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THE CINDA NEUTRON DATA INDEX

An illustration of complementarity between
mission- and discipline-oriented information systems

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ABSTRACT

The system design and operation of the CINDA computer index to neutron data, and the links between CINDA and files of numerical neutron data, are presented as an illustration of the working of a specialised information system. The advantages procured by simple indexing conventions, file operations oriented towards the work being reported rather than the medium in which it is published, and a file small enough for easy retrospective searching, are contrasted with the difficulty in assuring full coverage of the literature.

A comparison with production methods of the literature-oriented, wide subject scope indices such as INIS suggests that regular cross-checking of specialised files against corresponding subsets of appropriate global indices could be useful to both types of system. Furthermore, such systems are complementary in the service they offer to users, and it is suggested that users might be well and relatively cheaply served by maintaining copies of appropriate complementary computer files at decentralised retrieval points.

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1. Introduction : Global and specialised data files

An examination of the information services available in different scientific and technical fields suggests that they can be classified into two main types : the discipline-oriented bibliographies, which cover a wide subject scope such as "Physics" or "Nuclear Science and Technology" and have right from the start been big enough projects to require formal support from parent institutions, and some small, specialised indices and data compilations which grew up in the shadow of these global indices and may be seen as a personal collaboration between members of the 'invisible colleges' of different specialities, who had begun to feel that the flow of information of possible interest to them could no longer be scanned by coffee-break conversations and exchange of preprints.

It seems likely that similar ideas for mission-oriented projects evolved independently in several fields in the 1950's. What grew up was a number of specialised literature indices, accompanied, at least in the physical sciences, by compilations of numerical data from all available measurements of physical phenomena in various well-defined categories.

If individuals, sometimes with very little encouragement from their employers, found it worthwhile to build up such files, it must have been because they felt they could do better for their particular field than the global bibliographic indices covering the whole discipline. Why? And why later on have government agencies found it worthwhile to fund such projects, which on the face of it simply duplicate the work of the global indices?

There is no real contradiction. We will argue here that ten years ago these specialised services could outdo the global indices in any particular field just because of their small size and limited scope, so that progress in some important fields could be boosted by sponsoring such projects. In the long run, computerisation will allow the large systems to overcome the disadvantages of their size; at the same time, increasing use of computers is extending the role of the specialised information services in a direction where the global files can scarcely follow them. We will use the CINDA Computer Index to Neutron Data, contrasted with NSA and now INIS, to illustrate this development.

2. The CINDA Neutron Data Index : the earlier years

The CINDA file began life in 1956 as a cooperative index organised by Goldstein and Kalos in association with a number of other neutron physicists in the U.S.A. and Western Europe. The index contained references to measurements and theoretical work concerning neutron-induced nuclear reactions, plus a minor proportion of other information of interest to reactor physicists. The file was first made widely available when the CINDA65 cumulation [1] was published by OECD. Its aims and visible structure have changed very little over eighteen years, but the cooperation which produces it has been extended to a world-wide four-centre network of neutron data banks (TABLE I) in addition to individuals acting as laboratory correspondents. The master CINDA file is currently maintained at CCDN, Saclay, while the annual CINDA cumulative indices are published by IAEA on behalf of the four centres; a parallel master file was until recently maintained at TIC Oak Ridge.

Figure 1 shows a page from the CINDA65 edition, and CINDA's most important conventions are immediately apparent:

1. The literature is indexed following the features of greatest interest to the neutron physicist - element and isotope, reaction or other quantity studied, and the range of neutron energies: in other words the parameters specifying the measurement. On average, there are about five CINDA entries for each reference.
2. Following the literature reference, we find the type of work (experiment or theory, etc.) and type of publication,

the laboratory of origin, and a comment which may give the name of the principal author, and should tell more about the work.

Fine, but what is so special about that?

We contend that what scientists want most from a bibliographic index is quick, accurate and retrospective information retrieval, and that the growth and survival of specialised index publications in the period prior to any very sophisticated computerisation of scientific information was due to a marked superiority by these criteria.

