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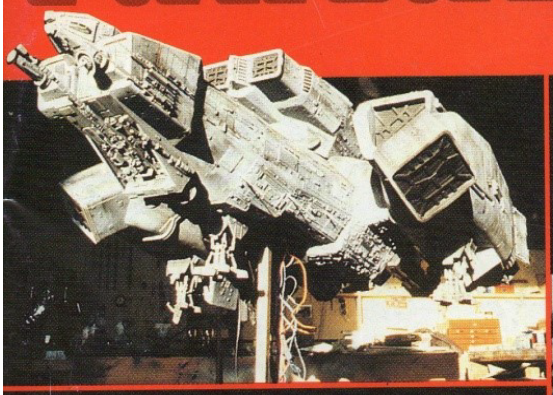

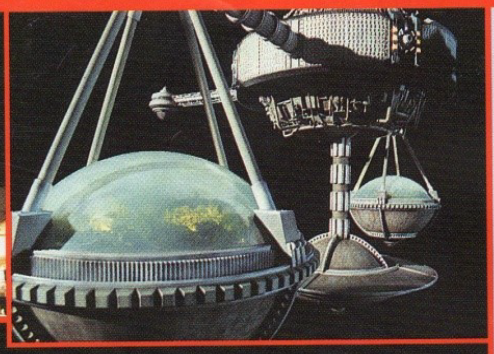

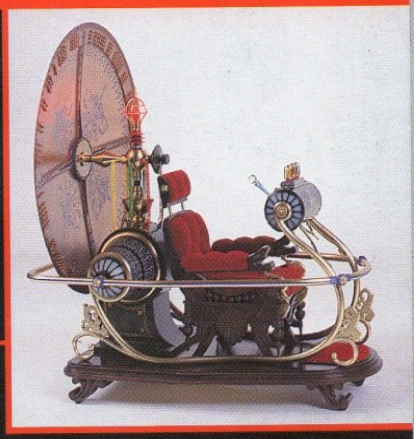

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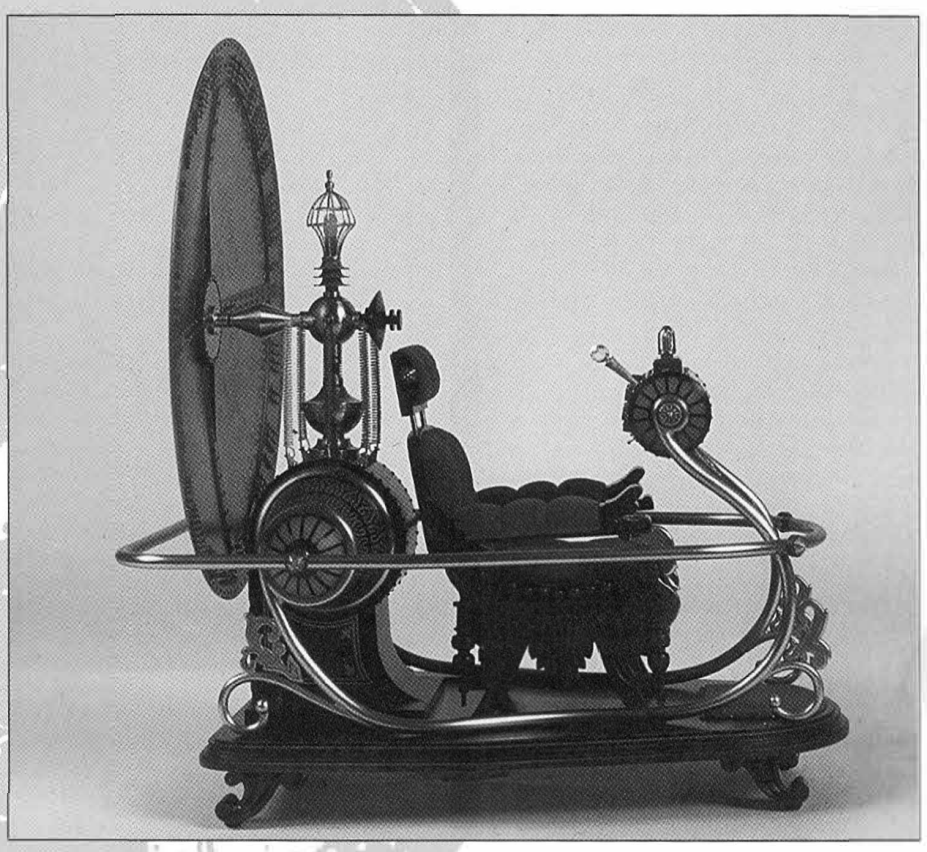
A MATTER OF TIME

By George Chaides



Fasten your seat belts, travellers, as George Chaides takes you on an epic journey mapping the creation of a miniature masterpiece – a journey that begins in Los Angeles in 1960...

