room with various types of radar wave which of course are interrupted,

352

00:41:55,120 --> 00:42:01,360

they're not continuous and what they heard was the interruption frequency. The work's been extended

353

00:42:01,360 --> 00:42:08,400

considerably since then. It appears that most normal people can hear the interruption frequency

354

00:42:08,400 --> 00:42:15,760

of radar waves if the intensity is high enough and not only that but they can hear usually quite a

355

00:42:15,760 --> 00:42:21,680

bit higher than their normal hearing. In other words if their normal cutoff frequency is about

356

00:42:21,760 --> 00:42:27,840

10,000 cycles per second they may be able to hear up to 15 when they're hearing

357

00:42:27,840 --> 00:42:35,920

electrically or electrisonically instead of in the normal way. This is quite important because

358

00:42:37,520 --> 00:42:40,240

we're being saturated with radio waves at the moment.

359

00:42:42,160 --> 00:42:46,800

Enormous quantities of radio waves have been pumped through a stay and night from radio stations.

360

00:42:47,600 --> 00:43:01,040

One can't help wondering how many odd effects may not be due to it. And the next one please.

361

00:43:05,600 --> 00:43:12,560

The picture, never mind we'll forget it, the picture was of a cat with a little box on its head.

362

00:43:13,360 --> 00:43:20,080

It's a cat which Israeli scientists have fitted up with a little transmitter

363

00:43:20,720 --> 00:43:26,640

that enables you to know various of its positive parameters.

364

00:43:29,280 --> 00:43:33,280

And it's interesting in connection with our theme for a number of reasons.

365

00:43:33,280 --> 00:43:41,600

One is the work that was done by a friend of mine, Professor Dewan at Cambridge

366

00:43:42,400 --> 00:43:48,160

Air Force Base in Massachusetts. He was a very good first thought of the idea of using the

367

00:43:48,160 --> 00:43:56,160

algorithm of the brain as a means of communication. Another way of communication and he even suggested

368

00:43:56,160 --> 00:44:01,920

that it might have been used by people like the Jones boys who in fact managed to do some very

369

00:44:01,920 --> 00:44:08,560

effective hoaxing of parapsychologists on card guessing by the use of ultrasonic dog whistles

370

00:44:08,560 --> 00:44:15,360

can only concealed. You can even more can only conceal your alpha waves of course.

371

00:44:15,360 --> 00:44:21,200

And Dewan fitted himself up with a little transmitter and he operated his alpha waves by

372

00:44:21,200 --> 00:44:26,640

either thinking or not thinking of a complex mathematical problem such as four times three.

373

00:44:27,600 --> 00:44:33,920

And opening and shutting his garage door and switching lights off. He didn't think that this

374

00:44:33,920 --> 00:44:38,640

was any wonderful advance but he did point out that if you could do this then you could also

375

00:44:38,640 --> 00:44:45,680

enable someone who had lost the use of their lower limbs to actuate a pair of false limbs or a

376

00:44:45,680 --> 00:44:53,760

wheeled undercarriage by pure thought. And it seems to offer a lot of possibilities. One of the

377

00:44:53,760 --> 00:45:00,560

other things is that cats with similar devices to this have been fitted with a little gauge

378

00:45:00,560 --> 00:45:06,640

account to slung around their neck on a collar and wired into the machine which in addition to

379

00:45:06,640 --> 00:45:13,840

transmitting changes in the cat's state of nervous arousal also sends a stimulus into the fear

380

00:45:13,840 --> 00:45:20,400

center of the brain. There is a specific center for saying glimly let's get out of here. Just as

381

00:45:20,480 --> 00:45:26,880

there is a lure center for saying this is nice let's have some more of it. And what happened here

382

00:45:26,880 --> 00:45:32,640

was that you could send the cat into a room where there was nothing unusual at all except that some

383

00:45:32,640 --> 00:45:38,160

of there was a concealed source of gamma radiation and as soon as it got close to it it would crouch

384

00:45:38,160 --> 00:45:44,400

down on the floor and lash its tail and show all the usual moggy signs of being thoroughly alarmed.

385

00:45:45,280 --> 00:45:52,320

And this brings us on to some of the other things that they've done to human beings like

386

00:45:53,200 --> 00:46:02,160

a Frenchman a few years ago who completely lost both inner ears due to tumors so that there was no

387

00:46:02,160 --> 00:46:06,880

possibility of fitting with a hearing aid of any kind and what they did was to implant a little

388

00:46:06,880 --> 00:46:14,240

induction coil in his head wired up directly to the hearing nerves of the cerebral cortex.

389

00:46:14,960 --> 00:46:18,880

And then you could talk to him through an external induction coil in the microphone well of course

390

00:46:18,880 --> 00:46:25,600

the the frequencies which he received were totally different to the ones that he was accustomed to

391

00:46:25,600 --> 00:46:31,760

receiving through his old ears so he had to be reeducated and it took some time but now he can

392

00:46:31,760 --> 00:46:40,080

talk to anyone without any ears just as easily as we can by means of a totally artificial sense.

393

00:46:41,040 --> 00:46:47,440

And another one which is even more striking and possibly a lot more important from the

394

00:46:47,440 --> 00:46:55,840

point of view of communications and semantics is the VSS system that was developed in San Francisco

395

00:46:56,400 --> 00:47:03,120

visual substitution system people who are totally blind they put a row of little vibrators on their

396

00:47:03,120 --> 00:47:08,880

VEX 20-odd minute line and they put 20 lines on them so you've got a matrix of 400 and they

397

00:47:08,960 --> 00:47:16,080

connect this up to a standard television camera well even when the thing is first fixed as you

398

00:47:16,080 --> 00:47:22,240

move it along one of the things goes VZ interval VZ so you can say well there's something there and

399

00:47:22,240 --> 00:47:27,600

there's something there like everything else it has to be learned even the baby has to learn to use

400

00:47:27,600 --> 00:47:32,240

its eyes and when people have been trained on this for a couple of hours a day for two or three months

401

00:47:32,240 --> 00:47:37,840

they can recognize people coming into the room and say that's Harry and that's Bill they're not

402

00:47:37,840 --> 00:47:43,120

using their eyes at all they're not even using the part of the brain which is normally concerned

403

00:47:43,120 --> 00:47:49,760

with vision but you can learn to use a totally different part of the brain this gives us some

404

00:47:49,760 --> 00:47:55,200

hopes then when it comes to communicating with creatures which may have senses which are totally

405

00:47:55,200 --> 00:48:07,280

different to our own something which we may need to learn right can we have the funny old man now

406

00:48:07,280 --> 00:48:18,000

sitting at the box yes that's it there are two ways in which we can imagine a large step towards

407

00:48:18,000 --> 00:48:23,760

mechanical life we've already mentioned the possibility of gradually throwing away all our

408

00:48:23,760 --> 00:48:29,200

worn outfits and replacing bit by bit with metal ones all the development of computers

409

00:48:30,080 --> 00:48:34,960

I shan't go into the well-worn arguments about whether a computer can really think or not or

410

00:48:34,960 --> 00:48:40,560

whether it's got a soul but I want to review something of the development of thinking machines

