

HORVATH CAR- SECRETS REVEALED

by Mark Plummer

Sydney inventor Stephen Horvath has applied for patents for the water-fueled hydrogen car which he "demonstrated" before Queensland Premier Joh Bjelke-Petersen in 1980.

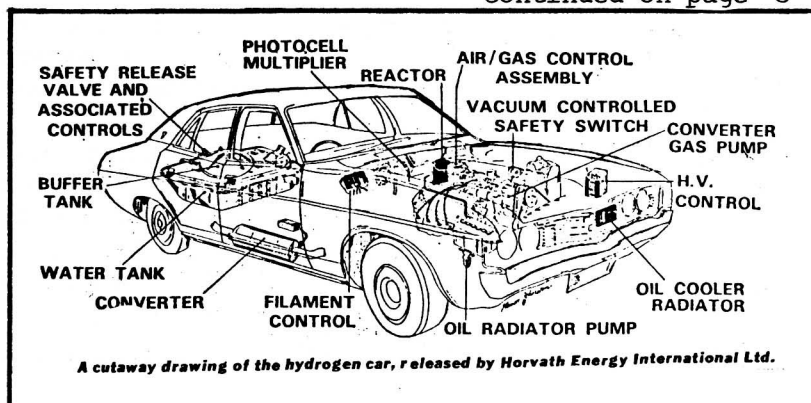
It is supposed to generate hydrogen from water, then burn hydrogen in a controlled nuclear fusion reaction.

The details we now reveal from the patent application and Horvath's claims to international development of the project have raised fresh questions.

Mr Horvath does not seem to want to make himself available for interview to face these questions.

The car made national headlines when Horvath displayed the car in Brisbane. On this occasion Premier Joh Bjelke-Petersen poured water into

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the **Skeptic**

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ALPHA EXPERIMENT PART 2 P.

LETTERS TO THE EDITOR

Dear sir,

As a professional journalist I got a particular kick out of the article on comparisons of astrological predictions (The Skeptic, July 1983).

Therein Phillip McKerracher correctly draws attention to the fact that the ramblings of star gazers in various publications are often flatly contradictory for a particular star sign on a given day.

I would like to point out that this fact is not news to those who work in the media. I would say the vast majority of journalists up to the level of editor regard daily star charts as utter humbug and pure entertainment.

But does this fact ever lead the resident astrologer being chopped from the payroll? Not on your life. Even hardened members of Skeptics would probably be amazed at the cynical approach to this particular subject taken by the media.

I used to work as a sub-editor on a Sydney newspaper and one of my jobs was to edit the astrology column for publication - a singularly boring task as it was syndicated from overseas and came off the telex as a turgid and almost incomprehensible litany of worn-out cliches.

Anyway the rub is that sometimes the stars for the day failed to arrive on time. When this occurred I adopted one of two measures. I would resurrect the stars from a previous day or, if feeling particularly imaginative, write them off the top of my head.

This, I might add, was done with the FULL APPROVAL of my superiors. If one overlooks the grave misrepresentation involved, it is possible to get quite a chuckle out of the fact that no one, as far as I was aware, wrote to complain during the six months I did the job... nor in the previous period when my predecessor followed the same procedure.

If nothing else this anecdote proves how easy it is to become an astrologer. I know because I have done it.

Harry Dillon

ARTICLES OF NOTE

NEW JOURNAL

The Australian Institute of Psychic Research have published the first issue of their "Bulletin".

Articles in the 20 page magazine include an analysis of English medium Paul McElborg's sittings in Sydney, Sydney Research update, Notes and News, Questions and Answers, a bibliography

Obtainable from PO Box 445 Lane Cove NSW 2066, first issue \$2.

"PROUD TO BE A SKEPTIC"

This was how one newspaper headlined its article concerning the establishment of a Queensland branch of the Australian Skeptics. Dr Tony Wheeler, a Queensland University Lecturer and the spokesman for the committee was interviewed by several television and radio stations as well as the major Queensland newspapers.

The Queensland Skeptics who have "sworn to investigate all things that go bump in the night" are currently holding monthly committee meetings and plan to tackle the many Queensland paranormal claims.

the SKEPTIC

Editor: Janet de Silva
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Phil McKerracher

HORVATH CAR - SECRETS REVEALED

by Mark Plummer

the filler hole used on normal cars for petrol, and watched as the car was driven down the road. For Mr Bjelke-Petersen this seemed sufficient proof that the car would run on water.

Mr Bjelke-Petersen said the cars would be built in Queensland. He predicted that hydrogen fuel would be used for cars, trains, ships and aircraft, and to generate electricity. He forecast that Queensland would be the operational centre for Horvath's invention, and that it would revolutionize the world.

At the time of the display of the car Queensland University scientists were skeptical of Horvath's claims. Professor Stacey, of the Physics Department, said the nuclear reaction needed to cause hydrogen fusion would require a temperature of several million degrees, and the driver would receive a fatal radiation dose within a few seconds.

Professor Whitehead, Head of the Physics Department, said he accepted that the car burnt hydrogen as an internal combustion fuel, but found it difficult to accept that hydrogen was produced from water on board using energy provided by a nuclear reaction. He said the car must be powered by stored hydrogen.

The skeptical scientists present at the Queensland launching said they were keen to inspect inside the car's boot but were denied the opportunity.

They expressed doubts that fusion was occurring, explaining that straightforward combustion of the hydrogen was much more likely to be the energy source: hence their desire to inspect the car's boot.

Premier Bjelke-Petersen said that the scientists did not know what they were talking about. Mr Horvath said that his power system would solve the world's energy crisis. He introduced Mr Rolf-Wilke Liebenberg, President of Roecar Holdings of South Africa, to the press. Mr Horvath said Roecar Holdings had exclusive rights to evaluate and develop the vehicle.

That was in 1980. What has happened since then?

Roecar Holdings seems to have faded from the scene, because in June

last year (1982) Mr Horvath announced he had sold the marketing and manufacturing rights to the car to other companies in Canada, the United States, Mexico and the Caribbean. The Horvath Energy system would, he said, be manufactured in Toronto by Oxin Energy, Toronto, Canada and the first hydrogen powered vehicles would be on Canadian roads by the end of 1982.

He said marketing and manufacturing rights in the United States had been sold to Oxin Energy Incorporated, which, Mr Horvath claimed, like Oxin Energy Canada was a subsidiary of the United States Company Energy Unlimited Limited.

Mr Horvath is certainly involved internationally. Horvath Energy International is listed at the N.S.W. Corporate Affairs Office as a foreign company incorporated in Hong Kong. The company was formerly known as Hong Kong Energy Research Ltd. Mr Horvath is one of six directors of H.E.I.

Mr Horvath's claims, if true, represent a giant advance in science in the use of a controlled nuclear fusion reaction in a compact engine without radiation hazards.

His claims are worthy of investigation.

OVERSEAS INVESTIGATIONS

The area I checked first was his reference to the development of the engine overseas.

A United States correspondent of "The Skeptic", science writer Kendrick Frazier, first checked Standard and Poor's Register, a major reference of about 40,000 United States corporations. It did not list Oxin Energy but it did list Energy Unlimited as a company based in Connecticut, and engaged in "energy production and the distribution of micro utilities."

I wrote to Energy Unlimited and received the following reply;



(letter printed reduced size. letter denies link between Oxin and Energy Unlimited)



**ENERGY
UNLIMITED, INC.**

50 Harvard Street, P.O. Box 10
New Britain, CT 06050
(203) 223-2717

August 31, 1982

Mr. Mark Plummer
Chairman
Australian Skeptics
G.P.O. Box 1555P
Australia 3001

Dear Mr. Plummer:

This is in reply to your letter of August 25 received by us on August 30. I mention the dates that you sent the letter and the day I received it because that is faster than we sometimes get mail between local cities in this country.

As to your question concerning our company, please be informed that Energy Unlimited has no subsidiary named Oxin Energy either in the U.S. or Canada. We have one active subsidiary by name of Lawrence Park Heat, Light and Power Company and one which is inactive by name of Tri-State Energy, both being New York State corporations. I have never heard of Stephen Horvath, and I can only assume that there might be another company in this country by the name of Energy Unlimited, Ltd.

I also might add that our company, Energy Unlimited, Inc., was changed from Energy Unlimited, Ltd., approximately three years ago, so it might be conceivable that another company took the name, Energy Unlimited, Ltd., but I have never heard of it.

I trust that the foregoing will clarify our non-status with your situation.

Very truly yours,


Sidney H. Berson
President

SHB/mar

The "Skeptic's" Canadian correspondent, Professor James Alcock of York University in Toronto, located OXIN Energy, Canada Ltd, a company incorporated in Ontario in 1974.

Its original director was William Kajdocsy of Ontario Canada. On January 6th 1982 four more Canadians became directors and the following day Stephen Horvath became a director.

The Company Service branch of the Ontario Registry of Consumer and Commercial Relations, state that they have no record of Energy Unlimited.

Mr Leafloor, the Controller of Records of the Companies Services Branch of the Ontario Ministry of Consumer and Commercial Relations stated that their searches do not contain information regarding

shareholders or financial statements.

Professor Alcock visited OXIN's office and spoke to Mr Bill Kajdocsy, the President of Oxin Energy, who was quite wary about the whole thing. He admitted that he was licensed to produce the car, and hoped to have one on the road by the end of the year (1982), but did not want publicity.

Professor Alcock found Oxin Energy to be a very small operation and certainly not a major automobile production and testing plant.

Mr Kajdocsy announced in January of this year that the Canadian Government was testing the car. Professor Alcock could find no evidence of this.

Professor Alcock and Kendrick Frazier forwarded their early findings

to Australia in 1982 and followed with more in early 1983. By early 1983 we were keen to discuss our research with Mr Horvath. It was possible that he could clear our doubts by supplying;

(i) The address of the other United States company named Energy Unlimited, which if it exists was claimed to be the parent company of Oxin;

(ii) The name and location of the Canadian Government Department testing the car;

(iii) The capacity of Oxin Energy to develop and test the car;

(iv) Details of the involvement of the original rights holder, Roecar Holdings, South Africa.