Since moving to Aberdeen from Los Angeles, I find the people I meet, work and associate with are sensible, level headed, matter-of-fact people...you know... *grown-ups*. This is probably why the first question I get asked is "what is it?"
I say, "It's the Time Machine from the movie. Have you seen it?"
"What movie?"
"**The Time Machine**".
"No".
What then follows is a fifteen second synopsis of the movie's plot.
"Oh," and still looking puzzled, "but what does it do?"
Another fifteen second discourse on the electro-mechanical functions of the model... "just like in the movie".
It's at this point when either the topic of conversation completely changes, or, if they are still amused, I'm asked "why?". It will take longer than fifteen seconds, but this is the story of "why"...

Summer, 1960. I was just old enough to be allowed to the movies without an adult. Saturday matinee at the Golden Gate Theatre, a theatre that was still even then an opulent and majestic example of the grand art deco cinema palaces. The movie: **The Time Machine**. The word was that it was good, and I was there – without parental supervision. I went with an older pal who lived across the street, but that was cool. The theatre...more than half full. The audience made up entirely of kids from the local junior high and high schools.

The movie starts.

The beginning of the movie is quiet and slow. The conversation level within the cinema increases – they're bored. English gentlemen sitting in the parlour complaining about their host being late for dinner. They all move to the table. Mrs. Watchett brings wine and sherry. She is just about to exit when Rod Taylor bursts in torn and dirty. The music blares a discordant note and the entire female population of the theatre screams.

Now, gentle reader, I am almost certain that you have not experienced such a thing at such a tender age. If you have then you know it is possible to elevate from a seat still in a sitting position. In a cavernous dark auditorium seven hundred hysterically screaming voices in hideous concert. Without warning and on cue. There wasn't anything in the movie that frightened me. It was the suddenness and volume of those screams. A lot of it was probably affectation, but it gave this eleven year old boy a fright he'll never forget. My friend asks if I got scared. "Naw", I say.

The movie goes on and Rod Taylor introduces us to his Time Machine he has locked up in the workshops.
Wow!
His little model was neat but what is this?!
Again the music. Crashing bases and French horns thrilling above it all. He caresses it. I, too, want to touch it.

I spend the rest of the movie studying the Machine, trying to memorise every detail. The rest of the movie, that is, until a great, green, hairy arm comes out to drag Weena into the bushes. "Scream – scream!" Again, when Rod goes into the bushes to get her back. "Scream!"

I bottle out. I told my friend that I was going for popcorn. Later, coming back down the aisle in the dark, I was praying for no more screaming.

Things were OK until Rod went down the hole to save Weena. I'll just leave it to your imagination to what that grand old theatre with its excellent acoustics sounded like. My excuse to my friend was a trip to the toilet. Fighting my first battle against real panic I almost ran up the aisle making for the doors of the theatre – a theatre gone howling mad with terror. Through the door and into the foyer. The ushers and attendants were sitting or doing routine things as if it were just another day. But you could still hear what sounded like the most abominable things imaginable inside the theatre biting off heads. The separation from that insane audience was enough allowance to compose myself. After all, it was only a movie. I chanced a few peeks through the gaps between the auditorium doors. You would think after a while that the shock value would wane – but no. This audience was going to get its money's worth.

When Rod was returning to his own time, I was returning to my seat.

"What happened to you?"

When I got home I started sketching the Machine from memory.

Since then (in spite of the audience from hell) I have always wanted a model of the Time Machine. I wanted it to have every detail – flashing lights, revolving dish, and it should be made out of the same materials as the movie original.

In all the years thereafter I have never seen or heard of a commercially available model. I have seen the machine depicted many times in various media formats either associating, referring to or being used as a metaphor to time travel and/or the passage thereof. The image of the dear old Time Machine has become analogous to the concept of time travel. Like the starship Enterprise, the Nautilus and Robbie the robot, the Time Machine is an icon of fantastic possibilities made obtainable through imagination and noble endeavour, an antithesis to a mundane world. I understand that there is even a full size replica of it at the Smithsonian Institution.

