

# THE DUMMY LOAD

Official Bulletin of The Cambridge A.R.C. (Swarc Inc)  
*servicing the community since 1964*

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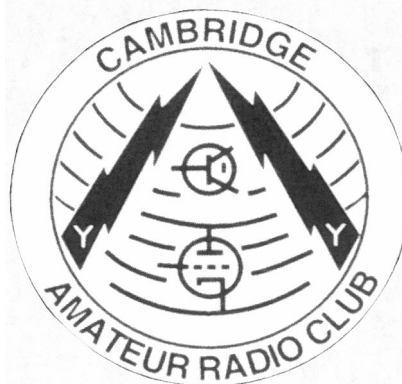
## Meetings

Meetings held at 8:00pm on the second Monday of each month, Board Room Preston Arena (Bishop St at Hamilton St) No meetings in July or August. Visitors always welcome.

## Club Net

on the  
VE3SWR repeater 146.790 Mhz  
every Wednesday  
at 2100R

Issue No. 104 Feb 2010



**VE3SWA  
DXCC HONOR ROLL  
(332/332)  
WAZ, WAC, WAS.**

**Next Meeting  
Mon Feb 8th 2010  
usual location and time**

## CLUB NEWS

Reasonable turn-out for our first meeting of the new year with 11 smiling faces around the tables, 10 members and 1 guest in the form of Ken Wilson VA3CMN one of the new ARES team who signed up with Robin.. Members present were : VA3CBE Calvin, VA3CF Clarence, VA3MP Mike, VE3ANT Scott, VE3BHZ Dave, VE3FC Fraser, VE3IHM Hugh, VE3KVZ Steve, VE3NXV Gerry, and VE3OAV Robin. Very nice to see Clarence after a long absence looking healthy and happy, don't be such

a stranger Clarence. Also glad to see Steve again. Scott agreed to reserve a date at the golf club for our annual dinner (subsequently advised us that it was booked for April 24th) Thanks to Scott once again. Robin advised all present that the ARES training session had been arranged for Jan 28th at #1 Fire Hall (Bishop and Franklin). Steve told us he still has an MFJ tuner and a 6 position co-axial antenna switch for sale at a very reasonable price. I think he was finally successful in unloading both items. This month's prize of \$11.50 was handed over to Hugh. Fraser had brought along the mandolin he has been building for a few months, not only does it look beautiful, it sounded the same way as Fraser picked out "Oh Susannah" and "Loch Lomond". The man never ceases to amaze, not only a Jack of all trades but a master of many. Congratulations Fraser and thanks for the article on it's construction which filled this edition very nicely. A reminder to all interested parties, **Club Contests for 2009**. I have received some entries so if you have not submitted any figures and wish to do so please let me have them at the Feb meeting

## IARU NEWS

### *IARU E-Letter*

The IARU Administrative Council (AC) held its annual meeting in mid-October 2009, in Christchurch, New Zealand. IARU President Tim Ellam, VE6SH/G4HUA, presided over his first AC meeting. Also in attendance was Ole Garpestad, LA2RR, Vice President; Rod Stafford, W6ROD, Secretary; Hans Blondeel Timmerman, PB2T, President and Dennis Green, ZS4BS, Secretary, IARU Region 1; Ramón Santoyo, XE1KK, Secretary, and Daniel Lamoureux, VE2KA, Director, IARU Region 2; and Michael J. Owen, VK3KI, Chairman, and Shizuo Endo, JE1MUI, Director, IARU Region 3. Also present was Region 3 Director Peter Lake ZL2AZ along with David Sumner, K1ZZ, as recording secretary.

One of the major topics of discussion at the AC meeting involved the upcoming WRC-12, the World Radiocommunication Conference in 2012. The AC adopted preliminary IARU positions on the WRC agenda items that relate to amateur radio or may impact the amateur radio service. The most significant agenda items are:

1. Agenda Item (AI) 1.14 - Implementation of the radiolocation service in the range 30-300 MHz;
2. AI 1.15 - Possible allocations in the range 3-50 MHz to the radiolocation service for oceanographic radar applications;
3. AI 1.19 - Software-defined radio and cognitive radio systems;
4. AI 1.22 - Effect of emissions from short-range devices; and
5. AI 1.23 - To consider an allocation of about 15 kHz in parts of the band 415-526.5 kHz to the amateur service on a secondary basis, taking into account the need to protect existing services.

