



Dennis, WBØ/MCX, who has been appointed as ARRL Emergency Coordinator, has been busy meeting with Red Cross people, Civil Defense Coordinators, etc. Not only does he have a better understanding of their problems, he has been able to help solve one big problem for Civil Defense.

Here's the story:--

The Veterans Administration Hospital needed the space being occupied by the Collins Amateur Radio Equipment (which had previously been donated to the Hospital), and issued an order to "surplus" the equipment. Telephone calls and meetings between Pat McCarney (Civil Defense Co-Director), Dennis, and Dorothy, WBØVMX, resulted in a "hold" being placed on the equipment, and if nothing unforeseen happens, Civil Defense will be given the equipment. Civil Defense will have space in the new County Building, and communication equipment has been one of their Number One priorities. Naturally, the Iowa City Amateur Radio Club members will be called upon to handle communications in case of emergencies.

These same members will be called upon to keep the equipment in good working condition (some of the wiring needs to be replaced now), and, also, will be asked to volunteer to take the antenna system off the roof of the VA Hospital.

Pat McCarney told Dennis that the Club can use this Collins gear for Field Day.

Dennis has cards he would like all members to fill out. He needs information about your equipment and your availability in case of an emergency in Johnson County. He will have these cards at the April meeting. If you can't make the meeting, call him at 337-4777 and give him the information over the telephone.

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Kenny, WBØZXU, presided over the March meeting in Charles' absence. Excellent attendance again--lots of people paying dues and lots of new members. Gary, KØGVB, gave us a wealth of information about propagation, and, also, gave out a few secrets about obtaining QSL cards.

If anyone in the Club needs information on operation of a spark gap CW transmitter, I'm sure WØGCQ would certainly be willing and able to help--having had lots of experience in this particular branch of Amateur Radio.

Dr. Paul Huston received his first ticket at the age of "eleven, going on twelve" when the examiner at the FCC test point allowed him a little leeway. The minimum age limit for an Amateur License in 1913 was twelve years of age, but the aforementioned leeway was granted to "young Paul," and he was given ticket number 9UB. He operated on this until all amateur licenses were canceled when the United States entered World War I. Initially, his operation was limited to a home brew, crystal-controlled spark gap generator with a large condenser made of alternating copper and glass plates submerged in an oil bath. The antenna consisted of a flat, four-sided, thirty-foot antenna at an elevation of about twenty-five feet. A receiver, equally as primitive, and also home-brewed, completed his radio shack. Later, he added a primary and secondary slider for frequency control.

In 1919 Amateur Licenses were again issued and the former 9UB became 9CUY. When tubes were first used in radios, 9CUY saved enough money (\$7.50) from his paper route to purchase an Audion tube. This was a glass tube with protruding wires and no base. Using this tube as a core he built himself another transmitter and was back in operation again.

When Paul started college he did not have the necessary equipment, or the time, to set up a station at his school location, but he kept in touch listening on a receiver at school and operating at home during weekend visits.

During the time of his advanced education his entire collection of QST, dating from 1913 to 1925, was lost or disposed of by mistake. This amounted to quite a loss of reference material of historic value.

In 1962 Dr. Huston discovered that anyone who had held an Amateur License before 1914 was, upon proof of having held this license, automatically entitled to an Extra Class ticket. Luckily, he read that the A.R.R.L. had a list of all pre-war licensees in a magazine in their possession at the Club Headquarters in Newington, Connecticut. Dr. Huston lost no time in going to this source of information to obtain a copy of this list, which included his former

license. This he submitted to the FCC. His efforts were rewarded by the issuance to him of an Extra Class ticket, WØGCQ.

WØGCQ has had two periods of membership in the A.R.R.L.-- from 1913 until 1925, and from 1962 until the present time. He has been a member of the Iowa City Amateur Radio Club since 1965, and served as President in 1970.

Paul Huston was born in Delphos, Ohio, attended elementary school in Napoleon, Ohio, and graduated from high school in Indianapolis, Indiana. He was also enrolled in a special science course at Purdue University while attending high school.