411

00:48:40,560 --> 00:48:46,400

and then you can sort of take your own shot into the dark and see what what they might come to

412

00:48:47,040 --> 00:48:55,360

this is Baron Wolfgang von Kempelheim's robot built in 1769 which on good authority defeated

413

00:48:55,360 --> 00:49:03,760

both Frederick the Great and Napoleon at playing chess what the mechanism was no one has any great

414

00:49:03,760 --> 00:49:09,760

idea although it was in existence for eighty eight years it was destroyed by fire in Philadelphia  
in

415

00:49:09,760 --> 00:49:17,680

1854 the only person who had any really solid views on it was Edgar Allen Poe he said he knew

416

00:49:17,680 --> 00:49:23,840

all about a new inspector and it was worked by a legless dwarf the odd thing you might expect from

417

00:49:23,840 --> 00:49:32,480

Edgar Allen Poe around about the same sort of time 1775 this was constructed and it's only one of

418

00:49:32,480 --> 00:49:42,400

hundreds of machines of a similar type of that time this was one of Pierre Drotz's robots 28 inches

419

00:49:42,400 --> 00:49:49,440

high it moved its head and eyes and hands and it wrote a little sentence giving its name and where

420

00:49:49,440 --> 00:49:55,120

it lived and what its interests were then shut the ink out of its cool and rested its hand worked  
by

421

00:49:55,200 --> 00:50:03,840

clockwork jumping on a little bit 1914 one of the first electromechanical chess players

422

00:50:03,840 --> 00:50:10,240

it couldn't tackle the whole game but it could tackle a game played with kings and rooks only

423

00:50:10,800 --> 00:50:23,360

and win about half of them next one this is a purely guesswork curve giving some idea of the rate

424

00:50:23,440 --> 00:50:26,960

at which these things are developing you see we're back to the same sort of curve

425

00:50:26,960 --> 00:50:33,200

in the development of our own intelligence or our own civilization that it suddenly becomes

426

00:50:33,200 --> 00:50:39,920

enormously rapid the rate at which the thing became enormously rapid of course was when we went over

427

00:50:39,920 --> 00:50:49,200

to electronic computers the next one and this is the obvious thing obvious question to ask yourself

428

00:50:49,760 --> 00:50:55,760

if you build a robot which can build a robot like itself equipped with plans for building a robot

429

00:50:55,760 --> 00:51:02,240

like itself can you really distinguish between that and life and an awful lot of people have come

430

00:51:02,240 --> 00:51:08,080

up and said ah yes but you've got a supply with ready-made parts and that really is most disappointing

431

00:51:08,080 --> 00:51:14,080

because we have to be supplied with ready-made food uh i'm not joking you see you can't just eat

432

00:51:14,080 --> 00:51:18,560

anything we have to eat proteins and proteins have got to be made by some other animal

433

00:51:22,320 --> 00:51:30,800

so it's not really so totally different i don't think it's more than a vague philosophical

434

00:51:30,800 --> 00:51:36,240

question as to whether that is life and somewhere on earth of course there might very well be

435

00:51:36,320 --> 00:51:43,680

robot races with tales of how they came from some horrible squishy squashy biological organism

436

00:51:43,680 --> 00:51:45,680

which they call god

437

00:51:52,400 --> 00:51:58,240

so we deal with mechanical intelligences and go on to plasmoids most people know the definition of

438

00:51:58,240 --> 00:52:05,120

the plasma as an ionized gas and a plasma can be preserved in a stable state strangely enough

439

00:52:05,680 --> 00:52:10,960

something very odd universe of california built a plasma gun it just made a small quantity of

440

00:52:10,960 --> 00:52:17,120

extremely hot gas extremely hot millions of degrees which you can do by striking an electric arc in it

441

00:52:17,680 --> 00:52:22,160

and then they squirted it out of the gun by magnetic fields and they found that the plasmoids

442

00:52:22,160 --> 00:52:27,600

which were donut shaped were extraordinarily stable and when they hit something they bounced off and

443

00:52:27,600 --> 00:52:33,840

came back to their original shape the point that is interesting is that in the field of computers

444

00:52:34,800 --> 00:52:42,000

a chap called kenneth shoulders in the united states navy is designing a plasma computer

445

00:52:42,560 --> 00:52:48,560

in which there won't be any solid state parts at all it will all be done by gases and magnetic fields

446

00:52:48,560 --> 00:52:57,280

holding them in place so you're getting rather near fred holl's dark cloud aren't you where you've

447

00:52:57,280 --> 00:53:03,360

got something which is only a mass of gas that can think or do something which very closely

448

00:53:03,360 --> 00:53:13,280

approximates the thinking next series please so while we're on the question of plasmoids

449

00:53:14,560 --> 00:53:21,360

an awful lot of sightings of all those boiled down two ball lightning

450

00:53:22,240 --> 00:53:28,000

which this is one of the earliest pictures i don't know who did the wood cut but it appears in

451

00:53:28,000 --> 00:53:36,720

a rago's book so little there which was produced about 1860 and it shows lightning striking a

452

00:53:36,720 --> 00:53:44,320

conductor and forming three little balls at the top very much more recently only about seven or

453

00:53:44,480 --> 00:53:52,720

years ago uh bell telephone company in the state set up a color camera and very expensively ran it

454

00:53:52,720 --> 00:53:58,960

for several hours every time there was a thunderstorm and finally got some beautiful color pictures of

455

00:53:58,960 --> 00:54:06,240

just this sort of thing happening next one please we know something about what it is by means of

456

00:54:06,240 --> 00:54:13,520

this artificial ball lightning generator which is done by producing a partial vacuum in the gas

457

00:54:13,520 --> 00:54:21,760

chamber very strongly exciting this with radar waves and then suddenly producing reducing the

458

00:54:21,760 --> 00:54:28,240

gas pressure still more when you get a little glowing ball about the size of a golf ball

459

00:54:29,840 --> 00:54:35,280

these things contain an extraordinary amount of energy an ordinary thunderbolt

460

00:54:36,240 --> 00:54:42,640

uh perhaps eight inches in diameter may contain eight or ten kilowatt hours of electricity

461

00:54:43,360 --> 00:54:48,880

so of course there's quite a lot of work going into this both in the states and the ussr for the

462

00:54:48,880 --> 00:54:55,600

development of a gun which will fire artificial lightning balls because they'd have a lot more

463

00:54:55,600 --> 00:55:02,320

energy in them than a shell ten times their size and as to the weird things that they do

464

00:55:03,040 --> 00:55:11,200

uh this of course is not a photograph but um it goes back an awful long time march the third

465

00:55:11,200 --> 00:55:18,240

1557 it was the wedding day for Diana front who was the illegitimate daughter of the door fire

466

00:55:18,960 --> 00:55:25,200

who married Francois de Montmorency a fireball came into their head chamber

467

00:55:26,160 --> 00:55:31,440

singed the bride's hair and burned her nightie off without damaging her very much we're glad to say

468

00:55:31,440 --> 00:55:39,120

and went back out with the wind blowing after that of course the things that fireballs do in the