REQUESTS FOR INTERVIEW WITH HORVATH

I therefore asked an Australian Skeptics Sydney member, Harry Dillon, to interview Mr Horvath. Harry Dillon is a member of the Australian Journalists Association and works for leading media organisations in Sydney.

Mr Horvath proved to be very elusive. First Harry Dillon contacted him by phone and managed, after

explaining briefly the nature of Skeptics' activities, to arrange an interview for five weeks later - the earliest that Mr Horvath said he was available.

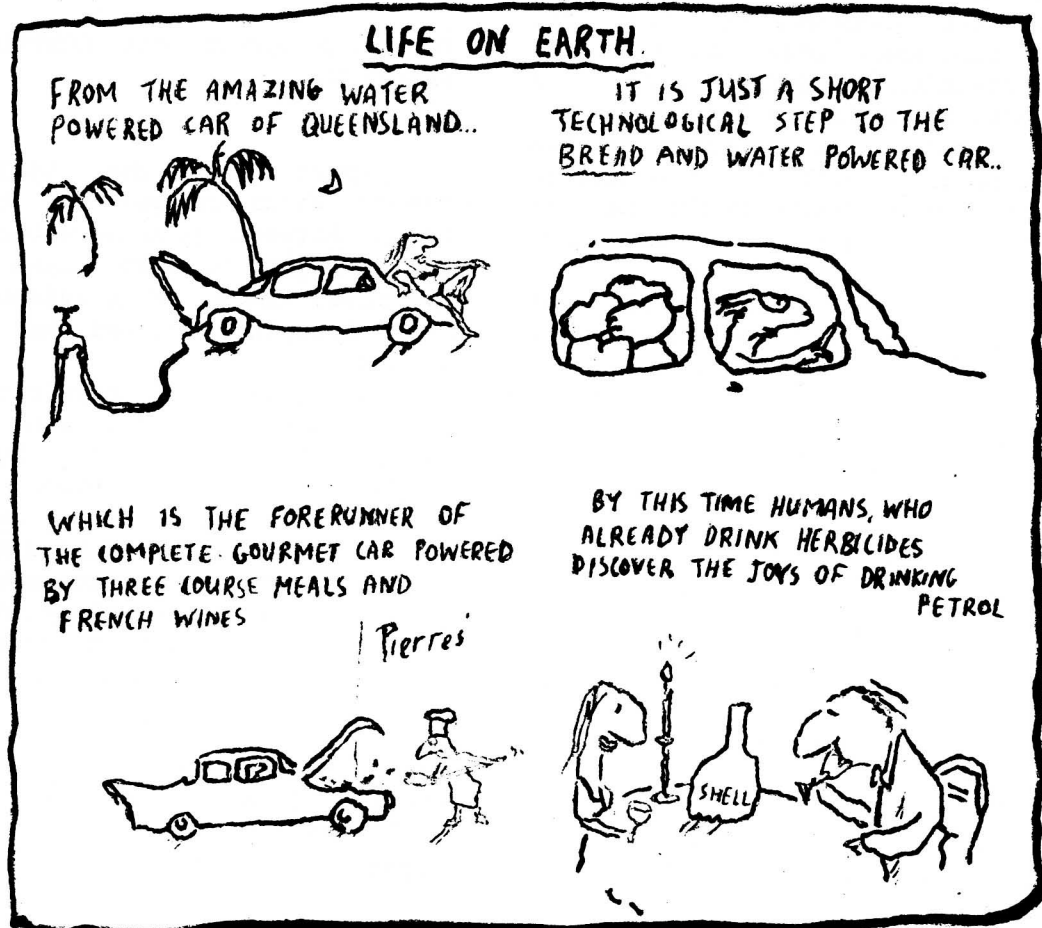
The day before the interview was to take place Horvath's office called and said the meeting was off because the Horvath organisation had been unable to establish the bona fides of the Australian Skeptics.

At Dillon's request I therefore wrote to Mr Horvath in May, setting out the bona fides of Harry Dillon and the Australian Skeptics and seeking an early interview.

My letter was sent by registered mail and it appears Mr Horvath himself signed the receipt for the letter. In the letter Mr Horvath was told we had interviewed the President of Energy Unlimited of Connecticut and Mr Kajdocsy in Toronto, so that all we needed to complete our research was to interview him.

We received no reply.

Harry Dillon also sent a copy of "The Skeptic" to Mr Horvath and was then told over the telephone by Mr Horvath himself that the meeting would be back on.



Mr Horvath told Dillon to ring again to arrange a date, but each call over the following two months was unsuccessful.

On at least six occasions Harry Dillon left a phone number on which he could be contacted, but there is no record of Mr Horvath attempting to reply.

In early August Harry Dillon sent Mr Horvath a list of questions relevant to this article, asking him to reply in writing. No reply was received.

As a last resort the list of questions was again delivered to Horvath's office, but as yet there has been no reply to Harry Dillon or Mark Plummer.

Thus at the time of writing (14/10/83) Mr Horvath has not made himself available to us for interview.

However, we do have other evidence on which we can consider the likelihood of Mr Horvath's claim that his invention will solve the world's energy problem.

IS HYDROGEN A VIABLE FUEL FOR CARS?

Professor Hans Forster of West Germany's Daimler Benz company visited Melbourne in 1980 and has released a paper on his government's test and research programme into the viability of alternative fuels such as electricity, alcohols and hydrogen.

This states that hydrogen powered cars have special problems relating to refuelling, one of which would be the necessity to carry a large and heavy hydrogen tank.

Current research indicates that filling the fuel tank with hydrogen requires up to ten times as long as filling fuel tanks with conventional fuel. The hydrogen gas has a very low density, and a suitable storage tank would take up most of the passenger and luggage space in the car. It is highly explosive and with its low density can leak through any except the most specialized container. If liquid hydrogen is used almost half the available energy is lost in cooling the gas, with the added problem of 50% evaporation over an average of nine days storage.

Liquid hydrogen must be stored at -253°C at a pressure of 12.5 atmospheres. This means great expense

in establishing a network of filling stations - far more complicated than for liquid petroleum gas (LPG).

In Japan the Sumitomo group of companies has developed a hydrogen powered car by storing the gas in a metal alloy. The companies have no plans to proceed with production of a hydrogen powered car for one simple reason - hydrogen costs ten to eighteen times as much as petrol, diesel or liquid petrol gas.

While it might sound marvellous to run a car on alternative fuels such as hydrogen, alcohol, or sugar cane, the simple drawback is that the alternative fuel is currently not as cheap as conventional fuels currently in use. Some alternative fuel may have a future if the cost of conventional fuels becomes higher than the cost of the alternative fuel.

Mr Horvath claimed that his car could solve the world energy problems by using water and converting it to hydrogen which is then used in a process of controlled nuclear reaction.

If Horvath has been able to create a controlled nuclear reaction, then sufficient power would be available to extract hydrogen from water and hydrogen storage would not then be a problem.

DOES THE HORVATH CAR CONTAIN A NUCLEAR REACTION?

Apart from the Bjelke-Petersen "test" which assumed that there is a nexus between pouring water into the petrol filler hole and then seeing the car move, what other evidence is there that Horvath achieved the results he claims?

In June 1979 physicists Howard Rose and Jim Whiting went to Sydney after being asked by Premier Bjelke-Petersen to inspect the car. They carried out tests and publicly stated that they doubted Mr Horvath's claim that a thermonuclear fusion process was taking place. Mr Rose said all the known fusion processes involved the emission of neutrons and lethal radiation.

In a report dated October 1979 Professor Ken Taylor of the School of Physics of the University of New South Wales examined Mr Horvath's car. His report noted that in 1974 there were

approximately 50 cars in the world operating using hydrogen fuel. He wrote that the Horvath car fitted well into the operational efficiency bracket of 30-40% of hydrogen fuelled vehicles. Under static test bed conditions its performance is amongst the highest obtained, though not significantly better than has been achieved in other instances.

In addition to Professor Taylor's report our man in Canberra, Paul Kaufman, located the patent application for the car.

All our technical data were studied by Skeptic Ian Bryce and appear in a separate article in this issue.

CONCLUSION

The factual evidence presented in Ian Bryce's article clearly indicates that Horvath's claims of a controlled nuclear reaction goes outside all that is known about nuclear reactions, and breaks many well-proven laws of physics.

In view of the hundred of millions of dollars spent on nuclear research overseas, it is extremely unlikely that Mr Horvath's limited funds, or that such a small organisation as OXIN energy of Canada, could have financed the research and development necessary to develop and control nuclear reactions to the stage where nuclear reactions can occur inside a car without the radiation associated with known nuclear reaction processes.

Until Mr Horvath enters into dialogue, and allows independent examination of the contents of the boot and equipment fitted after Professor Taylor's test, Mr Horvath's claims clearly are of a highly improbable nature.

Premier Bjelke-Petersen will have to hope for a very long life to drive the first water-powered car off a production line in Queensland.



OOPS!... That old "Horvath" car must've been a bomb!!!

THE AUSTRALIAN SKEPTICS is the Australian Section of the International Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP). Other national sections are Canada, Ecuador, West Germany, Great Britain, Mexico, Netherlands and New Zealand.

DESCRIPTION OF HORVATH'S "HYDROGEN FUSION CAR" PATENT

By Ian R. Bryce, B.Sc(Physics), B.Elec.Eng.(Hons); Committee, Inventors Association of Australia; and Committee, Australian Skeptics.

The full patent application, known as a "Complete Specification", was lodged in Australia by Melbourne patent attorneys on 12 July 1979. The applicant was Rowena Company Limited, a Hong Kong registered company. Stephen Horvath was named as the inventor, and the title was simply "Process and Apparatus".

The application waited in the queue for several years, until June 1981 when the Patent Office directed the applicant to request examination, as is normal. The formal Request for Examination, accompanied by the appropriate fee, was received by the patent Office in September 1981.

Scrutiny by the Examiner occurred over a period of 14 months. The "First Examiners Report" was issued to the patent attorneys in November 1982. The records do not show further decisions granting, or lapsing of the patent application.