Dr. Huston graduated from Yale Medical School, and served his internship at the Indiana University Medical Center. In 1940 he came to the State University of Iowa for his residency in Psychiatry. One year later he received a faculty appointment and in 1956 he was named Director of the Psychopathic Hospital. This position he held until his retirement in 1971.

Our subject was married in 1932, and has two sons-- John is a professional photographer in St. Louis, and David is a professional pilot for the Hansen Lind Meyer Architectural firm here in Iowa City.

WØGCQ still enjoys building much of his test gear and other equipment, as well as operating it. At present he has in his shack a home brew, 2-meter, all mode tranceiver, which he built from plans in QST, along with a 200-watt amplifier (which is another home-brew project).

At the time of this interview he was not operating on the two-meter band because he had lost his antenna, but was working on a replacement. He also has a KWM-2 transmitter, and a Hunter Bandit amplifier feeding a 15-meter beam.

I hope all of our readers enjoy reading the history of this very enthusiastic amateur operator and builder as much as I enjoyed interviewing him.

Dr. Paul Huston, thank you very much.

de Dick, WBØVMV

Apr 78	75.0	Apr 79	120.3	Apr 80	152.0	Apr 81	134.8
May 78	80.6	May 79	124.5	Apr 80	153.6	May 81	127.8
Jun 78	85.1	Jun 79	127.8	Jun 80	152.2	Jun 81	126.2
Jul 78	89.5	Jul 79	131.1	Jul 80	150.9	Jul 81	126.2
Aug 78	93.6	Aug 79	136.1	Aug 80	149.8	Aug 81	125.6
Sep 78	97.6	Sep 79	138.2	Sep 80	146.2	Sep 81	123.4
Oct 78	99.7	Oct 79	140.8	Oct 80	145.4	Oct 81	122.3
Nov 78	103.3	Nov 80	145.0	Nov 80	143.7	Nov 81	121.2
Dec 78	107.1	Dec 80	148.1	Dec 80	141.2	Dec 81	120.6

It is clear that if the predictions hold true, cycle 21 will be a whopper and will likely parallel cycle 18 and have an impact almost as severe as cycle 19. During periods of high solar activity, many services will be detrimentally affected. Satellite damage from solar radiation is one example. Communications and power will be interrupted. VLF Omega navigation alert used on overseas aircraft would likely be affected rendering the service at times, next to useless. Worse may be the impossibility of warning users that the system is failing. Space travel and related health hazards will become a significant factor to take into account. Magnetometer survey work for natural resources will be affected to such an extent that at times, the investigations would have to be curtailed with a severe cost impact on such resources even before production. CB radio on HF will likely be sheer havoc with skip interference. And now there is new evidence to support the fact that the weather is directly affected by solar sunspot behavior and geomagnetic occurrences previously thought to be unrelated.

HR Report feels that the amateur community should be made aware of a highly accurate prediction that may well not only affect our use of the radio spectrum, but likely our daily lives and our destiny.

W9RX

## SUNSPOT CYCLE 21—THE PEAK, HOW MUCH, AND WHEN

By O. Okleshen W9RX (Propagation Editor HR Report)

Of the many methods and authors of the "how much and when" of a solar cycle maximum, the most recent and likely the most accurate method has been devised by A. I. Ohl, a Soviet scientist whose first publication was reported in *Solnechnaya Dannye*, #9 pp 73-75. H. H. Sargent III, Space Environment Services Center, Boulder, Colorado, modified the Ohl theory thus enhancing the accuracy of the basic method developed by Ohl. The theory is based on the Regression Of Recurrent Geomagnetic Activity Recorded From The Prior Cycle To Predict The Sunspot Maximum Of The Forthcoming Cycle.

Mr. Sargent modified the Ohl theory by taking into account finer time resolution and more accurate data than was available to Ohl. The Ohl theory, as modified, provided accuracies of maximum sunspot cycle peaks when tested against observed data within an accuracy of 1% in some cases. While not so in every case, accuracies within 5% of maximum sunspot level predictions appear to be common. Compared to any prior known methods, the Ohl/Sargent method would be, by far, a major breakthrough in the prediction of sunspot cycle maximum levels, when accuracy and other advantages are considered. The data used to establish and test the original Ohl theory was extracted from the last 110 years. The data before 1848 is dubious because of the information and techniques available. For that reason, some of the other theories used at that time to predict sunspot maximum levels may be erroneous.