In mid career as a North Sea oil field diver I decided to start my own business as a manufacturer of precision crafted high tech toys and games. And what better to start with than the Time Machine model I had always wanted. This all sounds very self-indulgent I know, but there are a great many who have also been waiting for a definitive model to appear.

It was now 1982. I had not seen the movie since 1960 so I bought the video.

It was after watching the video a few times that I realised why I didn't remember the Machine in any way other than full right and quarter profile. These are the only views the movie provides. There is a plan view when the Machine falls over after coming to a spin-crashing stop in the year 802701. There is a three-quarters rear view when the time traveller arrives in his back garden, but these views are for five seconds only.

I could not get the dimensions and proportions accurately enough from the movie alone. If it was going to be a correct model I would need to have access to the original movie prop. Did the original prop still exist? If it did then I assumed it would either be in New York or Los Angeles. Since I have family and friends in L.A. I'd look there first.

The Hollywood museum seemed the likeliest place to start the hunt. I later learned from the curator that the original movie prop of the Time Machine had not long ago finished a period of display there at the museum. I remained calm on the outside.

I told the curator of my intentions but he would not divulge the owner's name or address as the prop was privately owned. Apparently the owner receives crank phone calls from people wanting to sit in it and have their picture taken.

I returned the next day with a sealed letter of introduction describing the quality of the model I intended to manufacture in limited edition and asking for the owner's help and association. The curator agreed to address and post my letter to the owner. Three days later I received a phone call from Bob Burns.

Bob told me I was not the first to request taking detail from the prop in order to make a model. There had been various American, Japanese and French manufacturers who had asked before, but because they wanted to make their models as vac-u-form type kits, Bob had refused access. He is loyal to the image of the Time Machine as it has been placed in his care by George Pal, the producer/director of the movie.

Bob and his wife Cathy agreed that if a model of the Time Machine were to be produced it should be of jeweller's handcrafted, museum artifact quality, and, of course, electro-mechanically functional. He would re-assemble the prop and I could come to his place and take down detail, measurements and photographs.

Bob himself is one of nature's gentlemen, and Cathy is kind and gracious. It was very easy to like them, and I consider them friends.

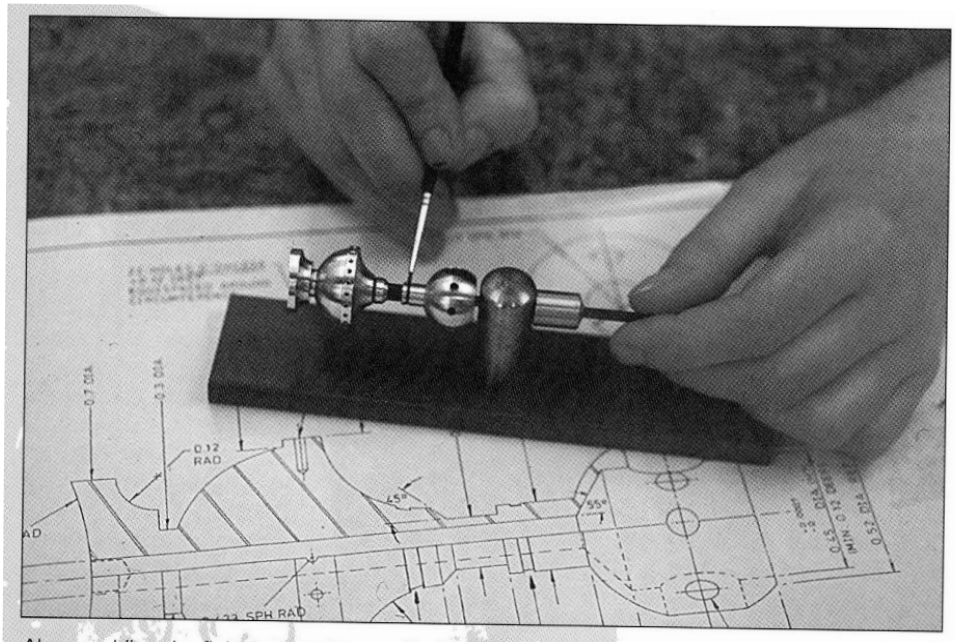
When I was welcomed into their home, I noticed many artifacts and props about on display or as decoration. I recognised some of them, but these were as nothing compared to what he had in the back of his house where he was adding rooms to house his collection. Above it all he was building a thirty-seat cinema. This was in 1982. His gallery and cinema are finished now.