IARU has a document on the IARU web site that identifies the present and anticipated future requirements for radio spectrum allocations to the Amateur and Amateur-Satellite Services. These requirements are identified so that they may be taken into account in the formulation of national policies with respect to proposed and possible future international allocations conferences. At each AC meeting, those requirements are reviewed and when circumstances change so do the requirements. If you're interested in seeing what the IARU sees as spectrum requirements for the amateur service then log onto the IARU web site at <http://www.iaru.org> and look for the "Spectrum requirements" document.

The IARU 2025 Committee was established a few years ago to explore restructuring IARU to make it more effective to meet the challenges faced by amateur radio. The committee came up with a proposed new structure. However, even though the proposed new structure had a number of beneficial aspects it became obvious early on that funding of the new structure could be problematic.

At its recent meeting, the committee was restructured and given a slightly different mandate. If the committee can't develop a funding method for the proposed new structure then the committee may propose a different structure.

Additionally, the committee should identify changes which can be implemented in the present structure to address concerns raised by the regional organizations and some member-societies.

There has been a movement in the last several years to try to identify "centers of activity" frequencies across all three IARU regions that can be used in disaster relief operations. It has at times been difficult to arrive at a consensus on what frequencies should be used. The AC noted that all three regions have now reached consensus on three global Center of Activity (CoA) frequencies for use in the event of emergencies: **14.300, 18.160 and 21.360 MHz.**

When no emergency operations are being conducted, these frequencies are open for normal amateur usage. However, GAREC-09 (more on GAREC later in this report) calls upon IARU member-societies, among others, "whenever emergency communications are being conducted on frequencies that propagate interna-

tionally, to use any available real-time communications channels, including but not limited to e-mail bulletins, web-sites, social networking and DX-clusters to draw the attention of the largest possible number of Amateur Radio operators to on-going emergency communications, in order to avoid interference with emergency traffic.”

It would be helpful for each member-society to develop an effective method of notifying amateurs within their own country of any such emergency traffic being handled on the CoA frequencies, or elsewhere in the amateur bands.

In 2008, the AC called for a study of the QSL Bureau System. Since the study was initiated over 51 member-societies responded to the study questionnaire. It became clear that in some societies, QSL cards are not handled the same way for members as non-members. There are a small number of societies that dispose of the cards sent through their bureaus for non-members. The AC adopted a resolution stating ”that member-societies are strongly encouraged, whenever possible, to provide incoming QSL bureau service to non-members within their operating territory, if such non-members agree to pay the full cost of this service; and if they are not already doing so, to explore appropriate means and methods for delivering QSL cards to non-members.”

The AC adopted a protocol to deal with member-societies that no longer exist.

If for a period of not less than 5 years:

(a) there is no address or other means known to either the International Secretariat or the relevant regional organization by which communication may be made with a member-society;

(b) there has been no communication from any person claiming to represent that member-society; and (c) there is no other evidence of the continued existence of that member-society. If those circumstances exist, then the relevant regional organization may request that the AC thereafter publish in the *Calendar* a notice setting out its belief that the particular Member-Society has ceased to exist, and calling for the submission of any evidence to the contrary within 180 days of the publication of the *Calendar*. If no such evidence is submitted within 180 days of the publication of the *Calendar*, then the member-society shall be deemed to no longer exist from that date. Thereafter, any association of radio amateurs claiming to represent that country or separate territory shall be required to apply for membership in the IARU in accordance with the IARU Constitution and Bylaws.

Promoting and preserving amateur radio is the mainstay of the IARU. The AC has at its disposal a number of expert consultants and technical representatives and relies heavily on such volunteer experts and technical representatives.

There is always a need for more assistance by knowledgeable amateurs to attend ITU meetings and other telecommunications meetings to represent IARU. The IARU regional organizations and member-societies can be of assistance by recommending individuals who are capable of attending meetings and effectively promoting the IARU objectives at such meetings. Individuals who are amateurs and who have backgrounds in various technical fields such as broadband or wireless technologies, propagation, radar, satellite communications and spectrum management, just to name a few, can be of assistance. Individuals who may be retired from government work in the field of communications or telecommunication regulation are good candidates for working within the IARU to achieve IARU goals.

Member-society leaders are requested to investigate whether such individuals are members of their society and to determine if those amateurs would be willing to assist the IARU. If they are willing to do so, please contact the International Secretariat with the names and contact information so inquires can be made to determine if they are willing to join the IARU team of experts.