In essence, the patent defines a process where hydrogen is ionised and fed into a combustion chamber. There it is chemically burnt with oxygen. It is claimed that ionisation and other processes increase the temperature and the deuterium content, so that a nuclear fusion reaction takes place, releasing more energy than from combustion alone.

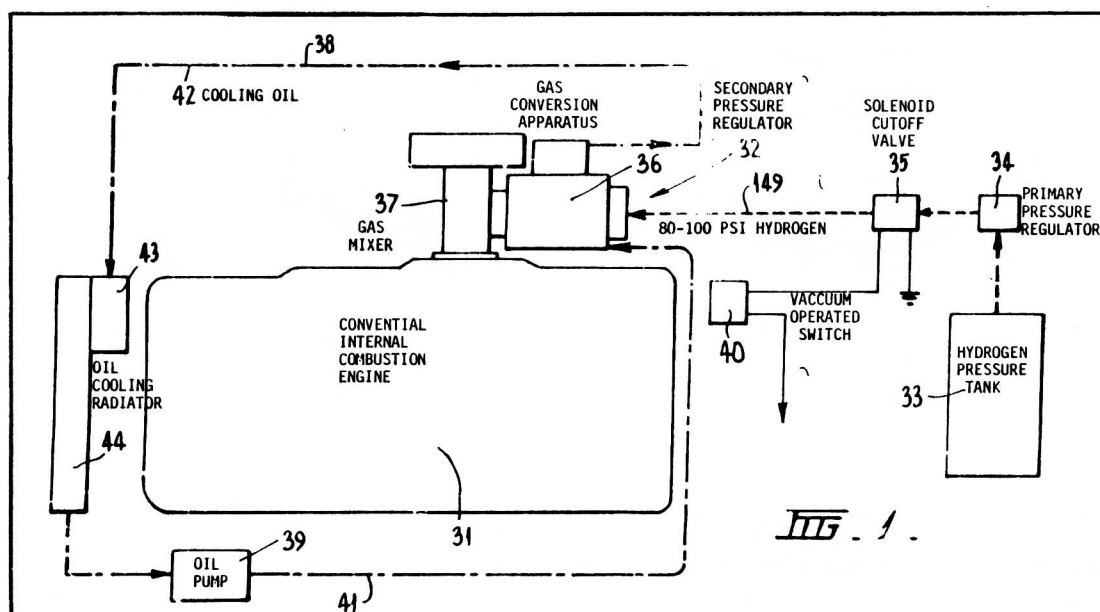
The "preferred embodiment" of the invention, the best way of carrying it out known to the inventor, is much more detailed. It describes a motor car engine, modified to run on hydrogen in a not uncommon manner, and further modified to treat the inducted gas with X-rays, neutrons, magnetic fields, electrical discharge and electrostatic fields.

CONVENTIONAL COMPONENTS OF THE FUEL SYSTEM

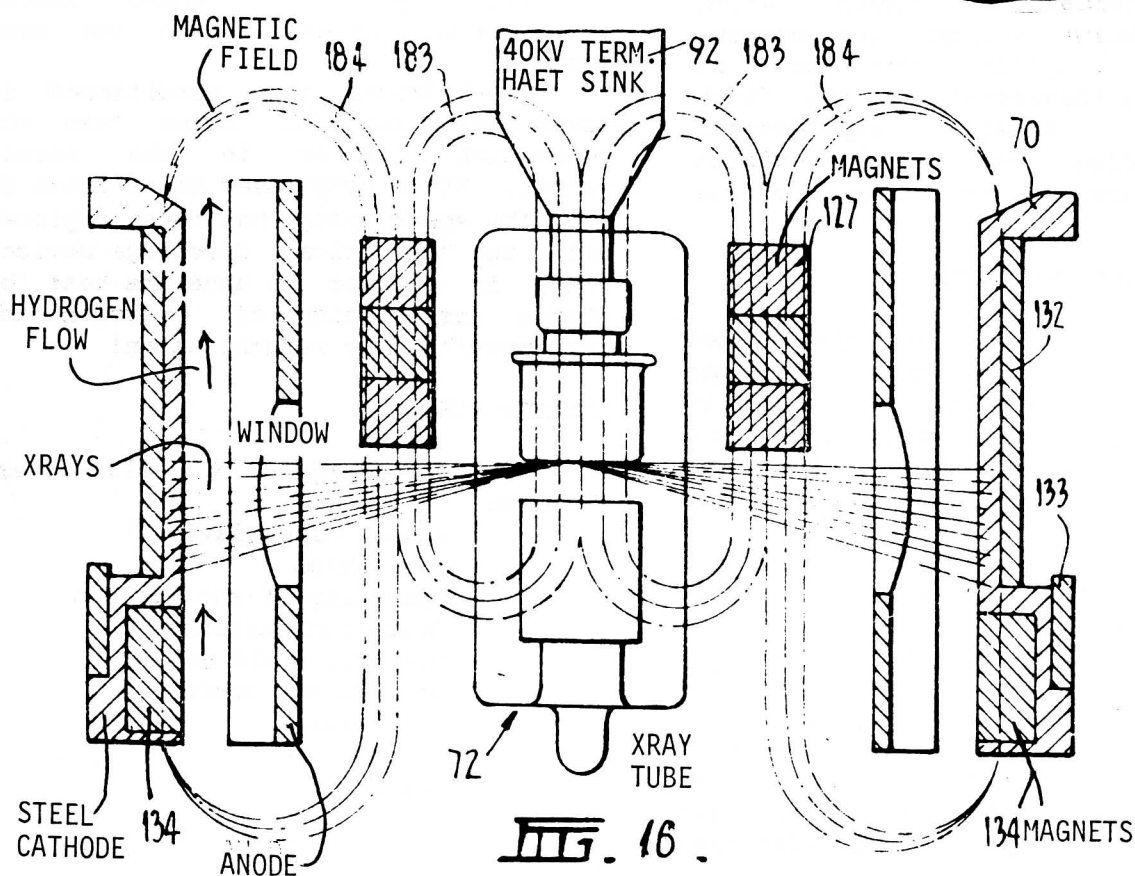
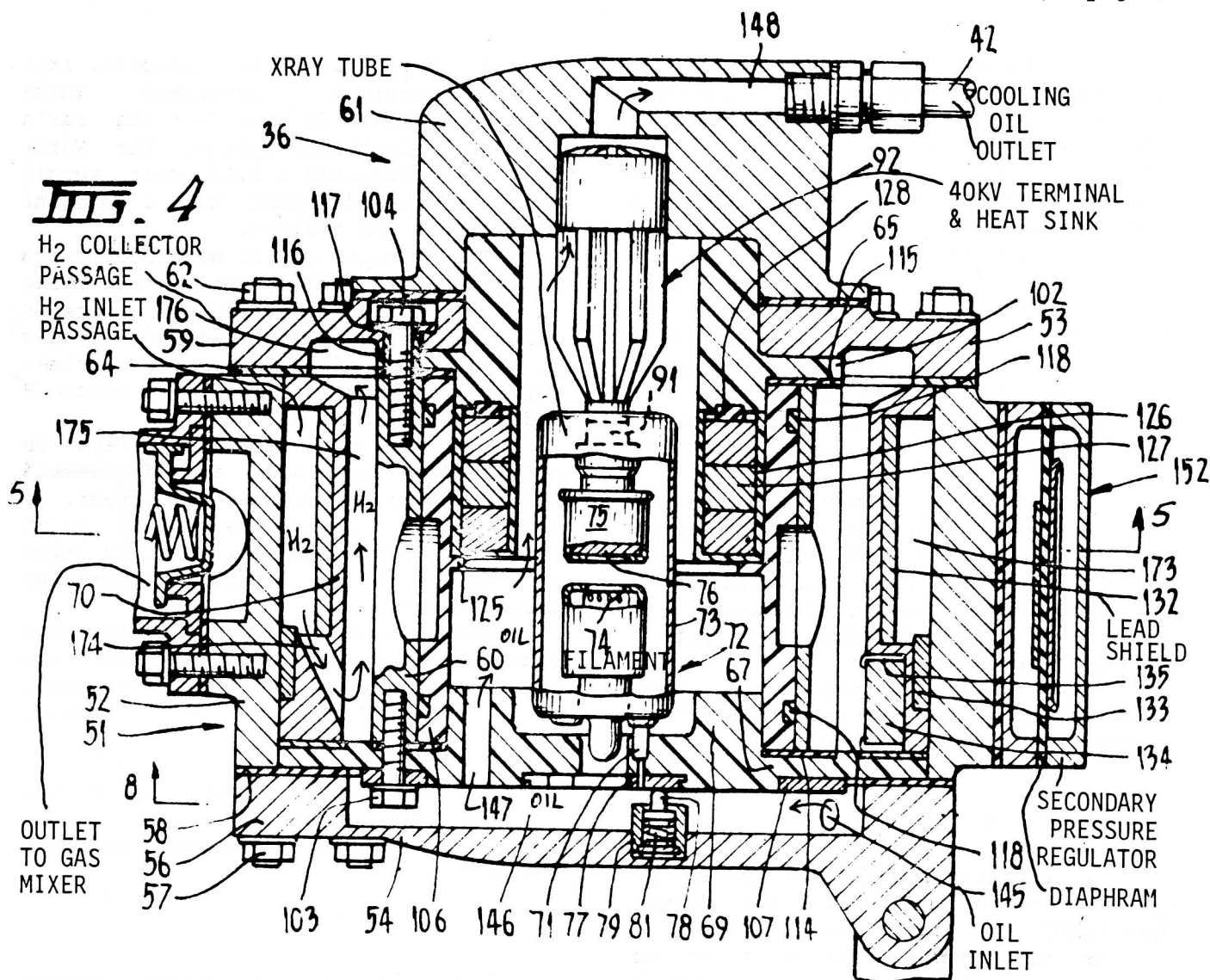
The principle of operation of petrol driven engines is modified for operation on hydrogen in a manner similar to the modification for natural gas. Figure 1 of the patent shows an overall block diagram of the fuel system.

The hydrogen is carried in a "gas tank to receive industrial hydrogen gas". It is not specified which of the three known methods of storing hydrogen is used - as a compressed gas in a pressure vessel, as cold liquid in a cryogenic (special heavily insulated) container, or absorbed in a matrix of metal hydrides. Later discussion of pressures, however, indicates the Horvath car uses compressed gas.