Bob lead me to the back where the Time Machine stood.

...And there it was.

I must admit I was slightly disappointed at the state of it. It was faded and decrepit looking. The brass rails are painted scaffolding tubes, the dish is made of fibreglass and wood doweling, the transmission column, motor housing and control console are also of wood and a barbecue rotisserie motor connected to a worm gear turns the dish. But it is nothing short of miraculous the way the Machine appeared on the photographs I took. It looked like the pristine Time Machine of old. It looked real, not like a twenty-two year old movie prop. But, as Bob said, that's what a movie prop is supposed to do – look good on film.

Over the next three days I spent twelve hours with the Machine. Much of that time Bob was there telling me about its history, how he came to obtain it and of the extensive restoration work done by himself, Cathy and friends. The chair and control console were missing when the Machine came into his care. They had to be completely rebuilt. I've seen the pictures he took of the condition in which he got it



Above: adding the finishing touches to the Time Machine's transmission components. Inset below: components of the transmission coloumn and gear box in machined brass.

and it indeed looked as through it had gone through three world wars, been encased in a mountain and dragged around by Morlocks. There are a few inconsistencies in the restored Time Machine from the movie original as Bob pointed out.

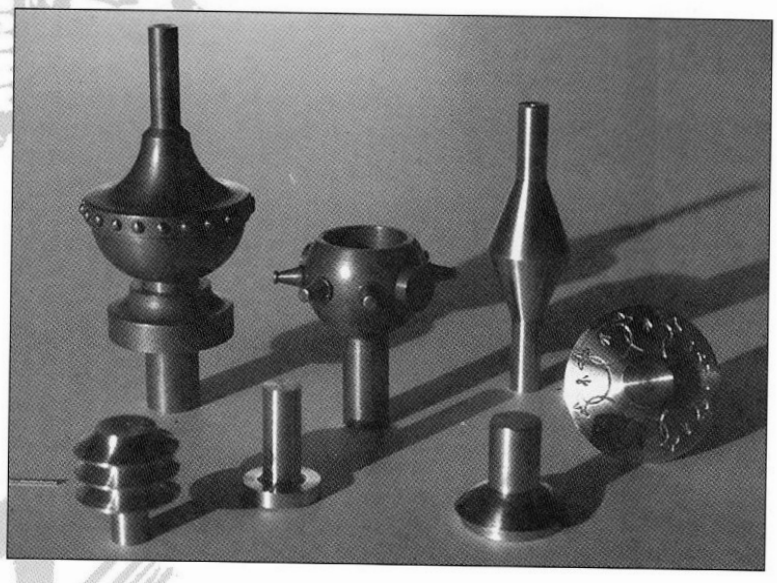
I asked him what his price would be for all his help in this venture. Without hesitation he said "One of your models". Here is a man of true heart and consistent principle.

I came away from Bob's with all the information I would need to build the Time Machine faithfully down to the last rivet. The next thing to be done was the roughing out of a placement layout for the electrical and mechanical components that would be hidden within the decorative structure of the Machine. It was a logical placement, I thought: a two-way potentiometer in the control console would provide the signals for the micro processor which could be hidden under the seat of the chair. A DC stepper-motor would go into the motor housing in the back along with a PP3 battery which, I thought, would power the motor and lights. The driver for the stepper could be put under the seat as well.

All the interconnecting wire would pass from the motor housing to the chair via channels carved into the underside of the base. From the chair to the control console the wire would locate inside the brass tubing on either side of the console, the drive shaft going up the brass column and geared down in the spherical "gear box" to drive the dish.

Unlike the movie prop which had three off-camera control boxes to generate the lights and dish rotation, all functions of this model Machine – even though many times smaller – would have to be incorporated on board. The middle green electrode coil is "live" to power the top column light. All other light wires are easily hidden.

As the Time Machine developed it proved that the battery and control console potentiometer would be insufficient.