These are some of the important matters discussed at the recent Administrative Council meeting. The complete Summary Record of the meeting can be found at

**<http://www.iaru.org/admin-council-summaries.html>**.

## IRISH JOKE

An Irishman goes into the confessional box after years of being away from the Church. There's a fully equipped bar with Guinness on tap. On the other wall is a dazzling array of the finest cigars and chocolates. Then the priest comes in. "Father, forgive me, for it's been a very long time since I've been to confession, but I must first admit that the confessional box is much more inviting than it used to be."

The priest replies: "**Get out.. You're on my side..**"

## KON-TIKI

*ARRL Letter*

Knut Magne Haugland of Norway, passed away on December 25. He was 92. Haugland was one of six men, who with Thor Heyerdahl in 1947, successfully crossed the Pacific Ocean in a 45 foot raft made of balsa wood and bamboo -- named Kon-Tiki -- to prove that people from South America could have settled Polynesia in pre-Columbian times.

Called the "most unusual expedition ever to place reliance on Amateur Radio for communication" in the , *December 1947 QST* Kon-Tiki departed Peru for Polynesia on April 28, 1947. "It was the theory of Thor Heyerdahl, Norwegian ethnologist and leader of the venture, that the settlement of the Pacific Islands resulted from a migration of American peoples who had sailed there many of years ago, rather than a trek from Asia as claimed by other scientists," the article explained. "To prove that such a migration was possible, Mr Heyerdahl decided to attempt the trip in a raft of the type preserved in Incan legends and early Spanish historical accounts. He named the expedition on honor of the pre-Incan Sun god. The Kon-Tiki raft was fashioned out of logs of the lightest wood in existence and lashed together with native-made hemp rope. Its only sources of locomotion would be the Pacific trade winds and the Humboldt Current which sweeps northward along the west coast of South America and thence in the direction of the Tuamotu Archipelago."

## Haugland and World War II

During World War II, Haugland was a member of the Norwegian Resistance where he was instrumental in the destruction of the Vemork Hydroelectric Plant. When the Nazis took over Norway, they wanted to use the plant -- which produced "heavy water" -- in their quest to produce nuclear weapons. Between 1940 and 1944, a sequence of sabotage actions by the Norwegian resistance movement, as well as Allied bombing, ensured the destruction of the plant and the loss of the heavy water produced. These operations -- codenamed Grouse, Freshman and Gunnerside -- finally managed to knock the plant out of production in early 1943. The Norwegian Resistance Operation Grouse successfully placed four Norwegian nationals -- Haugland, Arne Kjelstrup, Jens-Anton Poulsson and Claus Helberg -- who became Operation Grouse. The four men were parachuted over Hardangervidda on October 18, 1942, to rendezvous with the British Operation Freshman and proceed to Vemork. Once on the ground, the Norwegians began to send back intelligence about the plant, including the composition of its defenses. Operation Freshman failed when the British military gliders crashed short of their destination. All 41 participants were killed in the crash or captured, interrogated and executed by the Nazis. Members of Operation Grouse were then ordered to wait for another team, Operation Gunnerside. In 1943, this team of British-trained Norwegian commandos succeeded at destroying the production facility. In 1965, this feat was made into a movie, *The Heroes of Telemark*, starring Kirk Douglas;

After the destruction of the plant, Haugland stayed in Hardangervidda for two months and then went to Oslo to train marine telegraphers. After a trip to the United Kingdom for radio supplies, he returned to Norway in November, being parachuted at Skrimfjella. The Nazis arrested him in Kongsberg, but he escaped and commenced his training duties. On April 1, 1944, he narrowly escaped another capture by the Gestapo when one of his transmitters -- hidden in the Oslo Maternity Hospital -- was located by the Nazis using direction finding. Haugland fled to the United Kingdom and did not return to Norway until after the war. For his bravery, Haugland was twice awarded Norway's highest decoration for military gallantry, the War Cross

with sword, in 1943 and 1944. In addition, Haugland was awarded the Distinguished Service Order and the Military Medal by the British. He also received the French Croix de guerre and gion d'honneur and the Royal Norwegian Order of St Olav

### **Haugland and the Kon-Tiki**

Haugland first met Thor Heyerdahl in 1944 at a paramilitary training camp in England. It was here that Haugland first heard of Heyerdahl's theories about Polynesian migration patterns and his plans to cross the Pacific on a balsa wood raft. In 1947, Heyerdahl invited Haugland and Torstein Raaby, another former resistance member, to join the Kon-Tiki expedition as radio operators.