The hydrogen then flows through a primary pressure regulator, reducing the pressure to 80-100 psi, and a



NOTE: PATENT DRAWINGS CONTAIN ONLY NUMBERS REFERED TO IN THE TEXT. THE DESCRIPTIVE WORDS WERE ADDED BY "THE SKEPTIC".



solenoid cut-off valve. The remaining components are physically constructed as one unit, but the separate functions are described. There is a secondary pressure regulator containing a diaphragm, which lowers the pressure to 1.5 psi above atmospheric.

The hydrogen then flows through the mysterious "gas conversion apparatus" (which we will bypass for the moment). The hydrogen is then combined with air in a gas metering apparatus, which does not appear to contain any novel features and is barely mentioned in the legally important "claims".

The pressure before a butterfly valve bears on a diaphragm which opens the air passage and the hydrogen passage together. This is similar to the operation of common Stromberg and Solex constant-draft petrol carburettors.

The gas-air mixture is then inducted by an internal combustion engine, which is a normal Ford V8, but fitted with different "electrical discharge devices" which appear similar to spark plugs. As in all car engines, the gas mixture is compressed by a piston, ignited and the heat generated expands the gas and drives the piston down, thus rotating the crankshaft.

As described so far, this is an internal combustion engine which chemically burns hydrogen with oxygen, and would appear not to be significantly different from the fifty or so other experimental hydrogen-fuelled cars which existed before the time of the lodgement of the patent.

GAS CONVERSION APPARATUS

Now let us examine the device which allegedly does things to the hydrogen to make it susceptible to nuclear reaction. The patent calls it a "gas conversion apparatus", and cross sections given in Figures 4 and 16 reveal its intricate complexity. When interviewed by Professor Taylor, Horvath referred to it as a "reactor". This is strange because under the claimed operation as set out in the patent, the power-producing nuclear reaction occurs in the engine block.

In the heart of the apparatus there is a vacuum tube which generates X-rays in the common manner used for medical purposes. It is fed with high

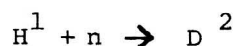
voltage electricity, 40 kilovolts, from an electrical generator which apparently draws 25 amps from the car's 12 volt electrical system. The X-ray tube also requires a 2.65 volt supply to heat the filament and a constant flow of oil for cooling.

The hydrogen gas is bombarded with these intense X-rays, which according to the patent results in some H_2 molecules being dissociated into atomic H, and some of these being ionised (given an electric charge) to become H^+ and free electrons e^- .

Further, the level of X-rays is modulated (increased and decreased) which allegedly enhances the effect. In addition, 12 volts DC is applied to an "anode" of complex shape, which is also covered in "small pyramidal sections".

The apparatus also contains two rings of permanent magnets which are claimed to focus the X-ray photons, which cause "spin-flip" of the hydrogen nuclei.

Not only that, but the X-rays are said to generate neutrons, which are trapped by the hydrogen nuclei (protons) to form heavy hydrogen (deuterium):



The physics of these exotic processes will be examined in the next section!

The hydrogen thus conditioned is mixed with air and drawn into the combustion chamber in the normal manner. It is compressed to at least 60 psi. The spark plug has been replaced with an "electrical discharge device" which is claimed to generate heat by atomic dissociation of hydrogen and then more heat by recombination!

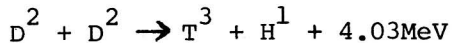
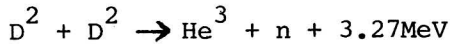
NUCLEAR FUSION.

The combination of all these effects:

- atomic dissociation
- ionisation
- spin-flip of the nucleus
- deuterium enrichment
- electric field between cathode and anode
- shock-wave
- compression
- heating

is claimed to increase the temperature (i.e. energy, or speed of motion) of the deuterium nuclei so as to cause a "controlled nuclear fusion reaction" in addition to the chemical burning in the combustion chamber.

The claimed reaction is the same as that occurring in the hydrogen bomb, where two deuterons collide with sufficient speed to transform into a helium or tritium nucleus:



Much energy (measured in mega electron volts or MeV) would be released from a small number of reactions. Copious lethal radiation would be generated in the form of neutrons, alpha particles and gamma rays.

The energy obtained by nuclear reaction would provide the heat necessary to drive the engine, it is claimed, thus reducing the amount of hydrogen needed for chemical combustion.

GENERATING THE HYDROGEN FROM WATER.

Once this nuclear reaction was established, providing abundant energy with little consumption of hydrogen, then it would be a simple matter to use this energy to extract hydrogen from water on board the car. In the patent, this feature is only mentioned in passing but no doubt forms the basis

for Horvath's repeated claims in the press that his car "runs on water".

CONFLICTS WITH THE LAWS OF PHYSICS.

There are many areas where the detailed description of the operation of the engine as described in the patent is inconsistent with well-understood and verified natural laws. A textbook such as "Introduction to Nuclear Physics" by Harald Enge describes the conditions under which the various nuclear processes occur.

Questions relating to magnetic fields and electromagnetic radiation may be referenced in "Classical Electrodynamics" by J.D. Jackson. The following is a summary of the aspects of the patent application taken alone which are at variance with the accepted laws of physics.

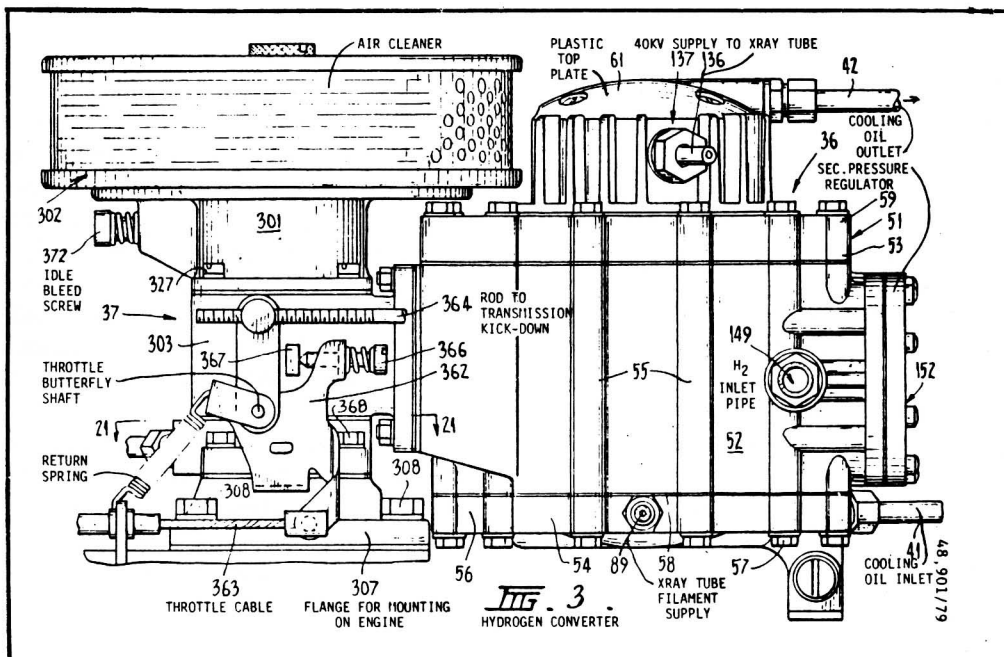
1. The patent application reveals a lack of knowledge of magnetic fields and their effects. Magnets within the gas converter are described on page 2, and the resulting magnetic field is shown in Figure 16.

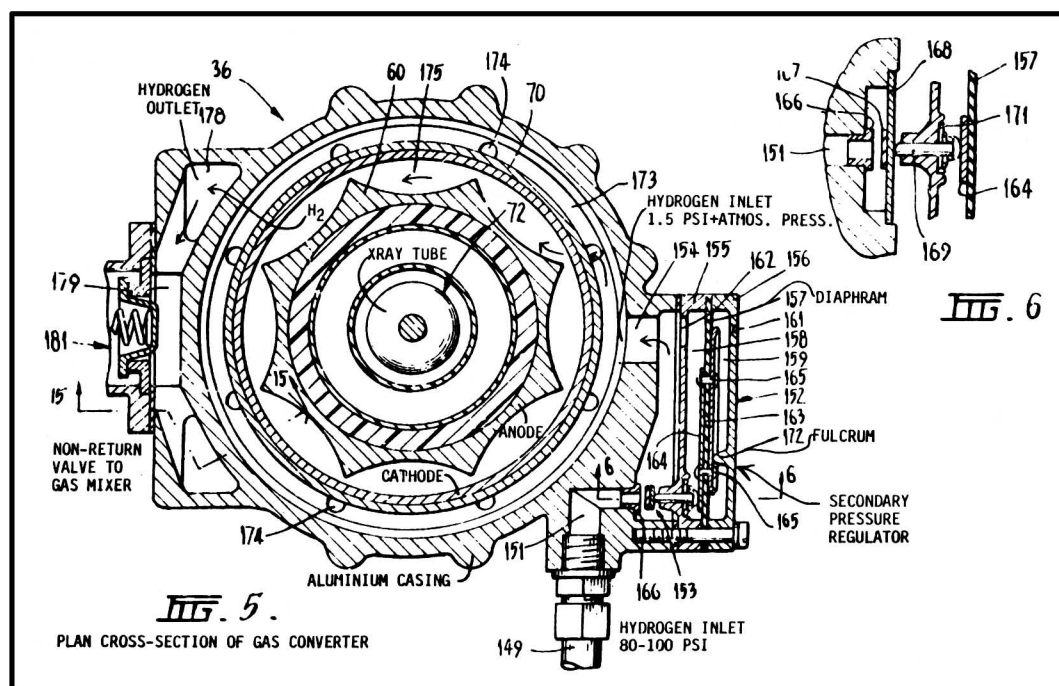
(a) The configuration depicted consisting of straight lines and circles, is not correct.

(b) Further, the magnetic lines converge to a single line in places, and this is not physically possible.

(c) Steel cathode 70 runs the full length of magnets 134, and this would short out most of their magnetic flux.