A size or scale of model had to be decided upon. First thoughts, of course, were of the little model Time Machine that took Sebastian Cabot's cigar forever into the future. But I felt it was too small to adequately show the detail found on the full-size version. A model that would require its own dedicated show space would be too big. It should fit nicely on the mantel, shelf or desk and yet be large enough to be an eye-catching distraction. A twelfth-scale Time Machine looked to be just the right size.

The business plan was to have the specialised components (i.e: all castings, machined parts, circuit boards – designed and assembled, electro-formers, photo-etchers and printers) made by the appropriate specialists. They would then send everything to us here in Aberdeen where all the parts – contractor and in-house made – would be finished and assembled into a working Machine.

I went about interviewing jewellers to commission the making of the masters for the cast components.

I talked to three jewellers. None were interested, but it was through the third jeweller that I met Brian Glassar. Brian was and is a university lecturer in three dimensional design. Luckily, he seemed interested in the concept of combining precision engineering and high technology with jeweller's craftsmanship. His own creative works have been exhibited around the world and are in a number of private collections including the Victoria and Albert museum.

Brian designed and constructed all of the jigs, templates and special tools used as well as all the master patterns for the base castings and the revolving copper dish.

This was in 1985 and Brian's fee was based on an hourly rate. Things progressed in off-again, on-again manner due to Brian's full-time teaching commitments and my trips off shore. In 1986 the big slump in North Sea oil hit. I felt the effect of the slump and R and D in pure expenditure.

I told Brian that due to the irregularities of the oil field I would have to halt proceedings until work became more available. He had come to realise that there was a market for the product and it was not just an expensive indulgence.

Brian offered to take up the financial burden for continued development if we became 50% partners. By then I had come to know him as an honest family man. It would be no easy thing to find a perfectionist craftsman as good as he.

While I'm handing out plaudits, I must mention John Ballantyne, the electronics engineer who designed and developed

the circuitry and transposed the lights' sequential routine into a programme for the onboard micro-processor. It was John who came up with the way of translating the control level commands into electro-mechanical reactions. I had thought a two-way potentiometer would be adequate. It wasn't. His idea is much more in keeping with the high-tech, science fiction nature of the product.

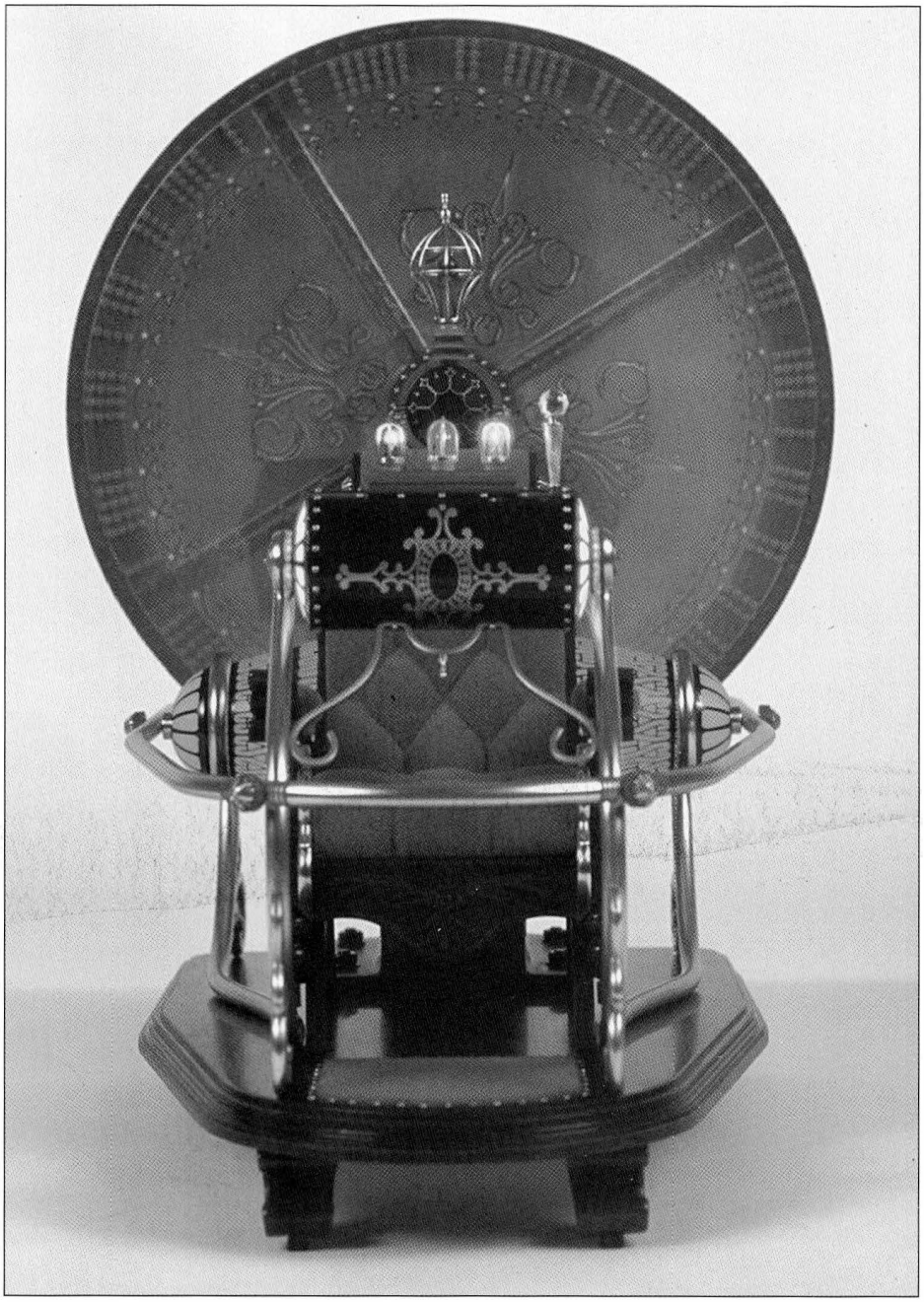
In front of the *Time Traveller* is the lever which controlled movement. Forward pressure sent the Machine into the future. Backward pressure into the past. The harder the pressure, the faster the machine travelled.