469

00:55:39,120 --> 00:55:50,080

guys the flying saucers they're quite ordinary now we have the next one this is from uh Dr Dionysius

470

00:55:50,080 --> 00:55:58,400

lardner's book i got the date here yes 1856 popular geophysics and physics and it's of a fireball

471

00:55:58,800 --> 00:56:06,000

he doesn't talk about them very much they may be marsh cash they may be meteorites generally

472

00:56:06,000 --> 00:56:11,760

they're regarded exhalations from the earth even when they're traveling quite fast it's another

473

00:56:11,760 --> 00:56:17,680

example of the fact that these things have been seen all through the ages as all of you know very

474

00:56:17,680 --> 00:56:23,600

well at the beginning of the century we didn't see a dam skit out flying saucers we saw right type

475

00:56:23,680 --> 00:56:29,920

multi-winged aircraft and a few years before that we saw complicated forms among graphi

476

00:56:29,920 --> 00:56:37,760

hot air balloons a little earlier of course it was flaming chariots or even angels but lardner

477

00:56:39,520 --> 00:56:44,400

who dismisses these things from no very great importance is quite an important bloke to remember

478

00:56:44,400 --> 00:56:50,720

for he addressed the British Association in 1838 with the absolutely immortal phrase

479

00:56:50,880 --> 00:56:57,680

man might as well project a void to the moon as a temp to cross the stormy Atlantic by steam

480

00:56:59,360 --> 00:57:01,120

they was wrong twice in one go

481

00:57:08,480 --> 00:57:14,080

so communications there are three principle ways in which communication can take place

482

00:57:14,560 --> 00:57:21,040

no matter whether the entities that are communicating are the same at both ends or different

483

00:57:21,040 --> 00:57:28,640

at both ends and whether they're biological mechanical or plasmoid direct visits like going

484

00:57:28,640 --> 00:57:34,320

and knocking on your neighbor's door remote communication like ringing him up on the telephone

485

00:57:34,320 --> 00:57:41,520

and basadorial liaison like sending the butcher's boy around with a note we may begin by noting that

486

00:57:41,520 --> 00:57:47,120

sightings have reported entities which could be any of the types of intelligent organism that

487

00:57:47,120 --> 00:57:53,920

i've described and among the thousands of reports there are plenty of humanoid robots willow the

488

00:57:53,920 --> 00:58:00,400

wisps meek or like appearances balls of power all of which could be plasma intelligences

489

00:58:00,400 --> 00:58:06,960

and a few things that look a bit like robots as for the means of transportation we simplify matters

490

00:58:06,960 --> 00:58:14,080

by discarding the science fiction devices of automatic dematerialization and rematerialization

491

00:58:14,080 --> 00:58:21,600

notwithstanding what we see on telly by some kind of ray or doors through a hypothetical dimension

492

00:58:22,720 --> 00:58:29,280

or hyperdrive permitting unlimited velocity in defiance of einstein who could very easily be

493

00:58:29,280 --> 00:58:35,760

wrong of course but if we do that the distant entities are now limited by the velocity of light

494

00:58:35,840 --> 00:58:41,920

and the problem of the strains which are imposed by acceleration and it is possible that with human

495

00:58:42,640 --> 00:58:52,000

astronauts there are problems set up by sensory deprivation and social deprivation next to please

496

00:58:54,720 --> 00:59:00,160

this is one of the black rooms you've all of you heard of the black room in which you're

497

00:59:00,880 --> 00:59:05,280

muffled up without light or sound and probably with your hand stuffed up in cotton wool

498

00:59:05,760 --> 00:59:12,160

and the next one please and this is how you come out of it hardly able to pass a

499

00:59:12,160 --> 00:59:19,760

rod through a little hole the right size to accept it in other words our thinking processes

500

00:59:19,760 --> 00:59:26,720

become totally deranged if we cut off the sensory input for very long none to stick

501

00:59:26,720 --> 00:59:31,440

to our sense to be the longest that anyone can stand it without having the nervous breakdown

502

00:59:32,080 --> 00:59:38,160

and you can become pretty seriously deranged in about 12 hours and it's important to note also

503

00:59:38,720 --> 00:59:46,080

something very similar although milder occurs if you go without REM sleep for very long REM rapid

504

00:59:46,080 --> 00:59:53,600

eye movement meaning the deep type of sleep in which you're dreaming if you you can arrange this

505

00:59:53,600 --> 00:59:59,280

called a cat it's known that cats and similar animals can't have dreams unless the muscles of

506

00:59:59,280 --> 01:00:06,480

the neck are relaxed so when pussy is lying down like this like a sphinx on the Nile she may be

507

01:00:07,200 --> 01:00:12,480

relaxing her body very well but she's not dreaming and relaxing her mind and if you

508

01:00:12,480 --> 01:00:18,320

unkindly put the cat on a little raft so as soon as it relaxes and tries to lie down it gets dipped

509

01:00:18,320 --> 01:00:25,280

in the water it can sleep and it can eat after three or four days it begins to go nuts because

510

01:00:25,360 --> 01:00:30,880

you must breathe we all of us have to have our dreams more waves than one

511

01:00:33,200 --> 01:00:41,920

so this these possibilities of sensory deprivation even

512

01:00:44,480 --> 01:00:48,240

the social deprivation where you've got a small group you're not in totally cut off

513

01:00:49,120 --> 01:00:54,320

are quite real they've wired the apollo people quite a lot they're going to become enormously

514

01:00:54,320 --> 01:01:01,520

more real if you're going to project voyages which last hundreds of years they're so improbable in fact

515

01:01:01,520 --> 01:01:07,440

the scarcity justifies speculation in the light of present-day technology it seems very unlikely

516

01:01:07,440 --> 01:01:13,040

that it will ever be possible for men to visit worlds more than a few light years distant or

517

01:01:13,040 --> 01:01:20,000

for man-made machines to visit worlds at more than a few tens of light years away but of course

518

01:01:20,000 --> 01:01:26,400

we can come back now onto remote communication which we tend to think of in terms of something

519

01:01:26,400 --> 01:01:32,960

like the johnsville bank telescope used either as a transmitter or a receiver or of some kind of

520

01:01:32,960 --> 01:01:39,600

laser the only two things we've got but as i said earlier just as our original ideas of

521

01:01:39,600 --> 01:01:46,320

blazing letters in the sahara desert seem so hopelessly antiquated now this may seem hopelessly

522

01:01:46,320 --> 01:01:53,280

antiquated for moral advanced rates then of course we come down to the problem of how to carry on the

523

01:01:53,280 --> 01:02:02,400

two-way exchange of information um we won't bother about the technical problems which really aren't

524

01:02:02,400 --> 01:02:13,440

all that difficult but the problems of semantics are much more difficult and one of the things

525

01:02:14,080 --> 01:02:18,560

that you've got to assume here is that if an intelligent race knows about the existence of

526

01:02:18,560 --> 01:02:25,760

the starry heavens it's got an organ like eyes thank heaven for that it can understand what we see

527

01:02:27,280 --> 01:02:31,760

and that makes the possibility of things like this you all know this sort of diagram you send out a