(d) The configuration is further described:





"The magnetic field lines ...pass outwardly through the annular hydrogen gas flow chamber 175 in the region where the hydrogen is subjected to intense irradiation."

But Figure 16 shows NO magnetic field in this region, and in fact the presence of steel cathode 70 would reduce the field to almost zero.

2. On page 22 the patent application states:

"In the region between the radiation tube filament and anode, the magnetic field serves to accelerate the electrons which bombard the radiation tube anode, and so contributes to the energy of the radiation produced by the tube."

This is not possible. A magnetic field cannot change the speed of electrons (i.e.) cannot change their energy), it can only bend their path.

3. The patent describes another effect:

"The magnetic field in this region thereby provides preferred paths for the radiation photons..."

In fact, the propagation of electromagnetic radiation, in this case X-rays, is not affected by magnetic fields.

4. The patent application further states that:

"...the interaction of the magnetic

field with the radiation photons produces a "spin flip" effect in the protons within the hydrogen which increases their energy level."

"Spin flip" refers to the magnetic properties of the proton (the nucleus of the hydrogen atom). The phenomenon is called nuclear magnetic resonance, and is used for scanning the soft organs of patients to diagnose disease. It is a medical benefit of nuclear research. It is described on pages 129-133 of "Introduction to Nuclear Physics".

For protons, the magnetic field B and the frequency of the electromagnetic radiation f must be related if resonance is to occur:

$$B = f/4260$$

The X-rays described on page 21 of the patent have a frequency of 3×10^{18} cycles per second, and the equation tells us that a magnetic field of 7×10^{14} gauss would be required.

Page 23 however states that the magnetic field should preferably be the order of 1800 gauss. Thus the "spin flip" phenomenon is not possible.

5. Page 22-23 refers to "short wavelength magnetic radiation". There is no such thing as magnetic radiation.

6. The legally-important "claims" state on page 49:

"... means to produce the electromagnetic field comprise permanent magnets."

This is not possible. Permanent magnets can produce only magnetic fields, and this is quite different.

7. The patent application shows a lack of knowledge of the generation and absorption of neutrons. Page 21 claims:

"The creation of this high flux of photons (i.e. X-rays) is associated with the release of large numbers of neutrons within the tungsten target of the radiation tube..."

The X-rays are generated by deceleration of electrons, which were reportedly accelerated by a 40 kilovolt power supply (not much higher than the 25 kilovolts used in colour televisions to propel electrons towards the screen). It follows that each X-ray photon contains no more than 40keV of energy.

The energy required to liberate a neutron from various nuclei is given on page 150 of "Introduction to Nuclear Physics". For tungsten, with mass numbers ranging from 180 to 186, the energy required is 7MeV (mega electron volts), and the process could be achieved with irradiation by photons of this energy (i.e. gamma rays). The reported radiation, X-rays of 40keV (kilo electron volts) fall far short of the required energy.

8. Page 23 describes the effect of this alleged neutron flux:

"Moreover, because of nuclear capture of neutrons associated with the radiation beam, the ionised hydrogen gas which is produced will comprise a much higher proportion of deuterium (i.e., deuterons) than in naturally occurring hydrogen (i.e., greater than 0.0156%)."

If indeed neutrons were generated, they must be slowed down by a moderator before they can be absorbed by nuclei. In Uranium-fuelled power reactors, water or boron is used. Hydrogen gas has a very low density and the neutrons must pass through several metres of it to be slowed.

In the small apparatus depicted, most neutrons would escape outside without being slowed or absorbed. The neutron flux would be easily detected and would also be lethal to people.

9. The engine itself is described on page 38:

"It may, for example, be a normal V8 motor vehicle engine except that it is fitted with special electrical discharge devices in lieu of normal spark plugs."

The devices are depicted in Figures 27 and 28 of the patent, and closely resemble special spark plugs which were widely advertised in the 1960's. Conventional spark plugs are also electrical discharge devices, and the devices depicted in the patent would function in the same manner.

10. The effect of the electrical discharge is claimed to:

"...generate heat by dissociation of hydrogen molecules to form atomic hydrogen and subsequent exothermal reassociation..."

They can't have it both ways. If breaking up of molecules into atoms generates heat, then the reverse process must re-absorb the same amount of heat. This claim of energy gains around a closed circle is a typical claim of perpetual-motion machine proponents.

On page 42 the efficiency is discussed:

"For normal hydrogen combustion, the theoretical maximum efficiency is approximately 25%..."

In fact there is no such theoretical limit. Further, Professor Taylor's report described already existing hydrogen vehicles, several achieving 36% and 40% efficiencies.

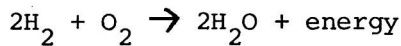
Thus many of the processes described in the patent are not in accordance with the laws of nature. We have also shown the patent application to several physicists at universities, who are Skeptic subscribers, and they also have observed that the processes are not possible.

NUCLEAR REACTION

Let us now address the major question of whether a nuclear fusion reaction inside the engine is possible.

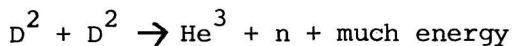
Chemical reactions are occurring all around us (and indeed within us). They involve the bonding of atoms into molecules by overlapping or interaction of the electrons only - the nucleus of the atom is never affected.

The most violent chemical reactions - combustion and explosion - can be used to turn motors and propel bullets and rockets. When gases burn they can produce temperatures of several thousand degrees. Hydrogen burns with oxygen to form water vapour:



Nuclear reactions, on the other hand involve joining or splitting of the nucleus itself. As all nuclei have a positive charge, and like charges repel, it is extremely difficult to initiate a nuclear reaction.

For example, two heavy hydrogen nuclei (deuterons, each containing a proton and a neutron) must be forced together to a distance of about one-thousandth the diameter of an atom, before the nuclear force comes into play and a joining together or fusion is possible:



For this to happen, the deuterons must be driven together with immense speed to first overcome the electric repulsion of like charges. This is equivalent to saying that the hydrogen is extremely hot - in fact, temperatures of over 3 million degrees are needed (perhaps only for an instant).

These temperatures are reached in the sun, and also in the hydrogen bomb, which is triggered by a uranium or plutonium bomb. Scientists in the world's biggest research laboratories are trying to create a fusion reaction using immense plasma generators and enormous lasers. They seem to be approaching success.

So what are the chances that Mr Horvath has succeeded inside a Ford V8 motor car engine? Burning gases can produce temperatures of several thousand degrees. Horvath's patent claims that the exotic processes occurring inside his "gas converter" somehow overcome this limitation.

Professor Ken Taylor, of the School of Physics, University of New South Wales, was a consultant to advise on the Horvath car in 1979. He studied the processes verbally claimed by Mr Horvath, but concluded that the temperatures required for fusion could not be reached. Further, the flux of

neutrons and other lethal radiation which would result from fusion were not present. His measurements on the car were consistent with the chemical burning of hydrogen obtained from the pressure tanks in the boot. The Skeptic spoke to Professor Taylor in October 1983 and he affirmed these findings.

Prominent academics agree that there can be no nuclear reaction in the Horvath car.

Three Queensland University physics department staff, Professor J.D. Whitehead, Professor F.D. Stacey, and Senior Tutor G.J. Tuck commented on the suggestion that the nuclear fusion of deuterium (heavy hydrogen), as distinct from hydrogen burning chemically, is being used as an energy source in a motor car engine.

The nuclear fusion reaction occurs naturally in the sun and man has produced it in the hydrogen bomb and is attempting to do so in large scale laboratory experiments.

The major difficulty is that the hydrogen must be heated to a temperature of several million degrees, an achievement generally regarded as quite impossible inside the engine of a motor car, they concluded.

Thus, on the evidence of Horvath's patent and the assessment by scientists, his claim to have a nuclear fusion car cannot be supported.

ACKNOWLEDGMENTS

The two Horvath Car articles involved many people in research, writing and checking. Thanks to Chris Collier and Dave Underwood for supplying newspaper clippings, to Kendrick Frazier and Professor James Alcock for overseas research, to Dr Dave Wheeler and other physicists at universities in Queensland and New South Wales for checking the draft text and their useful suggestions, to Barry Williams and Dr Dave Wheeler for their assistance, to Paul Kaufmann for locating the patent application, to Harry Dillon for his efforts in trying to interview Mr Horvath, and to our honorary legal adviser, who cannot be named for ethical reasons, for checking of the articles in respect of copyright, accuracy and defamation. M.P.

PARANORMAL AUSTRALIA

PSI-QUOTIENT TEST

It takes months of tests and experiments to assess an individual ESP ability according to the Sydney "Sun". However the reader can discover their own "Psi-Q" or "Psychic Quotient" by completing the "Sun's" 20 question test published on 1st September.

(Sun 1st September 1983)

COME AS YOU WERE PARTY

This month the newly-formed Australian Psychic Association are holding a reincarnation party - Come as you were so as to speak. The Association did not make it clear which one of your past lives you should come as.

(Mirror 8th September 1983)

POLITICAL HOROSCOPES (AGAIN)

In a report on Victorian Opposition Leader Jeff Kennett, journalist Peter Blazey is able to put his finger on just what makes Kennett unusual...

"What makes Kennett unusual is that, unlike many of his generation pushing 40, he is a right wing Aquarian which could explain his failure to gain admission to university."

(Australian 1st October 1983)



CANCER HEALER? TOUR

Matthew Manning, exposed by Randi as making false claims, is on tour in Australia. He is supposed to accelerate the death process of cancer cells in a test tube from 200 to 1,200 times and to increase both the percentage of seeds germinating and the rate of growth of seedlings. He can also cure arthritis, heart disease, allergies and deafness.

(Unfold Publications Spring 1983)

ABORIGINAL CURSE CLAIMS

15TH VICTIM

Residents of Babinda (Qld) were not surprised when an American drowned at a nearby waterhole on Sunday 23rd September. They said he was the victim of an aboriginal curse blamed for the deaths of at least 14 young men. According to legend the waterhole is haunted by the spirit of a young aboriginal woman who threw herself into the waterhole after a broken love affair. The local police have a record of 15 young men drowning at the hole since 1959. Fortunately none of them were local residents.