Many other methods have been used to achieve individual and combined success to determine maximum sunspot peak levels. The IGY peak of 1957 led to anticipation of a peak level, certainly of a magnitude that would stimulate IGY research. One often used method is a "slope" technique that observes the rate of upward change at the beginning of a new cycle. This observed rate of change is then projected to a peak value. The Ohl method has two most important advantages over all other theories and methods of establishing the sunspot peak level. First, it appears to be superbly accurate, and second and probably most important, the Ohl method gives a year's earlier lead time. It is only necessary to use data from the prior decaying cycle.

The exact mechanism between the prior cycle recurrent geomagnetic behavior and the succeeding cycle sunspot maximum is not clear. However it is likely that one is directly related to the other in solar physics whereby it is even possible that a new definition of a solar cycle may have to be established. Conjecture may place some possible validity in the theory that coronal holes that relate to recurrent geomagnetic disturbances may be the birthplaces for the succeeding cycle sunspot regions. This aspect of course would have to be studied and proved.

This special report contains material from W9RX and extractions from a paper composed by H.H. Sargent III, Space Environment Services Center, Boulder, Colorado. Mr. Sargent will be presenting his paper "A Prediction for the Next Solar Cycle" March 24th to the IEEE Vehicular Technology Group Conference in Denver.

There is no doubt that the Ohl/Sargent method has great potential, as those needing accurate sunspot predictions are and have always been confronted with widely ranging opinions. We know that cycle 21 predicted maximums of 50 to 60 have already been exceeded; the February 1978 smoothed sunspot level has already reached at least 90 with the cycle peak approximately two years into the future!

As for specific figures of what may be in store for amateur radio, the following highlights and numbers have been extracted from the work of Mr. Sargent.

Predicted Smooth Sunspot Maximum For Cycle 21 By Ohl/Sargent....153.6

Approximate Arrival Date Of The Maximum.....early 1980

Prediction Of Smooth Sunspot Level Maximum By Method Of Ratios..158.0  
(This method takes the averaged smoothed odd cycle peaks divided by the averaged smoothed even cycle peaks times the peak of cycle 20)

Accuracy Of The Ohl/Sargent Method As Tested With Observed Data  
From Cycle 20 And Compared To Cycle 20 Sunspot Peak Level..nearly 95%

Twelve Hour Periods With Geomagnetic "A" Indices Of  
100 Or More Expected In The Next Ten Years.....81  
(an "A" index of over 50 indicates a major geomagnetic storm)

Monthly Smoothed Predicted Sunspot Numbers  
Using The Modified Ohl Method For Cycle 21

Jan 78	-----58.6	Jan 79	-----110.8	Jan 80	-----151.5	Jan 81	-----139.0
Feb 78	-----64.4	Feb 79	-----114.6	Feb 80	-----153.4	Feb 81	-----135.8
Mar 78	-----69.6	Mar 79	-----116.8	Mar 80	-----151.4	Mar 81	-----133.7

From HR Reports: FCC's Amateur Call Sign structure has been completely overhauled and a new policy, effective March 24, 1978, has just been released. No special call-signs or special events call-signs will be issued, and licenses for personal secondary stations will no longer be renewed. Call areas will remain and will determine the prefix of a call-sign issued to an address in that area, but an individual can retain his call-sign indefinitely if he wishes, even if his permanent station location changes call area.

2 x 1 and N x 3 call-signs will soon be heard under the new policy which divides call-signs into four "groups."

Group A includes 1 x 2, 2 x 1, and 2 x 2 (AA-AL prefixes), available to Extras only. 2 x 1's will be the first call issued.

Group B includes 2 x 2's other than AA-AL, and will be available to Advanced Class license holders.

Group C is 1 x 3 call-signs, available to Generals and Technicians. N x 3's will be the initial Group C issue.

Group D is 2 x 3's for Novices.