Connected to the control lever is a shaft which runs through the centre axis of the control console. Attached to the shaft is an encoded disc perforated with slots and holes. This disc is sandwiched between two disc-shaped circuit boards. The inner board mounts four light emitting diodes. The outer board mounts four light collecting transistors.

As the control lever is pushed, the perforated disc is rotated between the emitter and collector boards. The collector board sends the encoded signal to the micro processor which controls speed and direction of on-board lamps.

There is a display function incorporated into the Machine's software. By putting the control lever in the full reverse position, then plugging into mains power (batteries were no use at all) the Machine goes into an eight minute mystery tour. This random programme continuously repeats itself until the power is switched off. We have come to call this the "trick mode".

Below: drive shaft, transmission column, attached dish and light cones in place.



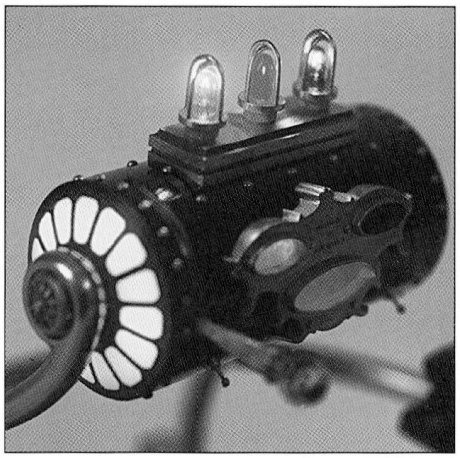
Front view of the assembled Time Machine.
Below right: The Time Machine control unit.

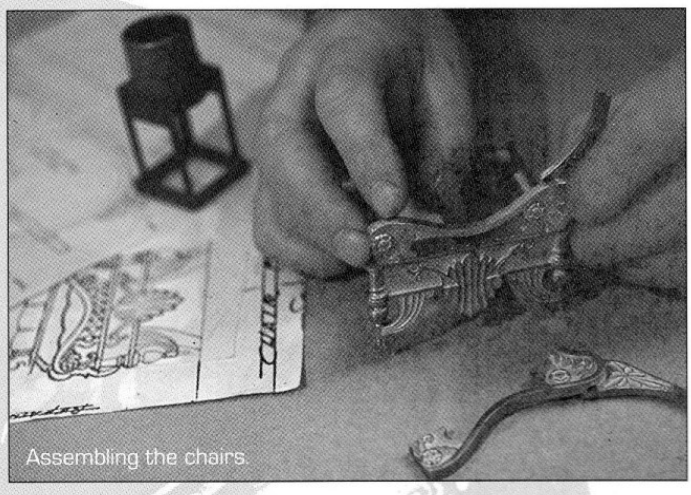
An electronic anti-flywheel device is also in the software to keep the lights from getting ahead of the dish as it builds or loses momentum from rapid acceleration and deceleration. This is necessary as the dish weighs approx. 280 grammes (over 1/2lb.) and rotates at a maximum of 120rpm.