528

01:02:31,760 --> 01:02:38,080

chain of pulses in multiples of a unit of time it could be one second and whether the thing is just a

529

01:02:38,160 --> 01:02:46,000

space interval or transmitting interval you send out the whole sequence long pause send it out again

530

01:02:46,000 --> 01:02:50,800

and keep on doing it so someone eventually says oh it's the same thing over and over again

531

01:02:52,400 --> 01:02:57,920

and the thing is cunningly arranged to be the product of two primes so they say ah

532

01:02:59,120 --> 01:03:05,360

it's the product of two primes suppose we arrange it in 11 rows of 19 that's not much good 19 rows of

533

01:03:05,360 --> 01:03:11,840

11 yes and you've got a picture which may convey something to them better still of course you can

534

01:03:11,840 --> 01:03:18,080

send out an even longer chain which is the product of three primes it's a bit more complicated to hit

535

01:03:18,080 --> 01:03:23,600

on the right pattern this time but you could even send them complete instructions to build a bicycle

536

01:03:23,600 --> 01:03:30,720

take a long time might not be much used to them but it's another means of communication it's another

537

01:03:30,800 --> 01:03:37,600

way of looking at things it's the semantics that matter what would you do a bicycle might not

538

01:03:37,600 --> 01:03:45,440

mean a ready thing to them but you could send a picture for instance of the big dipper the great

539

01:03:45,440 --> 01:03:51,520

bear the cow and you could do rather better than that because if you know the people you're

540

01:03:51,520 --> 01:03:59,360

communicating with and where they are you know the parallax distortion so you'll know that it is going

541

01:03:59,360 --> 01:04:05,280

to appear rather different in shape to them than it does to us so you send it alternate pictures

542

01:04:05,280 --> 01:04:13,280

one and the other which tells us which tells it that we know where they are relatively and shows

543

01:04:13,280 --> 01:04:22,080

them where we are relatively semantics we've got a common semantic reference the shape of the constellation

544

01:04:22,080 --> 01:04:29,760

known as the plow coming down to some of the other things dupiter and its giant spot you all know

545

01:04:29,760 --> 01:04:37,200

about its radio transmission you probably all know that it's now no longer thought of as simple

546

01:04:37,200 --> 01:04:44,240

thunderstorms that it's much more like a lighthouse sending out a radio beam that the beam is modulated

547

01:04:44,240 --> 01:04:51,600

that it's modulated by the magnetic field of one of the satellites and that although you can

548

01:04:52,080 --> 01:05:00,320

if you're sufficiently determined work out a nice meteorological or electro plasma hydrodynamic

549

01:05:00,320 --> 01:05:05,280

mechanism you could also suggest that there's a little box that someone's left behind

550

01:05:06,240 --> 01:05:13,760

and it's equally plausible the next one please and I bring in satin at this minute it's a nice

551

01:05:13,760 --> 01:05:21,200

picture it's got nothing else to do with the stalk except this a little while ago somebody

552

01:05:22,160 --> 01:05:27,760

there's nothing better to do than some calculations work out what the disturbance of the surface of

553

01:05:27,760 --> 01:05:36,800

the sun was when the major planets like Jupiter Saturn Uranus Neptune fell in line and they made

554

01:05:36,800 --> 01:05:42,720

the interesting discovery that it would disturb the center of the sun sufficiently to cause a large

555

01:05:42,720 --> 01:05:50,640

sun spot so they then had a look back through history to see whether on the times when the

556

01:05:50,640 --> 01:05:55,120

old wise acres have said there are going to be three planets in line it's going to be the end of the

557

01:05:55,120 --> 01:05:59,360

world and the end of the world's happening dozens of times in the last thousand years

558

01:06:00,000 --> 01:06:04,400

and on occasion people have set up all night for it or even as happened a few years ago

559

01:06:04,400 --> 01:06:12,480

climbed up to the top of primrose hill and waited there it did come that one interesting thing did

560

01:06:12,480 --> 01:06:22,400

happen can we have the next one please sun spots if you go back and look at these records you do

561

01:06:22,400 --> 01:06:29,600

find an awful lot of them are associated with plagues where there have been major conjunctions

562

01:06:29,600 --> 01:06:40,160

there have been plagues can we have the plague picture plague in naples um the sun spots we know

563

01:06:40,160 --> 01:06:46,160

a bit more about than just that the puma of the world health organization addressing the

564

01:06:46,800 --> 01:06:53,600

digit association a while ago said that he produced a lot of tables for all parts of the world in

565

01:06:53,600 --> 01:07:00,640

which he could show that whenever there was a large sun spot or a large solar flare within 48 hours

566

01:07:00,640 --> 01:07:06,480

and notice that 48 hours is about the time of flight for a proton of average energy to reach

567

01:07:06,800 --> 01:07:17,200

from the sun the rate of psychiatric admission and the number of deaths from heart attack go up

568

01:07:17,200 --> 01:07:25,520

very steeply now does this make any sense it does in fact because we know that the mechanism by which

569

01:07:25,520 --> 01:07:30,080

and the smaller blood vessels the blood is maintained in the lumen of the vessel in other

570

01:07:30,080 --> 01:07:34,800

ways kept in the center instead of sticking to the walls and causing a clot is that the blood

571

01:07:34,800 --> 01:07:39,920

vessels which as a whole are electrically neutral the charge positively on the outside negatively

572

01:07:39,920 --> 01:07:44,560

on the inside the blood plate that's the charge negatively and say they kept in the center if

573

01:07:44,560 --> 01:07:49,520

you now shoot high-energy protons through the vessel you destroy this mechanism and the blood

574

01:07:49,520 --> 01:07:56,560

clots and according to whether it clots in the head or it clots in the heart you have a psychiatric

575

01:07:56,560 --> 01:08:05,440

admission or a heart attack next one please now we come to a bit more of the link-up with

576

01:08:06,800 --> 01:08:15,120

parapsychology um this one most of you will recognize straight away and it was the one that

577

01:08:15,120 --> 01:08:22,800

was seen near woking have i got the right yes i have here philip freeman and his friend miss

578

01:08:22,800 --> 01:08:32,560

anna mccarter night in november 12 1967 crannily sorry damp night windows began to mist up he stopped

579

01:08:32,560 --> 01:08:37,440

on the road through winterfall forest to wipe his windscreen as he got back in the driving

580

01:08:37,440 --> 01:08:43,120

seat he danced at miss carton was alarmed to see a featureless face visible through the near side

581

01:08:43,120 --> 01:08:48,240

passenger window later as he started to drive off it whipped smartly around to the back of the car

582

01:08:48,320 --> 01:08:54,800

looking equally frightening and blank-faced and there was a horrible stench like burning sulfur

583

01:08:56,400 --> 01:09:03,280

the thing of course was associated with flying saucers and passed into the literature almost as

584

01:09:03,280 --> 01:09:11,120

a flying saucer sighting no flying saucer was seen and a hundred years earlier it would

585

01:09:11,120 --> 01:09:16,240

have been put down as a manifestation of the devil the next one please

586

01:09:20,160 --> 01:09:30,960

august the 22nd 1955 the uh casablanca affair where a number of forms like this were reported