Heyerdahl and his five companions sailed the raft for 101 days more than 4300 miles across the Pacific Ocean before smashing into a reef in the Tuamotu Islands on August 7, 1947. The Kon-Tiki carried 250 liters of water in bamboo tubes. For food, they took 200 coconuts, sweet potatoes, bottle gourds and other assorted fruit and roots. The US Army Quartermaster Corps provided field rations, tinned food and survival equipment. In return, the Kon-Tiki explorers reported on the quality and utility of the provisions. They also caught plentiful numbers of fish, particularly flying fish, mahi-mahi, yellow fin tuna, bonito and shark.

The expedition used call sign LI2B and carried three watertight radio transmitters. The first operated on the 40 and 20 meters, the second on 10 meters and the third on 6 meters. Each unit was made up entirely of 2E30 vacuum tubes providing 10 W of RF input. As an emergency backup, they also carried a German Mark V transceiver originally re-created by Britain's Special Operations Executive in 1942. Other equipment included a hand-cranked emergency set of the Gibson Girl type for use on the maritime bands, a special VHF set for contacting aircraft and two British Mark II transmitters. The Kon-Tiki also carried a National Radio Company NC-173 receiver. Dry batteries and a hand-cranked generator supplied the power.

The December 1947 QST article stated that "the conditions under which the radio equipment aboard the raft was to operate presented many unusual problems. Proximity of the craft's deck to the sea and the relatively small protection afforded by the thatched bamboo cabin meant that the gear would have to withstand the effects of moisture. It was desired to have transmitter units light and tight enough so that if they should fall overboard they could be fished out and put to work again immediately. Operation was required on maritime and amateur frequencies. Both 'phone and c.w. were specified. The transmitters were to be tuned, closed up and remain watertight unless something went wrong. It must be possible to load them up on antennas of whatever length could be erected on available supports. With these requirements in mind, [C. F. Haddock] W1CTW and [H. A. Gardner] W1EHT of the National [Radio] Company's engineering staff designed and constructed the needed rigs. One transmitter was built to operate on 7 and 14Mc., another for 28 Mc. and a third for 50 Mc."

For the first 22 days following their departure from Peru, the only radio contact Kon-Tiki had was with OBE, the station of the Peruvian Naval School. LI2B kept to its schedule, trying to contact key amateur stations on specified frequencies without success. Finally, on May 20 at 9:44 PST, Harold Kempel, W6EVM, heard and worked LI2B on 14.142 kHz, providing the raft with its first North American contact. By mid-June, LI2B had worked numerous amateur stations.

As the trip progressed, a long-haul network of amateur stations developed. Stations in North America, the Canal Zone and Norway cooperated in handling the Kon-Tiki's traffic. [Gene Melton] W3FNG, in Washington, DC, relayed messages to and from the Norwegian Embassy. "On at least two occasions, urgent traffic was exchanged between the Embassy and the raft via this circuit," the QST article explained. "In one instance, a message was relayed from the raft to W3FNG, delivered by telephone to the Embassy, an answer procured and relayed in the reverse direction to Kon-Tiki -- all in a matter of 35 minutes elapsed time!"

Kon-Tiki's mission ended on August 7, 1947 -- just 101 days after departure from Peru -- when waves

deposited the raft on a reef off Raiora Island. "But the safety of the courageous crew which had made the venture a success was still at stake," the QST article said. "Half an hour after being stranded, LI2B was fortunate in making contact with [G. W. Hitch] ZK1AB on Raratonga, who was asked to stand a listening watch and communicate with the Norwegian Embassy in Washington if LI2B was not heard at the end of a 36 hour period. Just before the specified period ended, contact was established with [P. Fuller], WOMNU, and word of the landing passed along, thus avoiding the necessity of sending out any rescue parties."

In his book *Kon-Tiki*, Heyerdahl described the rush to make contact after landing on the reef, including the crew's despair as the NC-173 slowly dried after getting soaked in a shipwreck, gradually receiving at higher and higher frequencies until eventually settling on the 13.990 MHz frequency needed to make contact:

"Coils and radio parts lay drying in the tropical sun on slabs of coral. The whole day passed, and the atmosphere grew more and more hectic. The rest of us abandoned all other jobs and crowded round the radio in the hope of being able to give assistance. We must be on the air before 10 PM. Then the thirty-six hours' time limit would be up, and the radio amateur on Rarotonga would send out appeals for airplane and relief expeditions.

