

# **Contents**

March 2022 ◆ Volume 106 ◆ Number 3

**David A. Minster, NA2AA** Publisher

Becky R. Schoenfeld, W1BXY Editorial Director

Bob Lee, KN6PXS Managing Editor

Caroline Kenney Leanna Figlewski Assistant Editors

Bart Jahnke, W9JJ Radiosport & Regulatory Information Manager

Rick Lindquist, WW1ME Happenings

Paul Cianciolo, W1VLF Product Review Lab Testing

Steve Ford, WB8IMY AI Brogdon, W1AB Pascal Villeneuve, VA2PV Bernie McClenny, W3UR H. Ward Silver, NØAX Dave Casler, KEØOG Paul Wade, W1GHZ Jon Jones, NØJK Rick Palm, K1CE Barry Shackleford, W6YE Kai Siwiak, KE4PT Bruce Draper, AA5B Phil Salas, AD5X John Stanley, K4ERO Contributing Editors

Michelle Bloom, WB1ENT Production Supervisor

Jodi Morin, KA1JPA
Assistant Production Supervisor

Maty Weinberg, KB1EIB Production Coordinator

David Pingree, N1NAS Senior Technical Illustrator

Janet Rocco, W1JLR Advertising Sales Manager

**Bob Inderbitzen, NQ1R**Public Relations and
Innovation Director

Yvette Vinci, KC1AIM Member Services Manager

Steve Ewald, WV1X
Field Organization Supervisor

9 | Second Century
"You think you're Mickey Spillane?"

A Compact 40-Meter Three-Wire Folded Loop
Jim McLelland, WA6QBU

Portable 20-Meter Phased Dipole Beam Bob Rose, KC1DSQ, and Bob Glorioso, W1IS

37 DL3FF Pendulum Bugs Dr. Rudolf Kalocsay, DL3FF

New Challenge Coin Commemorates NCJ's 50th Year of Publication

42 Product Review
Pascal Villeneuve, VA2PV
Four State QRP Group Bayou
Jumper 40-Meter CW Transceiver;
West Mountain Radio PWRcheck+
DC Power Analyzer; WiMo QRM
Eliminator; Monitor Sensors Power
and SWR Meter





The Heartbeat of the Shortwaves
Jen Glifort, KC1KNL

73 The 2021 IARU HF World Championship Results Bob Raymond, WA1Z

74 The April 2022 ARRL Rookie Roundup — Phone

**Q7** A Look Back: April 1972



#### Columns

Ask Dave	54
Celebrating Our Legacy	93
Classic Radio	94
Contest Corral	72
Correspondence	24
Eclectic Technology	58
Happenings	67
Hints & Hacks	56
How's DX?	78
Member Spotlight	13
Public Service	70
Up Front	20
The World Above 50 MHz	80
100, 50, and 25 Years Ago	96

# **Digital and Mobile Editions**

ARRL members can access the digital edition via a link at www.arrl.org/qst, download our iOS app from the iTunes Store, and download our Android app from the Google Play Store.

## **Departments**

ARRL Section Managers	16
ARRL Volunteer Examiner Honor Roll	86
Certificate of Code	
Proficiency Recipients	
Convention and Hamfest Calendar	83
Feedback	57
Field Organization Reports	71
Guide to ARRL Member Benefits	14
Ham Ads	124
Index of Advertisers126	, 127
Life Members	41
Officers, Division Directors, and Staff	15
QST Cover Plaque Award	66
Silent Keys	97
Special Event Stations	82
Volunteer Monitor Program Report	76
W1AW Qualifying Runs	
W1AW Schedule	
W1AW's QSL File	

## Write for QST

www.arrl.org/gst-author-guide email: qst@arrl.org





### **Our Cover**

This beautiful creature is a pendulum bug created by Dr. Rudolf Kalocsay, DL3FF, a ham and telegraphy enthusiast who was looking for a way to solve the problem of contact bounce destroying transceiver PIN diodes that other bugs have. His bounce-free design is dependent on photosensors, and the pendulum design minimizes the bug's footprint. Rudi developed two types (or perhaps we should say "species") of pendulum bug - the main difference being the manner in which the pendulum's oscillation is initiated. One functions by release of the pendulum pre-tensioned with a leaf spring, and the other (shown on our cover) replaces the leaf spring with a torsion spring that's initiated manually. Get the details on both bugs in Rudi's article, "DL3FF Pendulum Bugs." [Guido Flüchter, photo]



QST (ISSN:0033-4812) is published monthly as its official journal by the American Radio Relay League, Inc., 225 Main St., Newington, CT 06111-1400, USA. Periodicals postage paid at Hartford, CT, USA and at additional mailing offices.

POSTMASTER: Send address changes to: QST, 225 Main St., Newington, CT 06111-1400, USA, Canada Post: Publications Mail Agreement #90-0901437. Canada returns to be sent to IMEX Global Solutions, 1501 Morse Ave., Elk Grove Village, IL 60007.

US & Possessions: Membership in ARRL, including a 1-year subscription to *QST*, is available to individuals at \$49. Licensed radio amateurs age 21 and under and the eldest licensee in the household may qualify for the rate of \$25. Life Membership, including a subscription to *QST* is available at \$1,225.\* Membership includes \$21 per year for subscription to QST. Membership and QST cannot be separated. Libraries and institutions, \$49 per year. Single copies \$6.95

#### International

To compensate for additional postage for mailing outside the US, the following rates apply:

Canada: Membership in ARRL, including a 1-year subscription to *QST*, \$62, payable in US funds. Life Membership, including a subscription to *QST* is available at \$1,550.\* Libraries and institutions, \$62 per year.

All Other Countries: Membership in ARRL, including a 1-year subscription to QST, \$76, payable in US funds. Life Membership, including a subscription to QST, is available at \$1,900.\* Libraries and institutions, \$76

Membership without QST is available to the immediate family of a member living at the same address, and to anyone who is legally blind, for \$10 per year.

Foreign remittances should be by international postal or express money order or bank draft negotiable in the US and for an equivalent amount in US funds.

Membership in ARRL, including a 1-year subscription to Digital *QST* only, is available to Canadian and International members at \$49.

Copyright © 2022 by the American Radio Relay League Inc. Title registered at the US Patent Office. International copyright secured. All rights reserved. Quedan reservados todos los derechos. Printed in the USA.

QST®, DXCC®, VUCC®, DX Century Club®, ARES®, Amateur Radio Emergency Service®, Logbook of The World®, LoTW®, and ARRL, The National Association for Amateur Radio® are registered trademarks of the American Radio Relay League, Inc.

ARRL and QST in no way warrant the products described or reviewed herein.

QST is available to blind and physically handicapped individuals from the Library of Congress, National Library Service for the Blind and Physically Handicapped. Call 1-800-424-8567 or go to www.loc.gov/nls/.

Indexed by Applied Science and Technology Index, Library of Congress Catalog Card No: 21-9421.

\*Payment arrangements available. Please write for details.

In order to ensure prompt delivery, we ask that you periodically check the address infor-mation on your mailing label. If you find any inaccuracies, please contact the Circulation Department at circulation@arrl.org or 860-594-0200 immediately. Thank you for your assistance.

Reprints and permissions: permission@arrl.org Details of our Online Privacy Policy can be found at www.arrl.org/online-privacy-policy.

Telephone: 860-594-0200