587

01:09:30,960 --> 01:09:36,480

by the children although some of them also saw things which might remotely have been flying

588

01:09:36,560 --> 01:09:42,640

saucers but once again it's awfully likely conventional idea of a shrouded ghost

589

01:09:44,720 --> 01:09:45,520

the next one

590

01:09:47,840 --> 01:09:52,400

perhaps even more famous than the other two the point pleasant west virginia

591

01:09:52,960 --> 01:09:59,760

and haunted by these winged creatures since september 1966 at least 26 reports of strange

592

01:09:59,760 --> 01:10:05,040

winged creatures have been made uh and as you probably know they are reported to have flown

593

01:10:05,040 --> 01:10:11,760

around cars at velocities up to 100 miles an hour and plagued people left right and center

594

01:10:12,560 --> 01:10:18,560

it's very interesting that when you get a sighting anywhere not just a sighting of a conventional

595

01:10:18,560 --> 01:10:24,000

saucer or even a sighting that wasn't very well defined at all something weird happened

596

01:10:25,040 --> 01:10:29,520

but when you get a sighting which is as well defined as a thing like this there's almost

597

01:10:29,520 --> 01:10:37,360

inevitably a rash of sightings of a very similar nature shortly afterwards which suggests to a

598

01:10:37,360 --> 01:10:44,080

psychologist that association of ideas has got something to do with that oh the next one of course

599

01:10:45,520 --> 01:10:51,920

anyone in the middle ages would have known what that was that's the kelly hopkinsville goblin

600

01:10:53,120 --> 01:10:58,640

and of course they've been seen in many many places either in connection with the oofu sightings or

601

01:10:58,640 --> 01:11:04,640

more often they've been seen at the side of the road or something like that and people have inferred

602

01:11:05,280 --> 01:11:10,800

that they are the pilots of flying saucers although as i said in the middle of ages anyone that would

603

01:11:10,800 --> 01:11:21,200

have known they were familiar let us have the next one kudobucks at car shorten in 1936 i was there

604

01:11:21,200 --> 01:11:27,440

and saw him walking on his bed of red hot coals covered with leaves he was followed by a number

605

01:11:27,440 --> 01:11:31,760

of students some of whom managed to follow him quite away without harm some of whom burnt their feet

606

01:11:31,760 --> 01:11:39,920

immediately uh this is an example of a weird occurrence which does not appear to be hallucinatory

607

01:11:39,920 --> 01:11:44,880

i think kudobucks was there all right and i think he did manage to walk on the coals without hurting

608

01:11:44,880 --> 01:11:51,680

his feet and certainly you can do some very remarkable things indeed with hypnosis let's

609

01:11:51,760 --> 01:11:57,600

carry on for a moment because hypnosis may come into the thing a lot more rosa kola shova

610

01:11:58,720 --> 01:12:03,840

as you know is the russian girl who could reportedly distinguish colors with her fingertips when

611

01:12:03,840 --> 01:12:10,640

blindfolded or even read the newspaper through a sheet of glass so presumably it wasn't anything

612

01:12:10,640 --> 01:12:18,320

to do with the fact that different colors reflect different amounts of heat uh it's interesting to

613

01:12:18,320 --> 01:12:23,120

know that the greatest amount of cold water that's been thrown on people possessing so-called

614

01:12:23,120 --> 01:12:29,120

derma optical perception has been by physiologists who say you can't possibly see anything if there

615

01:12:29,120 --> 01:12:36,160

is no lens-like structure in the skin and there ain't but when you come to the vss system i talked

616

01:12:36,160 --> 01:12:41,120

about before you have these blind people who have learned to see perfectly well through nothing other

617

01:12:41,120 --> 01:12:47,440

than a pattern of vibration on their backs so i think we can forget that one it is possible to

618

01:12:47,680 --> 01:12:55,760

see paranormal a 16th century picture of saint zenovius in the fourth century

619

01:12:55,760 --> 01:13:00,800

exorcised in little black demons who are dancing out of the mouths of those people who were possessed

620

01:13:01,440 --> 01:13:08,560

possession was thought in those days to be the occupation by a demon nowadays possession is

621

01:13:08,560 --> 01:13:14,880

thought to be the occupation by an alternate personality if you're a spiritualist the

622

01:13:14,880 --> 01:13:20,080

alternate personality might be from the other side if you're a psychoanalyst it's a bit of your

623

01:13:20,080 --> 01:13:25,920

own personality that got split up due to a childhood trauma it doesn't really matter

624

01:13:26,800 --> 01:13:32,800

which view you take you don't exercise them now by swinging them with whips which was the standard

625

01:13:32,800 --> 01:13:43,120

method around about a thousand ad but you resort to some form of psychoanalytic treatment for

626

01:13:43,120 --> 01:13:55,360

exorcism this is another form of semantics next one please if you think that all those people

627

01:13:55,360 --> 01:14:00,080

are nuts it's interesting then to consider what happens to people when they do go nuts

628

01:14:00,880 --> 01:14:09,200

among other things their perception changes louis wane is a quite famous artist who painted a

629

01:14:09,200 --> 01:14:15,440

number of pussy cats most of which look just like pussy cats and then he became schizophrenic

630

01:14:15,440 --> 01:14:22,640

didn't become schizophrenic all in one go he went slowly worse and he began painting cats like that

631

01:14:22,640 --> 01:14:28,800

and eventually cats like that which is very much like the sort of thing that people paint under lsd

632

01:14:29,760 --> 01:14:39,200

um there is the point to be made of course we're all different in the views that we have of what

633

01:14:39,200 --> 01:14:45,120

things look like it's possible that their view if you could find a number of them who painted

634

01:14:45,120 --> 01:14:53,840

the same type of picture is just as valid as ours next one please in the middle ages again this is

635

01:14:53,840 --> 01:15:04,240

a heron must approach picture i may have the date no only 16th century um we have here a quack surgeon

636

01:15:05,280 --> 01:15:12,720

the funnel on his head denotes that he is a quack and the bottle that his waist is symbolic of his

637

01:15:12,720 --> 01:15:19,440

association with the fiend um he's performing operation which was quite commonly performed in

638

01:15:19,440 --> 01:15:25,840

those days to remove the stone of folly from the head of someone a person might be slightly deranged

639

01:15:25,840 --> 01:15:30,480

and they might search around to find the stone of folly or they might catch on someone who's a bit

640

01:15:30,480 --> 01:15:34,560

simple and say you know you've got a stone of folly and you'll go nuts if you don't take it out it'll

641

01:15:34,560 --> 01:15:42,240

cost you and you see we have one two people there who are presumably going to get a cut in it um

642

01:15:42,960 --> 01:15:47,520

the stone of folly of course i'm very very glad the idea has passed away because i can't help feeling

643

01:15:48,000 --> 01:15:53,200

most of us tonight might at some time rather be subjected to an operation for this by the

644

01:15:53,200 --> 01:16:05,440

condom committee of the cia next one please levitation is another thing which not only

645

01:16:05,440 --> 01:16:11,680

is associated with flying saucers which very obviously levitate uh it's very much part of

646

01:16:11,680 --> 01:16:19,760

parapsychology here's levitation as james bond does it and uh you make army and there's a very