(Sydney Morning Herald
27 September 1983)

WE ALL HAVE ESP

According to "New Idea" we all have ESP and can develop it by some simple exercises. The anonymous article quotes unspecified recent research that ESP is not confined to any one class of people or any stage of intellectual development. Children are more psychic

than adults but tend to lose their ability as they grow older.

The article lists some dos and don'ts for aspiring psychics such as not using your psychic gifts to gain power over others.

(New Idea 3rd September 1983)

CLAIRVOYANCE NO HELP

by Paul Nichols

Readers may have noticed something in the press about the trial of a Ms Zahradnik, a defendant in Western Australia on a charge of pretending to tell fortunes contrary to s.66(3) of the Western Australian Police Act 1892. The matter went to appeal as the case of Zahradnik v. Bateman (30 November 1982) before Judge Olney.

It is necessary to say something about the charge and its background. In 1736 the Imperial Parliament enacted the Witchcraft Act, which was designed to replace the somewhat drastic penalties for witchcraft of previous reigns. Witchcraft trials had fallen under official disapproval in the early 17th century owing to the skeptical attitude of King James I.

Despite an enthusiastic revival during the Commonwealth, such trials continued to attract such little official enthusiasm that they eventually ceased. There remained the problem of what to do about the person who purported to have and use such powers, and, in particular, purported to use them for gain. Clearly the old penalties should not be exacted, if for no other reason than the earlier statutes assumed that the powers of witches were genuine. Parliament's answer was to enact a statute that repealed all the older ones but penalised people "pretending to tell fortunes". In due course a very similar provision was introduced into Western Australian law by the Police Ordinance 1849. It is now s.66(3) which reads:

"Every person pretending to tell fortunes, or using any subtle craft, means, or device to deceive and impose upon any person..."commits an offence).

There have not been many prosecutions under the section, but in recent years the Western Australian police have used it to prosecute persons who tell fortunes for money. The facts of the present case was described by Mr Justice Olney as follows:

... Jessica Anne Booth, a plainclothes police constable, went to the appellant's premises in Bayswater where she spoke to the appellant, asked if she could tell

her fortune and was given an affirmative answer. An appointment was made for later in the day and a fee of \$10 was mentioned by the appellant. Subsequently the appellant, with the aid of some cards and a scarf, made certain statements about the affairs and personal life of the police officer as well as making certain predictions as to future events in her life. It appears that most if not all of the things said of the police officer which had occurred in the past were accurately told. The appellant was nevertheless convicted of the charge and appealed on a multiplicity of grounds which can, in effect, be reduced to the single ground that she did not "pretend" to tell the police officer's fortune but rather she DID tell the police officer's fortune.

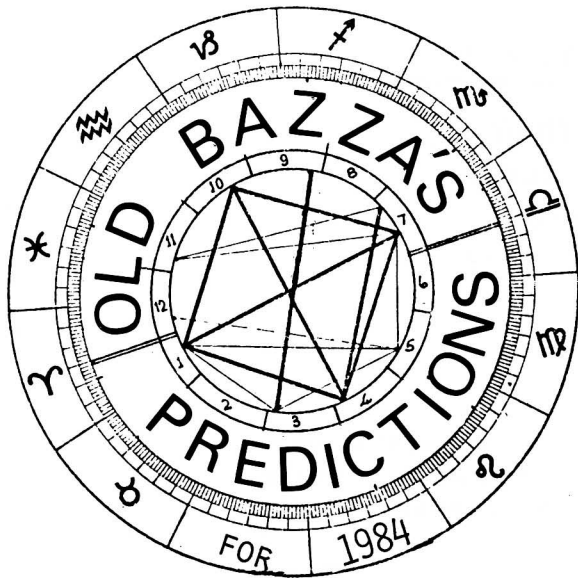
It will be noticed that His Honour Mr Justice Olney said nothing of the appellant's failure to divine that her customer was a policewoman, and that she was seeking evidence for a subsequent charge. Rather more importantly it does not seem to have been argued that section 24 of the Western Australian Criminal Code, which exculpates defendants in certain circumstances where they have an honest any reasonable but mistaken belief in a state of affairs, might apply. The appeal seems to have been argued only on the substantive ground cited by His Honour Mr Justice Olney. Certainly he mentions no other.

The principal Western Australian case on the point, *Isherwood v. O'Brien* (1920) 23 Western Australian State Reports 10 was argued without consideration of the Criminal Code provision and the principal South Australian case, *Partridge v. Samuels* (1976) 14 South Australia State Reports 209, which is generally thought to confirm the reasoning in *Isherwood v. O'Brien*, occurred in a state where there is no Criminal Code.

His Honour Mr Justice Olney therefore held, in the words of the case of *Isherwood v. O'Brien*, that:

"The offence would be complete even though the defendant brought evidence to show his belief in his power to

Continued on page 17



As the fateful year of 1984 looms nigh, and the season of prediction is at hand, Barry Williams, Chairman of the N.S.W. branch of Australian Skeptics, has looked deeply into the entrails of a portion of Mongolian Lamb and the dregs of a 1973 Hunter River red. The following startling revelations are the results of Barry's studies, which he claims to have been 100% accurate in the past and which he claims will have a similar or better rate this year.

1. There will be a major transportation tragedy in Australia this year.*

2. A political leader will lose his position during the year.

3. At least one Royal Commission will be set up in 1984. Q.C.s throughout Australia will rejoice.

4. A Sydney afternoon newspaper will have a headline stating "U.F.O. Scare", or "Yowie attacks Clergyman", or "Economists Agree" or something similar.

5. Thousands of Australians will be duped by astrologers, numerologists, seers, psychics etc.. Consumer Affairs Departments will do nothing about it.

6. A T.V. network will promote a new mini-series as "the most important event in television history". The series will be exactly the same as all the rest.

7. The winner of a major sporting event will not be presented with his/her trophy by the Prime Minister. The auspices are not exactly clear on this, but the event is believed to be the Gullargambone Goanna Grand Prix.

8. A major strike will disrupt petrol / trains / electricity / airlines / or the steel / building / greyhound racing industries. Probably all of them.



9. Mr R. Holmes a'Court or Mr A. Bond or some other Western Australian millionaire will take over, or attempt to take over something.

10. The Sydney Harbour Bridge will not collapse, stranding thousands of commuters.

11. Stock markets throughout Australia will wildly fluctuate, for no apparent reason. Stockbrokers will not be surprised.

*This will probably be the N.S.W. Railways deficit.

tell fortunes. If the legislature forbids a thing, it matters not if the defendant believes he can do it."

But s.66(3) was enacted in its present form in 1892. The Criminal Code in its present form was enacted in

1913. Lawyers will regret that the matter of the Criminal Code was not put to Mr Justice Olney.

There the matter stands: an ending unsatisfactory to both occultists and lawyers, but one predicted by neither.

The Project Alpha Experiment Part 2. Beyond the Laboratory

Some scientists learn from their errors, others refuse to. The press makes wild claims, a professed 'expert' fails the test, and the hoax is disclosed.

James Randi

In Part 1, James Randi told the story of the first two years of his Project Alpha experiment, in which two young magicians posing as psychics were introduced into the newly created McDonnell Laboratory for Psychological Research at Washington University, St. Louis, to test the scientists' ability to detect trickery. During these first two years they were able to pull off tricks nearly at will that impressed the researchers as psychic facts. Our story now resumes at a point after Randi showed lab director Peter R. Phillips evidence of trickery on the video tape of Shaw and Edwards being tested in the lab. —ED.

Upon returning to the McDonnell Lab, Alpha subjects Steve Shaw and Michael Edwards discovered that there had been big changes in the protocol. They called me in great excitement and announced that conditions were now such that they were unable to use simple trickery. In the fuse test, for example, they were no longer permitted to handle the test objects. In fact, there was now a cover over the fuse-holder, so manipulation had become impossible. Each fuse was marked with a distinctively colored lacquer and, when they tried to locate the source of that lacquer, they found that it had been locked up. As they described the changed conditions to me, I realized that Peter Phillips had initiated exactly the precautions I had suggested to him at our meeting in Syracuse.

I had suggested, for example, that the marking of items should be done on both a micro- and a macro-scale. This was the system I designed to be used when Chris Evans, David Davies, and I tested "psychic" Jean-Pierre Girard in France for *Nature* magazine. The cylindrical metal bars used on that occasion were boldly marked with variegated colored stripes running the length of each bar, applied with indelible felt-tip markers. Thus no substitution of bars was possible, and rotation along the major axis to reveal a previously attained bend—the means by which Girard usually accomplished his trick—would be immediately visible. Final identification of the samples was made by means of very tiny scratch marks made under high magnification, much like fingerprints. Girard completely failed this careful set of tests.

Upon hearing this report, I was elated, as were the boys. The McDonnell Lab personnel had listened to advice, and reformed accordingly. The fuse test was not the only thing that had been revamped. A totally different attitude prevailed at the lab. The boys felt that from then on they would have a difficult time getting around the protocol. But parapsychologists outside the McDonnell Lab were eager to involve the boys in psi-testing, and we were willing to accommodate them.

Actually, Steve and Mike had been visiting other investigators for some time while still involved at the McDonnell Lab. Two of them, Dr. Berthold Schwarz and Professor Walter Uphoff, are known to maintain high profiles in the media espousing any and all psychic wonders. Both were quoted rhapsodizing about Shaw and Edwards in the *National Enquirer*, while much more sober statements were given by the McDonnell Lab. When being interviewed by the *Enquirer* Edwards asked the

reporter if he was really sure about the phenomenon he was writing about. Said the reporter: "Mike, I don't have to believe it. All I need is two professors to tell me it's true and I have a story!"

Schwarz produced a 51-page paper for the *Journal of the American Society of Psychosomatic Dentistry and Medicine* titled "Taming the Poltergeist," in which he reported on experiments conducted by him at his home and at the National Institute for Rehabilitation Engineering (NIRE) in Butler, New Jersey, using Steve Shaw as the subject. Actually, the experimenter was Shaw; Schwarz was the subject.