Under Phase 1 of the new call-sign assignment plan, any newly licensed Amateur will receive a call-sign determined by the new system, and any present licensee who upgrades may, if he wishes, receive a new call-sign appropriate to his new status. For example, a newly licensed Amateur who starts out as a General will receive an N x 3 call-sign, while a Novice with a 2 x 3 who upgrades to Advanced can trade it in for a 2 x 2 if he wishes. Requests are made by specifying on line 13A of Form 610, "Please, assign a Group \_\_\_ call-sign" when filing the application. Extras are also eligible in Phase 1, and those who have received 2 x 2 call-signs can request a change to a 2 x 1 before October 1, 1978. Future Phases will permit Advanced and later General and Technician licensees to change their call-signs as well.

New prefixed for U.S. Pacific and Caribbean Islands are: KHI Canton; KH2 Guam; KH3 Johnston; KH4 Midway; KH5K Kingman; KH5 Palmyra; KH6 Hawaii; KH7 Kure; KH8 Samoa; KH9 Wake. Also, KP1 Navassa; KP2 Virgin Islands; KP3 Serrana Bank; KP4 Puerto Rico. The Marshall Islands and

Guantanamo Bay are not FCC administered, so their callsigns remain unchanged.

144.5 - 145.5 MHz will be the new 2-meter repeater sub-band, and WR callsigns will become extinct as a result of the Commission action on the various petitions for reconsideration on Docket 21033 on Wednesday, March 24, 1978.

In addition Technicians will, also, receive the rest of 2-meters. Repeaters will not be permitted to use 220.0-220.5, 431-433, or 435-438 MHz to permit weak signal and satellite communications on those bands. The only petition request not granted was for continuation of repeater licenses, which the Commission considered an unnecessary workload.

Further details on the decision, which still has some editorial changes, are not available at this time.

In the meantime, the recent waiver permitting repeater operation under an individual's own callsign (HRR 189) remains in effect.

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Just finished condensing this information from HR Reports when I received a telephone call from Gene KØCKX.

He confirmed the information that effective May 15, 1978, hams with Technician licenses will be allowed to use all above 50 MHz.

He has received word that if a Novice license does not expire before May 15, 1978, it will automatically be changed to be in effect for five years, and it will be renewable. All Novices whose licenses expire before that date will need to be retested.

Also, Gene had received word that John Tinker has received his Advanced ticket--WDØGPC. Congratulations, John!

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Francis, WØTCH, would like to see more information in the RAG about DX events and contests. We'll try to comply with that request in the near future.

A recent HR Report had this information: FCC's Special Phone Number for legal or technical questions is (202) 632-7510, while requests for FCC participation at Hamfests and Conventions should go to (202) 632-7520. License Processing Status inquiries should go direct to the Gettysburg facility now--call (717) 334-7631 for information on Amateur licenses.

Did a little checking and found that the FCC in Chicago has two telephone numbers. (312) 353-0195 is the number to call for general information about the FCC. When you call the second number, (312) 353-0197, you are connected to a recording which imparts the following information:

The FCC office in Chicago is open for normal office hours from 8:30 to 5:00 Monday through Friday. If your inquiry is about Interference (to TV, Radio, Electric Organ, Stereo, Telephone, Home Entertainment system) put your complaint in writing and send it to

FCC, Room 3935  
230 S. Dearborn Street  
Chicago, IL 60604  
Attention: Department 7

The FCC will send you materials to help resolve the problem in cooperation with the radio operator. If the interference is of an emergency nature that impairs safety services, such as police or fire, call (312) 353-0195, or if the emergency is after hours, call Washington, D.C. (202) 632-6975.

Then the operator gives the times and days for various examinations which are given in Chicago--Radio Telephone Operators Exam on Wednesday and Thursday, 8:45 and 1:00 and Amateur Radio and Telegraph Operator Exams on Tuesday and Friday at 8:45 and 1:00.

By the way, the FCC will be giving Amateur Radio Examinations in Rock Island on May 26, 1978. The last time they gave these for two days. At this point only one day is planned for May.

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FOR SALE: HEATH HW-2036, 2-Meter Synthesized FM Radio and Micoder for only \$250.00. Call KØCF.