647

01:16:19,760 --> 01:16:25,840

nice example of levitation kind i'd really like to see that is uh charles adams does it

648

01:16:27,520 --> 01:16:35,520

i'm bringing in to remind us all of usapia paladino the very great uh producer of physical

649

01:16:35,520 --> 01:16:44,720

phenomena um the early part of this century she really did under close supervision produce

650

01:16:44,720 --> 01:16:50,240

movements of objects at a distance in ways that they have not been able to explain away

651

01:16:51,040 --> 01:16:56,480

it is known that she made every possible opportunity to cheat and i think this is in her favor

652

01:16:56,480 --> 01:17:01,360

because when they tackle her about it and said you want to go she said well it's much easier this way

653

01:17:01,920 --> 01:17:05,920

now this is terribly interesting because recently of course there's been all this work

654

01:17:05,920 --> 01:17:12,880

done in the states by miller at rockefeller university and by shapiro at harvard medical unit

655

01:17:13,440 --> 01:17:18,960

who have shown that we can all of us if trained in the right way and trained in the right way

656

01:17:18,960 --> 01:17:26,240

largely means by suppressing our trained methods of thought all of which tend to bring us up in

657

01:17:26,240 --> 01:17:33,200

the orthodox idea that we can only move or think or act in certain ways that we can all of us control

658

01:17:33,200 --> 01:17:38,960

our heart rate our blood pressure and all sorts of other bodily functions which are normally said

659

01:17:38,960 --> 01:17:45,600

to be totally unconscious if you stick our little wire into the pleasure center of the brain of a rat

660

01:17:45,600 --> 01:17:51,120

you can even by letting it by trial and error find out where it gets the most pleasure persuade it to

661

01:17:51,120 --> 01:17:56,480

do all the excretion of urine through the left kidney instead of through both and you can persuade

662

01:17:56,480 --> 01:18:01,920

medical students to stick their heart rate up or down by 15 percent or their blood pressure up or

663

01:18:01,920 --> 01:18:12,080

down by as much as 20 now all this has a big bearing on quite a lot of things it said that physical

664

01:18:12,080 --> 01:18:16,800

phenomena are no longer produced and that this is entirely due to the fact that we're much better

665

01:18:16,800 --> 01:18:26,960

nowadays at detecting fraud but hasn't the environment changed enormously if you take the

666

01:18:26,960 --> 01:18:32,480

average size home within the greater london area the amount of energy going through the average size

667

01:18:33,200 --> 01:18:40,320

garage per day is enough to lift the average size family car two feet in the air that's just the

668

01:18:40,800 --> 01:18:46,560

total transmitter power from the various aerials that are going through all right you say we're not

669

01:18:46,560 --> 01:18:53,920

affected by radio waves as most of the fellows of the royal society did at a meeting about 15 years

670

01:18:53,920 --> 01:19:02,560

ago they know better now susan corbell at the university of arkansas has shown that radio waves

671

01:19:02,560 --> 01:19:09,600

of the types commonly used the wavelengths used around about 200 megs for tv in the states can

672

01:19:09,600 --> 01:19:15,440

produce nervous breakdown in recess monkeys in strong days to strive and completely met and

673

01:19:15,440 --> 01:19:21,760

cause dissociation of the brain canadian farmers marched on ottawa a couple of years ago because

674

01:19:21,760 --> 01:19:27,680

they said that wherever the post office put up new microwave links their mink died on the mink

675

01:19:27,680 --> 01:19:33,760

farms and their cows died in childbirth and this was thought to be due to an effect of the microwaves

676

01:19:34,560 --> 01:19:42,080

there was a three-day session of congress held on the subject of non-ionizing radiation hazards

677

01:19:42,080 --> 01:19:49,440

to health in 1968 the result of which was to cause great alarm and despondency among a lot

678

01:19:49,440 --> 01:19:54,960

of the electronics industries when they're asked to take much greater precautions about various

679

01:19:54,960 --> 01:20:02,080

things for example microwave ovens up until that time nobody'd been terribly fast about the interlocks

680

01:20:02,080 --> 01:20:08,080

until it was found that a type of oven which was then already existing by thousands in domestic

681

01:20:08,640 --> 01:20:13,760

houses could be opened without the interlock cutting the power off and a couple of housewives

682

01:20:13,760 --> 01:20:22,240

were blinded instantly one or two neeros i don't know why it had to be neeros it smells a bit

683

01:20:22,240 --> 01:20:28,160

who were working on due line sites managed to get in front of the aerials without the power being

684

01:20:28,160 --> 01:20:34,160

turned off and they dropped dead apparently unharmed but were their internal ovens cooked to

685

01:20:34,160 --> 01:20:40,480

a simmer because that of course is the way that microwaves work with this amount of energy in

686

01:20:40,480 --> 01:20:46,480

microwaves and i'm wearing these peculiar things because i went blind last year and i've only

687

01:20:46,480 --> 01:20:51,040

just had two operations to give me my site back that was through looking at radar waves during the

688

01:20:51,120 --> 01:20:58,560

war they are dangerous things they did not exist in anything like the quantity or the

689

01:20:58,560 --> 01:21:07,600

variety that they do now and you can't just say that parapsychological phenomena have disappeared

690

01:21:08,160 --> 01:21:14,800

because control has got much better without investigating some of the environmental changes

691

01:21:15,200 --> 01:21:17,040

next one please

692

01:21:20,320 --> 01:21:27,040

mass hallucination the bowmen of mons most of you remember the stories of the bowmen of mons who

693

01:21:27,040 --> 01:21:31,840

came in helped us out in the tight corner just as some of you will remember the russians who

694

01:21:31,840 --> 01:21:39,440

marched across london with the snows still on their boots next one please it should be the

695

01:21:39,440 --> 01:21:47,360

indian rope trick no well never mind this is death by deception another psychological phenomenon

696

01:21:48,880 --> 01:21:55,760

in the latter part of last century physicians in scandinavia managed to get hold of this poor

697

01:21:55,760 --> 01:22:02,640

devil who was doomed to die on the wheel and to kill him by suggestion they stuck the lancets in

698

01:22:02,640 --> 01:22:08,560

his wrists and ankles which didn't do any harm to him and opened up some faucets in the background

699

01:22:08,560 --> 01:22:14,000

which ran into a prof and convinced him that he was losing blood at a great rate and he died within

700

01:22:14,000 --> 01:22:24,560

four minutes from a heart attack next one please vasiliias cage a faraday cage which is supposed to

701

01:22:24,560 --> 01:22:30,400

cut out all forms of electromagnetic radiation and which he used in connection with his telepathy

702

01:22:30,400 --> 01:22:37,040

experiments they were conducted by having a subject who was hypnotized by hypnotist in another room

703

01:22:37,040 --> 01:22:41,680

who was saying get asleep get asleep get asleep sometimes you went to sleep after an interval

704

01:22:41,680 --> 01:22:47,680

i think if the interval was long enough it always worked and sometimes he went to sleep fairly

705

01:22:47,680 --> 01:22:52,720

closely after the suggestion was made whether the person had been a cage or not didn't make