There are dozens of "experiments" described, laced with psychiatric observations attempting to explain why events occurred the way they did. Every creak, pop, movement, and unexpected event that took place—even after Shaw had left the scene—was attributed to his magical influences. And amid all this, Schwarz kept encouraging Steve to use his powers to heal the sick—especially a close relative of Schwarz. Steve tried everything he could to talk that person out of dependence on magic, but to little avail.

At one point, Steve was given an 8-mm motion-picture camera and was asked to shoot some film of Donald Selwyn, the director of NIRE. When it was developed, a strange amorphous "swirl" was found in the center of some frames, and psychiatrist Schwarz discovered in that swirl: some moving faces, a Jesus portrait, a UFO, a woman's torso, nipple, breast, and thigh, and even a baby being born! "The swirl," reported Schwarz, "followed Selwyn around the parking lot." Though no one there was able to figure out how these shapes had gotten on the film other than through paranormal means, Steve explained to me that he'd simply spat upon the lens!

It is interesting to quote from that study of Schwarz. Writing of those who would deny the validity of what he was describing and calling for dependable observers of these wonders, he said, "... it would be desirable to have sophisticated conjurors and gentlemen ... like W. E. Cox, [who] in addition to being a highly trained engineer is also a leading parapsychologist and expert conjuror. Consulting conjurors whose probity, ethics, and claims about themselves have not been verified and have seemingly sought publicity with poorly documented sensational charges and challenges should be avoided." I disagree with the first statement, but agree with the second; if Schwarz can produce such a person for me, I will personally tar and feather the scoundrel.

Both Uphoff and Schwarz depended upon William E. Cox, an amateur magician and enthusiastic psi devotee, for design of their security systems. Cox appeared at both the Syracuse ('81) and Cambridge ('82) Parapsychological Association conventions and showed his now-famous "SORRAT" (Society for Research in Rapport and Telekinesis) films in

Scientists are testing a 19-year-old psychic with dazzling mental abilities — he can bend metal, make objects move and generate an electric current using only the incredible power of his mind.

Mike Edwards, a student at the University of Iowa, has been performing his amazing mental feats in tests at Washington University in St. Louis and at a psychic research laboratory in Oregon, Wis.

"He is certainly one of the strongest, most exciting psychics in the world," declared Prof. Walter Uphoff, a parapsychologist and psychic investigator who conducted the tests on Mike in Wisconsin.

"I would rate him with the world's best psychics. He has passed all kinds of stringent tests before 18 people, including metallurgists, physicists and psychiatrists.

"He bent metal that was in other people's hands, including a key and a piece of metal sealed in an envelope. A six-inch-long fork my wife was holding bent in her hands — an arch of about 40 degrees. And Mike never even touched it."

Other metal objects bent by Mike bent



AMAZING Mike examines a spoon he twisted with his mind.

One of World's Best Psychics — At Age 19

ing his hand over it. He also located the electric current passing through a fuse so that the fuse blew out, just by focusing his mental energy on it, the amazing psychic told.

"I also bent a fork without even touching it, and the whole thing was recorded on videotape," Mike revealed.

Dr. Peter Phillips, professor of physics at Washington University, made a report on all of his experiments with Mike at an annual convention of parapsychologists at Syracuse University last August. "We are encouraged by our work with him," Dr. Phillips told The Enquirer. "We

Article in *National Enquirer* about Mike Edwards, quoting Uphoff (January 19, 1982).

which a deck of "sealed" ESP cards is seen to emerge from its box, shuffle and sort itself, dance about, and return to the box. The whole farce took place inside a "sealed" aquarium (like the one used in the McDonnell Lab tests) that Cox designed and built. At both conventions, most of the parapsychologists were convulsed with laughter upon seeing Cox's circus. One shouted out, "Where's George Pal?"—a reference to the old "Puppetoon" animated films of a few years ago. It seems there is a point beyond which even dedicated parascientists cannot maintain belief.

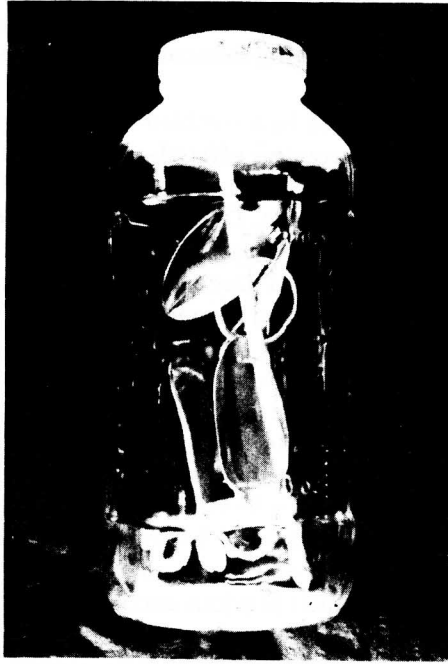
John Thomas Richards, Ph.D., is the man behind SORRAT. While visiting in Phillips's lab along with the Alpha subjects, Richards had levitated a small, light folding table—and photographs were taken. One of them revealed a very prominent thumb (attached to Richards) under the edge of the table, a fact that was called to the attention of the lab personnel by the Alpha boys. The researchers mumbled a bit, but said nothing more about it. Richards is fond of producing "spirit raps" with his foot, and the Alpha boys found it a hilarious sight as learned people stared at the floor whereon Richards stood, their mouths agape, while thumps came from a clearly moving foot. On another occasion, a video-tape record showed Richards and his wife as they approached a spoon on the lab table, blocked it with their bodies, and walked away again. The spoon was seen to have developed a paranormal bend while shielded from view.

(On March 22, 1982, Phillips sent out a notice disclaiming any validation by the McDonnell Lab of events that took place there involving Richards. The SORRAT book clearly implies support of the McDonnell Lab for "miracles" that occurred within the "sealed" bottles Richards supplied for the Alpha boys to work with. He claimed that pipe-cleaners twisted themselves into human figures while Shaw merely stared at them from across the room. Needless to say, Shaw understands quite well just how the twisting took place. The "mini-labs" (bottles) designed and prepared by William E. Cox and declared by him to be foolproof were easily opened and re-closed.)

While being tested by another believer, Professor Otto H. Schmitt of the University of Minnesota, the boys had an inspiration. Schmitt had supplied them with a few tiny, cheap digital watches—the type that are permanently sealed. He'd asked them to alter them paranormally. Mike sneaked one out of the lab and, while having lunch in a self-service restaurant during a noon break in the tests, he placed it inside his sandwich and stuck it in the microwave oven. As expected, the watch went crazy, displaying gibberish on its liquid-crystal readout. Professor Schmitt considered this to be a wonderful example of psychic force and marveled over it to the press.

Preceding the psychic picnic at Madison, Wisconsin, held by Walter Uphoff in the guise of a serious seminar, I received an inquiry from Tony Edwards, a producer for the BBC Science Features Department in London. He intended to conduct on-camera tests of psychokinetic metal-bending (PKMB) during the seminar and wanted me to design a proper protocol for him to use. I did so, and supplied a set of sealed acrylic tubes containing metal targets for the metal-benders to attempt to distort. The subjects were to be Mike, Steve, and Masuaki Kiyota, a highly-touted spoon-twister from Japan who was the major subject of Uphoff's ludicrous book *Mind Over Matter* (one of three books of that exact title in recent years!) and whose unpsychic talents were exposed by Christopher Scott and Michael Hutchinson (*SI*, Spring 1979). They were to be filmed at the Channel 21 PBS station in Madison. And I did not inform my two colleagues how I had designed the tests; they had to do the best they could.

Producer Edwards followed my protocol exactly, and the results were predictable. So long as proper controls were maintained, zero metal-bending took place. None of the prepared samples changed shape, and Uphoff derided Tony's attitude. He complained that the atmosphere



This bottle top was "tightly twisted with Duco cement and sealed with wax" when given to Shaw to work on. The contents became "intricately involved" overnight, a circumstance parapsychologist Berthold Schwarz said seems "impossible under the circumstances for even if the top were unscrewed in some way without leaving evidence for breaking the seals, the internal diameter of 4.6 cm would make it difficult to form this configuration with the spoons." But Shaw merely unscrewed the top, bent the objects, and replaced the top—without the seals being broken.

was "oppressive" and that psychic events could not possibly take place when conditions were so closely controlled. However, the BBC team was determined to obtain PKMB under strictly scientific conditions and was not persuaded by Uphoff to relax controls. When the tests were terminated, metal contorted left and right as I had predicted it would. (Girard, in France, had put in a measurable bend the very moment the experiment was officially ended and video coverage had terminated.) This only served to frustrate Tony, who had begun the project convinced not only that PKMB was a reality but that he could capture the beast on film.

Uri Geller, the former psychic superstar, was scheduled to appear at that Madison meeting and I wanted to see if he had any new wrinkles in his act. It had been a few years since I'd actually seen him in person, and then I was usually tucked behind the scenes in a studio, watching a TV monitor in a control room or at the sides of a darkened lecture hall, since Geller has always refused to perform when I am present. I determined to attend his performance in Madison, and to watch my two colleagues, who were also booked to appear there with Kiyota.

I sent off my check to Uphoff to register for the meeting. I never saw it again, nor did I receive any acknowledgment. But what I did get was a windy letter from his lawyer forbidding me from corresponding in any way with Uphoff, ever! Now such an injunction is certainly unenforceable—and very presumptuous. But I replied that Uphoff would never again hear from me in any way. I have kept that promise; Professor Uphoff has the right not to be informed.

But Uphoff did hear from an Adam Jersin of New Brunswick, New Jersey (not far from where I live!), who sent a postal money order to register for the meeting. He was accepted, and soon after that a man with a dyed beard, wearing dark contact-lenses, a reddish fright-wig, dreadful auxiliary dentures, a belly-pad, elevated cowboy boots, and a \$7.00 suit from the Salvation Army store arrived among the strange assemblage at Madison in the company of a Moses Figueroa—a Punjab-like companion—and they blended right in.

Uphoff could have rearranged the letters of the name and come up with a different one, but the anagram got right by him. He not only greeted Jersin and autographed a book for him, but he continually directed him to various functions, since Adam seemed even more disoriented than the average person at the affair. I must admit that I lost a pound or two

during those three days, since the protruding dentures made chewing impossible. I spent most of my mealtimes admiring miraculous anecdotes delivered by my table-companions.