In the 1950's and early 60's, NSA and global indices for other disciplines may be seen chiefly as abstract journals providing a current awareness service : retrospective searching was possible through a succession of published indices, but such a search might take a long time for the inexperienced user who had to develop his own search profile by trial and error, navigating between irrelevancy and under-retrieval. Now look again at Figure 1.

First, the index and the abstracts are combined. This is only feasible where the subject structure is so well defined that only a single approach route need be maintained to each "target" piece of information. Second, the amount of work to be indexed is so small that all similar pieces of information can be printed together : the retrospective bibliography on some particular topic was likely to cover less than one page of CINDA65.

These advantages of CINDA over a global index were due to its small size - in 1965, some 25,000 entries for probably 5,000 literature references - and to the fact that the inner logic of the indexing structure is obvious to a neutron physicist, so it did not take him long to learn to use it. In 1965 the index had 1,000 pages and a physicist could keep it on his desk: CINDA74 has 100,000 entries, but it has been possible to control its weight and the cost so that physicists can still keep a personal copy to hand.

3. More recent developments in CINDA

Figure 2 shows a page from CINDA74 [2], and although the indexing scheme is unchanged, several developments are obvious. The layout has changed, the type is much smaller, though still clear, and there is wide use of lower case lettering. The type-setting and layout programs, and the Linotron type-setting, are the work of the IAEA Nuclear Data Section and GMD Frankfurt. This is how the book has been kept to a reasonable size and cost.

Now examine the content. First, there are several groups of two or more entries, each for a different reference, but related to the same experiment. This treatment of the literature explosion is a natural consequence of orienting the index towards measurements rather than literature references. In the later 60's CINDA's users complained strongly that they wasted time getting hold of different publications only to see that the work reported was identical, and much of CCDN and other centres' work in that period went to grouping entries together in "experiment blocks". We do not know of other indices which have made a major effort to clear up the confusion caused by repeated publication of similar results.

Secondly, there are many plus signs under 'Data' in the right-hand margin. Some lie opposite entries whose 'Type' is 'Data' - these entries constitute the computer links to the EXFOR data exchange between the four centres, or to certain evaluated data sets. The others result from an earlier comparison of CINDA with the CCDN numerical data file. Finally, nearly all entries contain information for all the parameters listed across the page : most blanks correspond to repeated information which has been suppressed in printing.

4. CINDA reprogramming at CCDN

The main factor behind these changes, and behind others which are not obvious in the CINDA book, is some four years' programming work at CCDN in preparing a new disc-based file maintenance system for CINDA [3], and in converting the previous file, correcting errors and filling gaps in individual entries so as to upgrade them to a common format standard. These new programs fully reflect the "experiment block" structure of the file, and allow link information to CCDN's other files to be incorporated in a very natural way. New entries and corrections are tested very strictly so as to keep the file clean, while fast and selective retrievals can be made on ten independent parameters of interest to users, plus various parameters belonging to file administration. This information is also needed in programming links to other files with a different indexing structure (TABLE II).

Indeed, the most important consequences of CINDA's new structure are not visible from the published cumulation. The more even quality of the entries has, we hope, benefited CINDA's users. Although it is far from complete, work put into blocking together entries for the same experiment and filling gaps in literature coverage, plus the links to data files (TABLE II), has much improved CINDA's usefulness as a tool for numerical data compilation, and it is no longer a pipe dream to imagine it as the central index of a fully integrated CCDN data storage system. At the very least, inclusion of data lines in CINDA has saved the cost of publishing separate indices for numerical data.

Among CCDN projects for which the new system is proving extremely useful is that of strengthening CINDA's links with nuclear physics laboratories. In the same way that proof copies of newly coded numerical data are sent to the authors for checking, the first CINDA "author proofs", separate retrospective listings for the work of each author, have recently been sent out for correction by authors.

In the meantime, the services provided by the global bibliographies have benefited greatly from fuller computerisation. NSA and other indices of long standing such as Chemical Abstracts have been computerised for a few years now. At first they could only offer current awareness services : previous entries in the index were not stored on computer media, and early systems probably could not easily handle the vast amount of data to be covered in a retrospective search. Now these files can be accessed through very performant search programs, so that much of the theoretical advantage which CINDA in particular gained from its small size has been eroded. In practice very few users do search bibliographies by computer, and the CINDA book's compactness is still valuable. This advantage is supplemented by the system's laboratory contacts and links to other files.