706

01:22:52,720 --> 01:22:59,040

much difference i hardly think it's surprising if you're working on the hypothesis of radio waves

707

01:22:59,040 --> 01:23:04,720

because having worked with faraday cages i know that unless they're designed with almost superhuman

708

01:23:04,720 --> 01:23:12,800

care they won't work next one please and of course going back to just after the time of mesmer

709

01:23:12,800 --> 01:23:19,920

this is about 1785 from one of the carousel papers uh that's what they thought of mesmerists they were

710

01:23:19,920 --> 01:23:30,160

asses but you can produce with mesmerism an awful lot of phenomena you can make people see with their

711

01:23:30,160 --> 01:23:36,320

fingers or think they do and here with their tummies or think they do you can make them see

712

01:23:36,320 --> 01:23:43,360

flying saucers most of you will have um or many of you will have read the account in the SPR journal

713

01:23:44,000 --> 01:23:49,040

of the experiment i do for professor highneck on this he came over here and wanted to know what

714

01:23:49,040 --> 01:23:54,240

would be the effect on someone of a completely unstructured stimulus to the effect that they

715

01:23:54,240 --> 01:24:01,120

would see something in the sky so he put somebody in a very deep hypnosis and took a pinch of skin

716

01:24:01,120 --> 01:24:05,520

and put the needle through to show that he couldn't feel it incidentally of course if you do that in

717

01:24:05,520 --> 01:24:10,640

deep hypnosis it doesn't bleed either and we told him that when he woke up and walked out into the

718

01:24:10,640 --> 01:24:16,800

garden i ran my fingers through my hair he would see something very unusual in the sky and he did

719

01:24:17,360 --> 01:24:22,560

but he saw a lump of rock roughly like a meteorite which was whizzing through the air no little green

720

01:24:22,560 --> 01:24:29,200

men i'm hoping to do better next time mr k i'm very very reluctant to interrupt you

721

01:24:29,200 --> 01:24:34,880

know the time i was fascinated because uh listen to the record after the break but the ladies

722

01:24:34,880 --> 01:24:39,520

-serving the coffee said they pulled it all out okay excellent there's only two more fortunate

723

01:24:39,520 --> 01:24:41,520

i'm very sorry

724

01:24:55,920 --> 01:25:04,080

you never see a streak near this along when it's um being run through um then on the other hand

725

01:25:04,080 --> 01:25:09,360

i always write a paper for instance with the idea of putting it down halfway through going on

726

01:25:09,360 --> 01:25:13,600

to something quite different it's a bit difficult to control the time in that way

727

01:25:14,800 --> 01:25:26,880

and i've been discussing generally the application of parapsychological ideas to the whole business of

728

01:25:26,880 --> 01:25:34,160

ufos in the hope to bring out this idea about the problem of communications and semantics rather

729

01:25:34,160 --> 01:25:43,040

more clearly in case i haven't succeeded too well what i've been trying to get at is this

730

01:25:44,000 --> 01:25:50,800

other beings from other worlds will probably have a totally different physical constitution

731

01:25:50,800 --> 01:25:57,520

to our own they might indeed not be biological organisms they might be mechanical they might be

732

01:25:57,520 --> 01:26:08,720

gaseous their effector organs their sense organs will be utterly different and the whole way of

733

01:26:08,720 --> 01:26:16,480

seeing the world will be different it's well known from experiments which the bbc of cad

734

01:26:16,480 --> 01:26:23,760

out bbc2 cad out one not very long ago you know on the baby snatch in bristol they had concealed

735

01:26:23,760 --> 01:26:31,840

cameras and uh some suitable people as witnesses were around and they snatched a baby from a

736

01:26:31,840 --> 01:26:36,960

crime having notified the police beforehand what was going to happen rounded up the witnesses got

737

01:26:36,960 --> 01:26:42,320

them along to the police station where they said look first of all we'll come clean this is a put

738

01:26:42,320 --> 01:26:48,800

up job for radio but we do want you to tell police precisely what happened and the stories were just

739

01:26:48,800 --> 01:26:55,520

completely different there was just no talk with it at all they i did an identity parade and identified

740

01:26:55,520 --> 01:27:00,640

totally different people and when they did the repeat thing which is always an important thing to do

741

01:27:00,640 --> 01:27:06,400

about six weeks later the people had correctly identified the snatcher the first time when

742

01:27:06,400 --> 01:27:13,440

identified somebody else the second so this is the extent to which we can rely upon our senses

743

01:27:13,440 --> 01:27:20,400

ourselves and the extent to which any two of us see the same thing in totally different ways

744

01:27:21,120 --> 01:27:27,440

if the other person but the being from the other race has no sense organs in common with yours

745

01:27:27,440 --> 01:27:34,800

and a totally different set the chances of their understanding the same thing the same way are even

746

01:27:34,800 --> 01:27:41,440

more remote and if they live in a totally different world the chances of their communicating any sense

747

01:27:41,440 --> 01:27:49,600

to us at all become even more related so you look the two problems the problem of communication

748

01:27:50,320 --> 01:27:58,240

when your organs for transmitting and your organs were receiving a different like us trying to talk

749

01:27:58,240 --> 01:28:05,840

in airwaves to a fish that only hears through water waves most fish of course came here whistled

750

01:28:06,320 --> 01:28:12,080

well but let's say a fish which hasn't got any high frequency sense we can only hear through

751

01:28:12,080 --> 01:28:21,840

the lateral line organ which picks up very low vibration so this is the probably the most basic

752

01:28:21,840 --> 01:28:30,400

problem to the whole thing and the other thing of course is suppose that there were beings orbiting

753

01:28:30,640 --> 01:28:38,720

earth in a space vessel with some means of communication suppose they are communicating

754

01:28:38,720 --> 01:28:45,280

with us by radio waves like these radio waves that were heard from the valo meteorite you're in an

755

01:28:45,280 --> 01:28:50,880

even more difficult position now because just as a baby has to learn to see with its eyes

756

01:28:52,880 --> 01:28:59,120

we who have learned to deal with the messages from most of our sense organs are still totally

757

01:28:59,120 --> 01:29:06,640

untrained in what to make of any radio messages that we might pick up directly or for instance

758

01:29:06,640 --> 01:29:14,000

with messages through the various other known mechanisms it's known very well now that the

759

01:29:14,000 --> 01:29:21,440

means by which most animals can sense an approaching earthquake or storm is through very low frequency

760

01:29:21,440 --> 01:29:27,440

vibrations of the order to four or seven a second is also known these have a profound effect on a

761

01:29:27,440 --> 01:29:34,160

human organism some studies made by insurance agencies in chicago two years ago showed that

762

01:29:34,160 --> 01:29:39,840

the accident rate in chicago went up very steeply when there were twisters in the midwest up to

763

01:29:39,840 --> 01:29:46,880

1500 miles away and it was finally identified that it was four to seven vibration per second

764

01:29:47,600 --> 01:29:53,760

transmitted through the ground that has this effect much more recently you may have seen in

765

01:29:53,840 --> 01:29:59,760

papers as well as in some technical journals some research which has been done on fatigue effects