I rose early each day at Madison, so as to be assembled in my finery in time to take advantage of the myriad of wonders offered — all of which was to be culminated with an appearance by Geller himself. But small dramas were played out before that glorious event. During breakfast one morning, I chanced to sit beside my two young colleagues, who were dazzling Tony Edwards's secretary, a lady named Dee. She squealed in delight as each spoon bent and moved about, and managed to castigate that dreadful man Randi whenever the boys (not by accident, I'm sure) brought up my name.

During one spoon-bending session on stage featuring the boys and Masuaki Kiyota, I stood beside an ebullient Teuton who exclaimed, as he watched Michael Edwards stroking a slowly bending spoon, "Dis is de REAL ting! Oh, how I vish dat Randi vas here—he vould not believe it! He vould LAUGH at dis!" "Really?" I replied—and I laughed. I dared not catch Michael's eye, or we'd have broken up that session in a hurry.

During those few days, in addition to their previous encounters with Kiyota, the two boys had ample opportunity to witness his methods. Stocky, with short, strong fingers, the Japanese wonder has developed a method of putting a twist in the neck of a spoon that seems beyond the capability of an ordinary person using only his bare hands. It consists of first bending the spoon to a right-angle and then, by holding the bowl firmly, cranking the handle around. The resulting motion produces a tight twist and a return of the handle to an in-line position. Held with the fingers concealing the twist, the spoon looks unaltered, and Kiyota is known to have sat with an already-twisted spoon for long periods of time, massaging it and finally allowing the twist to come into view.

Finally it was time for the Geller show. Each person was carefully scrutinized at the door (and checked against known undesirables), and after gushing introductions the spoon-bender appeared, boyishly effervescent as always. He told the usual endless anecdotes about his childhood, innocence, validity, and indignation at doubters. The audience was enthralled, and I managed to applaud each and every remark, seated as I was in the front row immediately under Geller's nose.

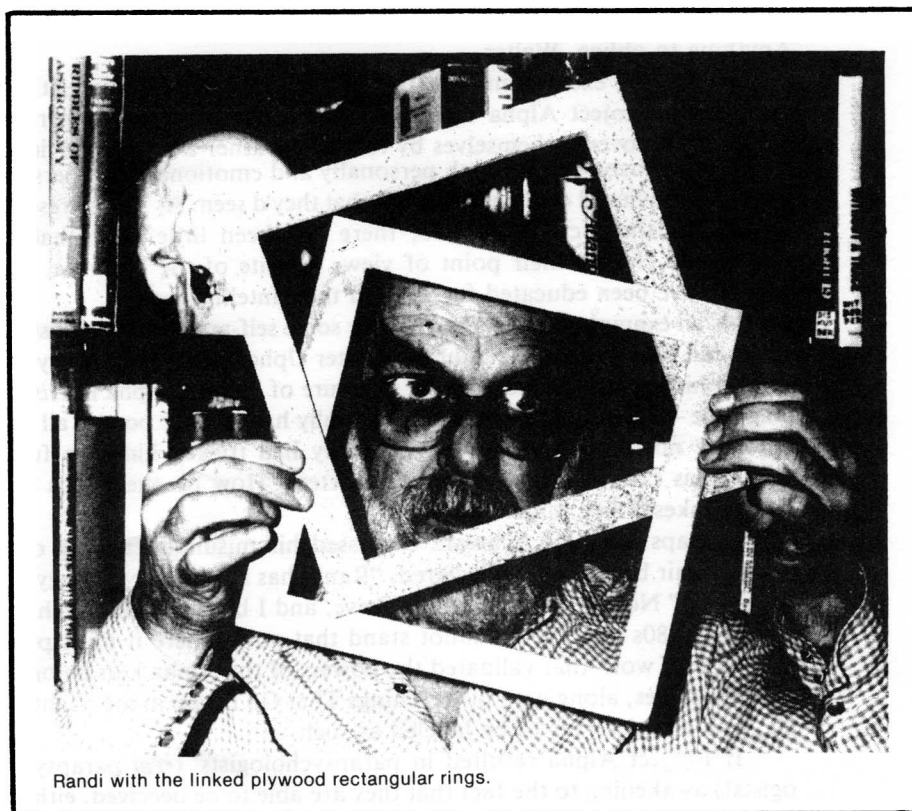
The amateur benders, Steve, Mike, and Kiyota, were seated on stage with Geller, who mildly acknowledged them and then dismissed them so the really good stuff could begin. As he brazenly performed his obvious routines, I avoided the glances that my boys directed at me, shocked as they were at the blatant methods he used. He had lost, so it seemed, much of the smoothness he once had.

I will not go into details of how he performed except to say that it was quite standard and expected. Nothing new appeared, except that he made more excuses and denials than he might have previously. As he finished, I rushed onstage to have him autograph a copy of his book, which I now treasure as a trophy of that occasion. The World's Greatest Psychic never knew whose hand he shook.

Just about that time, I became aware that Berthold Schwarz and a UFO-devotee from New Jersey were looking at me strangely. In the parlance of the trade, I knew they'd "twigged" me. With a quick word to Moses, who then ran interference for me, I left the area and headed for the hotel, where I doffed the disguise in my room.

Meanwhile, pandemonium ruled in the lobby. Moses stayed around to hear the scuttlebutt and reported that the consternation was intense. No one was really sure I was there, but they acted as if Martin Luther had been seen at the Vatican. Later, Uphoff was to hint that he'd known the truth all along, and I'd fooled no one. And pigs have wings.

Immediately following the Madison meeting, Steve and Mike took



Randi with the linked plywood rectangular rings.

off for England. There they were interviewed by that epitome of careful research and reporting, London's *Psychic News*, which was bowled over. Miracles flew from their fingertips, and the paper gushed over their abilities—much as it had touted my own tricks as genuine when I'd visited its offices years ago and hoodwinked the staff in the guise of a psychic.

In their hotel in London, where I joined them while filming, the Alpha boys showed me a small transparent plastic box containing paperclips. It had been given to them by the McDonnell Lab, having been made up by a then unnamed parapsychologist who turned out to be George Hansen of the Institute for Parapsychology, in Durham, North Carolina. The object of this device was to see if Shaw and Edwards could bend the paperclips without opening the box. It occurred to me that there was a quality about paperclips that might serve us well. I stepped to the window for a moment and then returned the box to them with the clips linked together.

It had been rather simple. Anyone who works with these devices knows that they frequently become linked by accident. By jogging them about until one "nested" within the other, then rapping the box against my hand to throw them against the end of the box, I'd gotten them to link. I told the boys to return the still-sealed box and await results. Though the intent of the experiment had been different from the result we obtained, Hansen described it as "quite impressive!" He has since said that he solved the mystery himself without having to invoke psychic powers.

Back in America, Shaw and Edwards were presented with a new challenge: linking rectangular plywood rings. William Cox had made a set of these rings and left them with Richards, who then "discovered" they had become mysteriously linked together while in his possession. Though such a trick is quite simple, it was looked upon as evidence of irrefutable psychic power at work—even though the rings, unlike those I produced for the boys to use, showed sizable cracks that rather gave them away. *Psychic News* challenged me to pay my prize of \$10,000, not knowing that I was daily linking particle-board and plywood rings just for practice. Steve sent a set off to Walter Uphoff, who had remarked on

this sort of miracle, "Here's something I'd like to see a conjuror do!" Anything to oblige, Walter.

Just as the excitement over the linked rings was building, it came time to tip Project Alpha for good. The McDonnell researchers had essentially recovered themselves by reversing rather positive convictions they'd previously held, though personally and emotionally the personnel were still convinced of the validity of what they'd seen. As for the researchers outside the McDonnell Lab, there had been little hope that they would ever change their point of view, in spite of the evidence. Some people have been educated far beyond their intelligence.

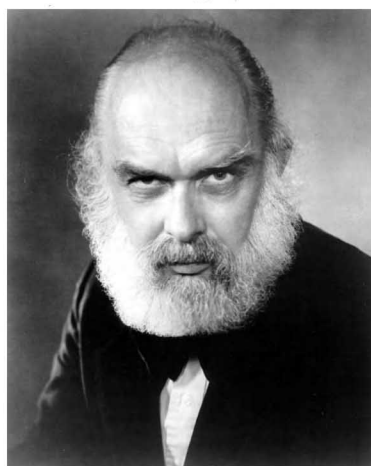
As an example of just how strongly some self-appointed parapsychologists can rationalize their failures, Walter Uphoff—desperately trying to explain his fumbling following the exposure of Project Alpha in *Discover* magazine—stated that Steve and Mike really had psychic powers all along but were now lying in claiming that they had tricked him! To further display his confusion, he asked a reporter, "How do these kids *know* they're fakes?" The mind boggles.

Perhaps Berthold Schwarz expressed his misunderstanding of the whole affair best when he declared, "Randi has set parapsychology back 100 years!" Not so, Doctor. Mike, Steve, and I brought parapsychology into the 1980s—and if it cannot stand that atmosphere it must perish. The kind of work that validated the powers of the Alpha kids belongs in the Dark Ages, along with other Things That Go Bump in the Night. It is claptrap and deserves to be labeled as such.

If Project Alpha resulted in parapsychologists' (*real* parapsychologists!) awakening to the fact that they are able to be deceived, either by subjects or by themselves, as a result of their convictions and their lack of expertise in the arts of deception, then it has served its purpose. Those who fell into the trap invited that fate; those who pulled back from the brink deserve our applause.

From within the parapsychological community itself came enough positive, supportive comment to encourage us to believe that Project Alpha had attained its goal. It was described as, "splendid and deserved." It was called, "an important sanitary service," "commendable," "long-needed," and "worthwhile." Said one scientist, "If I were you, I would have tried something like this long ago." Researchers described their own work as "entirely too lax" and their controls as "not the tightest."

As for Edwards and Shaw, who spent more than 160 hours during four years of their lives cooperating in the experiment, I hope that my readers will join me in thanking them for their dedication and perseverance. As one of them said, "It had to be done."



James Randi is well known to our readers. An internationally renowned magician, he has been actively investigating paranormal claims for the past thirty-five years.