5. Complementarity between specialist and global indices

We have tried so far to illustrate the advantages obtained from the superior flexibility of smaller files. Most fields are not covered by specialist indices, and the narrowest specialist will occasionally need to consult one of the global indices. Obviously, they are complementary as regards coverage of different subjects.

At least for neutron physics, the different indices have serious defects in common. Incomplete literature coverage is the worst, followed some way behind by errors in indexing. We have recently compared small sections from INIS and NSA with corresponding parts of CINDA. Although the sample was too small to draw any firm conclusions, it seems that the literature coverage of each file, and even of all three files taken together, is seriously incomplete. It needs a fuller study to see just how bad the problem is, and how it arises : one way to monitor coverage and indexing errors is regular computer-aided comparisons between specialist files and matching subsets of the global indices. The "blanket" literature coverage of the major indices is complemented by the information entering a specialist index through direct contacts with laboratories, and links to data compilations.

6. Decentralised access to scientific information services

As we mentioned already, a scientist is likely to consult several different global or specialised indices, and numerical data files, within his field.

He will be well served if he can access these different files from a common retrieval point, just as he can borrow a variety of books from the same library. This can at present be done only by interrogating the files through a computer network. The high cost of linking geographically remote scientific data files is partly justified by the complementarity of the information obtained. I would like to end this paper by suggesting a cheaper way of getting the same result.

Suppose that data centres maintaining master files should distribute slave copies of these files to major laboratories interested in them (this is already done by INIS). The master centres would also supply standard update and file search programs, and slave files would be regularly updated with material sent from their master. This would allow host laboratories to function as local retrieval points, with active responsibility only for coordinating retrieval services. At a time when computer logic and information storage is becoming cheaper, and cables more expensive, such an approach might be worth careful consideration.

7. Acknowledgements

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R E F E R E N C E S

- [1] CINDA65 (EANDC 46 'U'), OECD, Paris (1965) .
- [2] CINDA74, IAEA, Vienna (1974).
- [3] TUBBS, N.A., WILLARS, H., RICKEBY, C. "NEW CINDA System Description", NEA/CCDN, Saclay (in preparation).

TABLE I
The World-wide Four-Centre Network of Neutron Data Banks

<u>Centre</u>	<u>Site</u>	<u>Service Area</u>
National Neutron Cross Section Center	Brookhaven, USA.	USA, Canada.
Centre de Compilation de Données Neutroniques (OECD)	Saclay, France.	Western Europe, Japan.
Nuclear Data Section (IAEA)	Vienna, Austria.	all other countries except USSR
Centr po Jadernym Dannym	Obninsk, USSR.	USSR

TABLE II
CCDN Computer files and links to CINDA

	<u>Project Name</u>	<u>CINDA Link ?</u>
CINDA :	(Computer Index of Neutron Data), with about 110,000 records representing 21,000 bibliographic references to the neutron-data literature;	
NEUDADA :	(Neutron Data under Direct Access), containing about 2,000,000 records of numeric values and associated non-numeric information;	Yes
Evaluated files :	Containing about 500,000 numeric values in various formats (KEDAK, UKNDL, ENDF ...);	UK format files
REND A :	(Requests for Neutron Data), containing 1,300 official requests for measurements;	No
EXFOR :	(Exchange Format). Some 900,000 records transmitted since July, 1970.	Yes