"Noon came, afternoon came, and the sun set. If only the man on Rarotonga would contain himself! Seven o'clock, eight, nine. The tension was at breaking point. Not a sign of life in the transmitter, but the receiver, an NC-173, began to liven up somewhere at the bottom of the scale and we heard faint music. But not on the amateur wavelength. It was eating its way up, however; perhaps it was a wet coil which was drying inward from one end. The transmitter was still stone-dead short circuits and sparks everywhere.

"There was less than an hour left. This would never do. The regular transmitter was given up, and a little sabotage transmitter from wartime was tried again. We had tested it several times before in the course of the day, but without result. Now perhaps it had become a little drier. All the batteries were completely ruined, and we got power by cranking a tiny hand generator. It was heavy, and we four who were laymen in radio matters took turns all day long sitting and turning the infernal thing.

"The thirty-six hours would soon be up. I remember someone whispering 'Seven minutes more,' 'Five minutes more,' and then no one would look at his watch again. The transmitter was as dumb as ever, but the receiver was sputtering upward toward the right wavelength. Suddenly it crackled on the Rarotonga man's frequency, and we gathered that he was in full contact with the telegraph station in Tahiti. Soon afterward we picked up the following fragment of a message sent out from Rarotonga: '...no plane this side of Samoa. I am quite sure...'"

"Then it died away again. The tension was unbearable. What was brewing out there? Had they already begun to send out plane and rescue expeditions? Now, no doubt, messages concerning us were going over the air in every direction. The two operators worked feverishly. The sweat trickled from their faces as freely as it did from ours who sat turning the handle. Power began slowly to come into the transmitter's aerial, and Torstein pointed ecstatically to an arrow which swung slowly up over a scale when he held the Morse key down. Now it was coming!

"We turned the handle madly while Torstein called Rarotonga. No one heard us. Once more. Now the receiver was working again, but Rarotonga did not hear us. We called Hal and Frank at Los Angeles and the Naval School at Lima, but no one heard us. Then Torstein sent out a CQ message, that is to say, he called all the stations in the world which could hear us on our special amateur wavelength. That was of some use. Now a faint voice out in the ether began to call us slowly. We called again and said that we heard him. Then the slow voice out in the ether said 'My name is Paul. I live in Colorado. What is your name and where do you live?'

"This was a radio amateur. Torstein seized the key, while we turned the handle, and replied, 'This is the

Kon-Tiki. We are stranded on a desert island in the Pacific.' Paul did not believe the message. He thought it was a radio amateur in the next street pulling his leg, and he did not come on the air again. We tore our hair in desperation. Here were we, sitting under the palm tops on a starry night on a desert island, and no one even believed what we said.

"Torstein did not give up; he was at the key again sending 'All well, all well, all well' unceasingly. We must at all costs stop all this rescue machinery from starting out across the Pacific. Then we heard, rather faintly, in the receiver, 'If all's well, why worry?' Then all was quiet in the ether. That was all. We could have leaped into the air and shaken down all the coconuts for sheer desperation, and heaven knows what we should have done if both Rarotonga and good old Hal had not suddenly heard us. Hal wept for delight, he said, at hearing LI2B again. All the tension stopped immediately; we were once more alone and undisturbed on our South Sea island and turned in, worn out, on our beds of palm leaves."

**After Kon-Tiki**

In 1951, Haugland married librarian Ingeborg Prestholdt. He participated in the Independent Norwegian Brigade Group in Germany from 1948-1949, continued in the Forsvarsstaben until 1952, when he was transferred to the Royal Norwegian Air Force. He headed the electronic intelligence service in Northern Norway during the Cold War. He held the ranks of Major from 1954 and Lieutenant Colonel from 1977. In 1963, Haugland left the Air Force to become acting director of the Norway's Resistance Museum; he was later made its permanent director and retired from this position in 1983. He was also the director of the *Kon-Tiki* Museum from its start in 1947, continuing until 1990.

**TRAVEL MANDOLIN**

*Fraser Cooper VE3FC*

Following some success with building a couple of small-bodied 'Travel Guitars', I thought I'd have a go at building a mandolin. I looked around on the Internet and found a small-bodied mandolin called the 'Sweet Pea', made by Weber Instruments in Montana. I downloaded a good photo of the wee beastie and scaled it from the known 'scale length' of 14 inches (355 mm).

I decided to build it, using my tried and true technique of laminating wooden blocks to make the basic shape, and then cutting out the final shape on a band saw.