766

01:29:59,760 --> 01:30:05,120

in driving cars and lorries and it's the same vibration range which causes motorists to become

767

01:30:05,120 --> 01:30:15,200

unduly tired another effect apart from vibrations here is static electricity if the air is charged

768

01:30:15,200 --> 01:30:20,400

with negative ions we become unusually bright and alert if it's charged with positive ions we

769

01:30:20,400 --> 01:30:26,080

become very drowsy so one of the reasons why you tend to feel perky in the presence of a waterfall

770

01:30:26,080 --> 01:30:31,360

where the air is charged with negative electricity all the united states face capsules are equipped

771

01:30:31,360 --> 01:30:40,080

with high voltage generators to provide negative ions to help the astronauts to stay awake another

772

01:30:40,080 --> 01:30:44,720

method of communication possibly if you've got a rapid means of changing the ion content of a

773

01:30:44,720 --> 01:30:52,400

volume of air but you see the difficulties communication if the other people have normally

774

01:30:52,400 --> 01:30:58,000

different sense organs even if they know of the existence of ours by their superior intellects

775

01:30:59,760 --> 01:31:05,680

we're not going to interpret the thing right it's extremely difficult and another one of the ideas

776

01:31:05,680 --> 01:31:14,640

that is psychological in basis which is applicable is this idea of an elite in our midst we ourselves

777

01:31:14,640 --> 01:31:20,960

of course might be as i suggested in other worlds the mere picnic rubbish germs off the boots of

778

01:31:20,960 --> 01:31:26,880

some spacemen of a few thousand million years ago but there's also the idea that we might have

779

01:31:27,600 --> 01:31:34,960

other races implanted in our midst already to sort of leaven the very heavy bread of our

780

01:31:34,960 --> 01:31:42,880

civilization the usual reaction to ideas that there are among the supermen is that these ideas

781

01:31:42,880 --> 01:31:49,920

are schizophrenic it's another idea we were always talking about me there and and that's

782

01:31:49,920 --> 01:31:56,000

if they have all the best jobs because they are superior to us and so on and it is a common

783

01:31:56,000 --> 01:32:01,760

schizophrenic symptom to believe that one is constantly in the presence of other beings who are

784

01:32:02,080 --> 01:32:09,120

either totally invisible or visible only to oneself and who command ones every action it's

785

01:32:09,120 --> 01:32:15,840

remarkable the number of these people that we get who come along and say um i'm made to do all these

786

01:32:15,840 --> 01:32:20,560

things by radar you know i don't want to do i'm not a click to mania i steal things because i have to

787

01:32:22,480 --> 01:32:27,600

in olden times they were thought to be in the possession of a demon familiar and we saw the

788

01:32:28,560 --> 01:32:34,880

picture of saint zenovious exercising these demon familiars and nowadays some people claim that they

789

01:32:34,880 --> 01:32:42,080

receive instructions either directly into their heads or on their radio or remarkably frequently

790

01:32:42,080 --> 01:32:49,040

by directing plantation onto their tape recorders by the pilots to flying saucers and i have the next

791

01:32:49,120 --> 01:32:58,800

slide please this is um one recent study of some of the people of extraordinary iq

792

01:32:59,840 --> 01:33:10,560

over the last 200 years who might be either of alien descent or who might have been influenced

793

01:33:10,560 --> 01:33:17,520

in some paranormal way or who otherwise are definitely mutant in as much as they're a cut

794

01:33:18,160 --> 01:33:26,080

right out of the normal range um although i see they give girth of 210 to da Vinci's 180

795

01:33:27,120 --> 01:33:32,240

i would myself have gone for da Vinci's being the most outstanding one of the lot can we have the

796

01:33:32,240 --> 01:33:38,880

next one da Vinci if you know none other things made many designs of helicopters and things like

797

01:33:38,960 --> 01:33:46,880

that and this uh which is a detail from a painting in the the mall museum of about 1460

798

01:33:46,880 --> 01:33:53,520

date is a remarkable picture of something which uh was virtually unknown around about the beginning

799

01:33:53,520 --> 01:34:00,160

of the century it's very common in woolworth or sim on the stores today the uh piece of string

800

01:34:00,160 --> 01:34:05,360

wrapped around a spindle which operates a simple air screw which then takes off and flies around the

801

01:34:05,360 --> 01:34:14,080

room doing enormous damage but this isn't the only idea you you most of you will have heard of the

802

01:34:15,040 --> 01:34:21,920

allege discovery of um electrical batteries 200 years older than 2000 years older than

803

01:34:21,920 --> 01:34:30,320

volta and of course there is the well-known and quite undeniable thing the antikythera computer

804

01:34:31,040 --> 01:34:39,520

which is uh more than 2000 years old getting on for two and a half and is still apparently the most

805

01:34:39,520 --> 01:34:48,880

accurate known computer other than electronic ones quite apart from of course all the things

806

01:34:48,880 --> 01:34:53,680

which um the sodi wrote in his interpretation of radium to the effect that he couldn't help feeling

807

01:34:53,680 --> 01:34:59,680

as atomic energy must have been discovered over and over again and uh each time we write

808

01:34:59,680 --> 01:35:09,120

ourselves out with it as i remark there's a lot of evidence that whether or not telepathy occurs

809

01:35:09,120 --> 01:35:14,640

and whether or not it occurs by radio waves both the human and the animal brain can be affected

810

01:35:14,640 --> 01:35:22,880

directly by radio waves if they can be affected directly by radio waves which we make ourselves

811

01:35:22,880 --> 01:35:29,040

then it can be affected directly by radio waves which come from outer space and perhaps they are

812

01:35:29,040 --> 01:35:36,800

being so either accidentally or deliberately and then finally as i said in other worlds we have to

813

01:35:36,800 --> 01:35:44,640

consider the social implications of coming into contact with these races there can't be any question

814

01:35:44,640 --> 01:35:50,720

at all that they would be frightened of us and that we could tire them into doing anything that we

815

01:35:50,720 --> 01:35:56,800

wanted or even to refrain from doing anything that they wanted since even a very slightly more

816

01:35:56,800 --> 01:36:04,000

advanced society could if it wanted to exterminate us with very little effort and on the other hand

817

01:36:05,120 --> 01:36:12,240

it is possible just possible that a very superior race would possess great compassion as well as

818

01:36:12,240 --> 01:36:19,040

great intelligence but if you consider the way in which we treat monkeys and other animals

819

01:36:20,000 --> 01:36:27,440

it's not terribly likely the establishment of contact with any superior community would be

820

01:36:27,440 --> 01:36:34,800

of quite unparalleled importance whether it was nice or nasty socially scientifically and culturally

821

01:36:35,680 --> 01:36:41,840

it could lead to our attaining superior status very quickly or it could lead to our extinction

822

01:36:42,800 --> 01:36:45,920

and that probably depends upon how well we can

823

01:36:47,920 --> 01:36:55,680

either try and improve ourselves or cover up our true natures but however contact finally comes

824

01:36:55,680 --> 01:37:02,640

about it is bound to bring enormous problems of both communications and semantics

825

01:37:11,840 --> 01:37:13,140

you