ELEMENT		QUANTITY	ENERGY		SOURCE	REFERENCE		TYPE	LAB	REMARKS OR VALUES	PAGE		ENTRY	NO.
S	Z		MIN	MAX		DATE					446		DATE	
NB	41	093	N,GAMMA	14 7	BNL 732N6 3	6/62	EXPT-PROG	ARK	0.44 MB PM 0.25				650301E2	501191
NB	41	093	N,GAMMA	10 1 10 5	JETP15 687	0/62	-		AGREES WITH OTHER DATA				650210UC	15173
NB	41	093	N,GAMMA	15 7	NSA 17 309	1/63	-		NDG TID-16949 ARKANSAS THESIS				650210UT	15174
NB	41	093	N,GAMMA	30 4 65 4	PR 129 2695	3/63	-		ORNL S EQ 264 + 135 MB				650210UA	15175
NB	41	093	N,GAMMA	1 3 1 5	JET 16 1409	6/63	-JOUR	CCP	EXP.COMP.WITH THEORY	9165			650301UC	21275
NB	41	093	N,GAMMA	2 3 1 5	NP 45 156	7/63	-		OPTICAL THEO.COMP.WITH EXP.				650210UC	15953
NB	41	093	N,GAMMA	NDG	WASH1048 63	6/64	EXPT-PROG	LOK	GRENCH,PRELIM XPTS,NDG.TO ISOM LVL				650429U	23519
NB	41	093	N,GAMMA	30 1 30 2	WASH1056 VIA1	3/65	EXPT-PROG	GA	FRIESENBAHN,TBC,NDG.SFE RES PARS				650324UG	22100
NB	41	093	SPECT NGAMMA	TH	NSA 16 3667	0/62	-		SOFT LINES NDG, ARF-1193-12				650210UT	3377
NB	41	093	SPECT NGAMMA	36 1 50 2	PR 131 2153	9/63	-		ANL GRAPHS + TABLES GIVN				650210UA	15954
NB	41	093	SPECT NGAMMA	THR	WASH1056 XII18	3/65	EXPT-PROG	ORL	SLAUGHTER LI-GE DET,CFD OTHERS				650420U+	22804
NB	41	093	SPECT NGAMMA	THR	BAP 10 499GB12	4/65	EXPT-ABST	ORL	STRONG 6830 G. CAPTURE MOSTLY IN 4+				650420UK	22805
NB	41	093	N,PROTON	14 7	PR 108 779	N/57	-		PENN 22PM8 MB PROT P605MEV APED				650405U	15177 BNL
NB	41	093	N,PROTON	15 7	NSA 17 309	1/63	-		NDG TID-16949 ARKANSAS THESIS				650301UT	19960
NB	41	093	N,PROTON	14 7	NP 60 273	N/64	COMP-JOUR	IND	CHATTERJEE XPTL VALUES AV CFD THEORY				650420EU	501192
NB	41	093	N,ALPHA	14 7	WASH 190	2/56	EXPT-PROG	ORL	9PM3MB				650210U	17402
NB	41	093	N,ALPHA	PILE	KISR1 48 NORW	58	-		0.024 MB ACT UNESCO CONF				650210U	15178
NB	41	093	N,ALPHA	14 7	PR 110 531	4/58	-		ORNL 900PM202MB				650210U	15179
NB	41	093	N,ALPHA	FISS	NUCL17 1 54 GE	1/59	-		ROCHLIN 0024MB				650210U	15180
NB	41	093	N,ALPHA	82 6 15 7	*PG TEWES	3/60	-		+ IN MKL ACT S PM 10PC OR 10MB				650210UK	15181
NB	41	093	N,ALPHA	82 6 15 7	WASH1028 PG66	4/60	-		LRL,ACTIVATION,PRELIM DATA GIVEN				650210UT	15183
NB	41	093	N,ALPHA	84 6 15 7	UCKL6028T TEWE	6/60	-		ACT TBC 14ES 2.0 TO 12MB PM20PC				650210UG	15184
NB	41	093	N,ALPHA	70 7 20 7	LA 2493 FIG38	0/60	-		S=0.3,7.2MB ACT				650210UK	15185
NB	41	093	N,ALPHA	84 6 15 7	BNL 653(N-3)	2/61	-		UCKL EXCTFUNC NDG				650210U	15186
NB	41	093	N,ALPHA	14 7	JIN 24 1321	62	EXPT-JOUR	ARK	Y90G 8.6MB PM2.5 Y90M 5.9MB PM2				650301E2	501193
NB	41	093	N,ALPHA	15 7	NP-11667ALFROD	4/62	EXPT-REPT	USA	UMC 5+-2MB REL C063 N2N OF 586MB				650311U+	21565
NB	41	093	N,ALPHA	14 7	BNL 732N6 3	6/62	EXPT-PROG	ARK	8.6 MB PM2.5 Y90G 5.9 PM2 Y93M				650301E2	501194

Figure 1. A page from CINDA 65, showing the indexing structure oriented towards measurements rather than literature references.