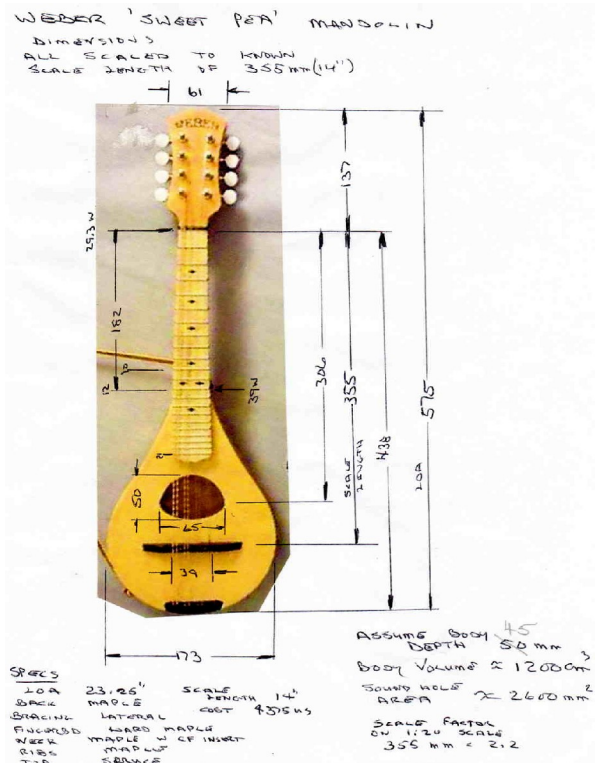
I selected some clear white pine and cut the necessary angles on a series of six short blocks. Glued and clamped them together, leaving the end joint free.

This tear-drop shaped assembly was then glued to a laminate of white pine and red cedar that would form the mandolin neck.

The red cedar was to provide a strengthening portion for the head/neck joint and to be a decorative strip after assembly. The head was laid out, holes for the tuning machines carefully drilled and counter-bored with about 0.1 mm tolerance on locations.

The head was glued and clamped to the neck .I used combinations of various clamps and heavy steel blocks, because clamping odd-shaped objects is never easy!

I then band-sawed around the inside and then the outside of the body, leaving a wall about 4 mm thick except



at the tail-block where it is about 10 mm. Once the inside was band-sawed, I could glue the end joint and breathe a sigh of relief that it hadn't broken. I glued-on the back, and applied final finish to the inside of it and the body. I band-sawed around the back to match the body. The top has one transverse brace under the bridge. I carefully cut and shaped the sound hole, finished the inside of the top and then glued it on. I have a photo of it at this point with about ten clamps around it. The top and back are 3 mm mahogany door-skin.

After band sawing around the top and cutting the neck to the final, tapered width the next several hours were spent sanding the body and neck to shape. I used a combination of a big sanding drum in the drill press, a belt sander, sanding drums hand-held in an electric drill and a lot of hand filing and sanding. Finally, it was ready for staining and finish coat. It got two coats of red oak and two of gloss polyurethane, wiped on.

The fingerboard was made from a section of mahogany door trim. The slots for the frets are laid out to a logarithmic formula and are cut using a small back-saw which produces the ideal 0.023 inch kerf. The fingerboard was then tapered to shape and the frets hammered in. I found that the fret ends wouldn't stay down, so pulled them all out and re-fitted them using Weldbond aliphatic glue. The fret wire comes in 2 foot lengths and I used about 1-1/2 lengths. The fret ends were filed to shape, brass locator pins fitted along the bassedge, and the board then stained with special oak. No finish.

The nut was cut out of a piece of cow bone I'd stolen from a dog several years ago. The bridge was made from a piece of hard maple I'd quarter-sawn from a section of firewood. The tailpiece was shaped from 2 mm steel and eight 'pegs' made from 2-56 machine screws were fitted. The tuners are off-the-shelf. The markers are brass Philips-head #4 wood screws that also hold the fingerboard to the neck.

I strung it with mandolin strings, all eight of them, but tuned it in a guitar sequence, A, D, F#, B. This makes it easy for me to play because I don't have to learn a new fretboard. I can just play it as if it were a guitar capo'd at the sixth fret. Standard mandolin tuning is G, D, A, E. It plays easily and sounds not bad at all. The action and intonation are nearly perfect as assembled, no adjustments needed.

I named it 'Petunia' since it's related to but different from the 'Sweet Pea'  
The case was made from pine and hardboard, lined with green flannelette.



**“We make a living by what we get.....We make a life by what we give”**

.....Winston Churchill