The dish itself is electro-formed in copper by a Swiss specialist firm. It took us three and a half years to find a company anywhere that could and would electro-form this component.

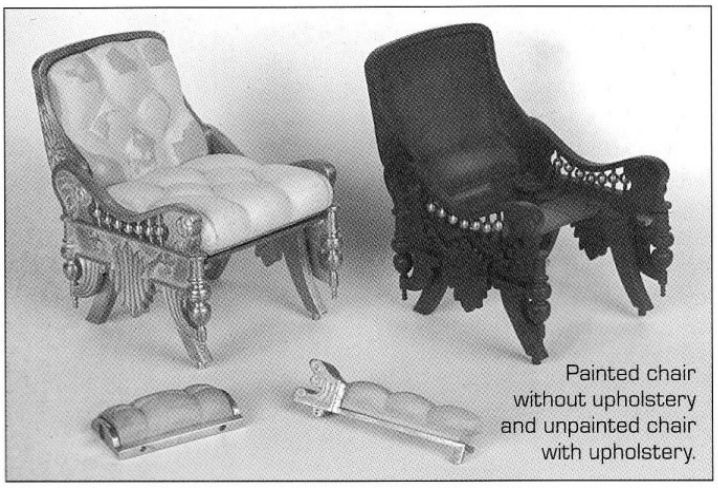
It takes two and a half days to "grow" a dish in a tank of copper solution, but the quality from the Swiss company – Galetan – is superb – and, of course, expensive.

The Machine's feet and chair are cast in white metal. The chair is made up like a real chair with rails and frames and





Assembling the chairs.



Painted chair without upholstery and unpainted chair with upholstery.

consists of 24 cast and machined parts. The upholstery is cast in rubber and flocked to simulate velvet.

The base is made of Swiss pear wood. To get the exact moulded edging around the base two custom routing tools of tungsten steel were made, again in Switzerland.

The motor housing is a two-part die-casting.

The transmission column is C.N.C. machined in brass. The wire for the bird cage on top of each trans. column is hand fabricated from fine brass wire.

The only plastic components on the model are the light cones which are attached to the motor house sides and the light ports located on either side of the control console. On the "real" Time Machine these components would have been made of glass or bakelite. Glass for the model was too fragile, so we used a type of nylon which is visually correct. The printing on these cones is just that. We worked with a silk screen company to develop a technique for printing onto this shape which was not previously possible.

The brass scroll work on the frame and the brass brackets that retain the control console castings are accurately machined, fitted and soldered onto the frame.

The foot-rest is photo-etched in two parts from brass. It is painted and flocked in red velvet. The rivets are custom-made for shape and scale. The control console, lever and passage light base are machined from brass. The instrument plate is cast in brass. The control lever is acid etched then hand painted in three colours to give a marbled look. The crystal on top of the control lever is manufactured in Switzerland. There are twenty-one incandescent lamps on board.

The machine is powered from the mains by a wall-mounted 12v dc transformer. The receptacle for the 90° jack plug is located under the wooden base at the rear of machine.

Granite City Mechanician is producing this issue of The Time Machine in a limited edition. At this moment we have forty-one orders and are in the middle of finishing the first batch of Machines.

If you are interested and wish to know more, send an s.a.e. to *Granite City Mechanician, c/o George Chaides, Oldtown, South Road, Insch, Aberdeenshire, Scotland AB11 6XN*

Under the base of the Machine is a brass plaque engraved with **the Time Machine** and the company logo. The Machine number is also engraved on the plaque.

Bob Burn's Machine will have a special dedication engraved on its plaque in thanks for help he was most generous in giving. And finally, may I take the opportunity of this article in **Science Fiction and Fantasy Models** to dedicate this model of the Time Machine to the memory of George Pal.

Inset above: painted light cones.
Below: cleaning the instrument plate casting.
Opposite: measuring the drive shaft diameter before attaching the dish.