41 Niobium 93

Quantity	Energy (ev)		Lab	Type	Documentation		Author,Comments	Data	
	Min	Max			Ref	Vol Page	Date		
(n,α)	7.0+6	2.0+7	LAS	Expt	Rept	LA- 2493	Dec60 Bayhurst+,ACT EXCITATION CURVE ONLY		
					Jour	JIN 23 173	Dec61 DATA *		
(n,α)	8.4+6	1.5+7	LRL	Expt	Prog	BNL-653	Feb61 .EXCITATNNFUNCT. NO DATA GIVEN		
(n,α)	1.5+7		RED	Expt	Jour	PR 123 1365	Aug61 Alford. = 1 DATA INDEX LINE	+	
(n,α)	7.0+6	2.0+7	LAS	Expt	Jour	JIN 23 173	Dec61 Bayhurst+.18ES.FROM BETA ACTIVITY	+	
					Rept	LA- 2493	Dec60SEE ALSO *FOR EXCITATION CURVE		
(n,α)	1.5+7		USA	Expt	Rept	NP-11667ALFROD	Apr62OMC 5+ -2MB REL CO63 N2N OF 586MB		
(n,α)	1.5+7		ARK	Expt	Jour	PR 131 2649	Sep63 Bramlitt+ M=5.9+ -2MB,GR=8.6+ -2.5MB	+	
					Jour	JIN 24 1321	Dec62SUPERSEDED*		
					Rept	BNL-732	Jun62 .SUPERSEDED		
(n,α)	7.5+6	2.0+7	CIS	Theo	Jour	NP 51 449	Feb64 Saettamenichella+STATMOD CF EXCIT FN		
(n,α)	1.4+7		CIS	Theo	Jour	NP 51 460	Feb64 Facchini+STATMOD SIG XPT/CALC1.6-1.8		
(n,α)	1.5+7		RBZ	Expt	Jour	NP 54 17	May64 Kulisc.E+ANGDIST+SIGTOT.CFD TH.CURV	+	
					Data	EXFOR30130.	Mar71 SIGMA, ANG-DISTR, ALFA-SPEC(3ANGLES)	+	
(n,α)	1.5+7		SAH	Expt	Conf	66Bombay 209	Feb66 Basu+.2VALS FOR 2STATES GVN,Q-VAL		
(n,α)	1.4+7		GDT	Theo	Rept	AFWL-TR65 I216	Mar66 Carter+ STATSTCL TH VS NUCLEAR TEMP		
(n,α)	1.5+7		GDT	Expt	Rept	AFWL-TR65II216	Jun66 Western+ C-W, 3.1H, 5.2+ -0.3MB		
(n,α)	4.6+6	1.5+7	GA	Eval	Rept	GA- 8133	Aug67 Allen+DRAKE FOR ENDF/B 23 POINTS		
(n,α)	1.4+7	1.5+7	NAP	Comp	Rept	INFN/BE-67-11	Sep67 Cuzzocrea+ AVERAGED CHOSEN DATA.		
(n,α)	1.4+7	1.5+7	IRK	Comp	Jour	OAWS 177 465	69 Hille.		
(n,α)	1.4+7		HAM	Expt	Prog	EANDC(E)115U	Mar69 Seebeck+.ANG DISTR		
(n,α)	1.5+7		KAZ	Expt	Jour	YF 10 44	Jul69 Levkovskij+ 2 ABSOL.SIGS+HLS,ACTIVTN		
						-	= ENGLISH SNP 10 25 JAN/1970, NO 1		
(n,α)	1.5+7		DEB	Comp	Jour	REA 7 93	Dec69Csikai+ SIG+HL COMPILT,N- ACTIV-ANAL		
(n,α)	1.4+7		RBZ	ExTh	Conf	69Roorke 2 21	Dec69Chatterjee+ CFD P-ALFA REACTION, NDG		
(n,α)	1.4+7		SAH	Expt	Prog	BARC-474 28	70Singh+ GAM HL+INTENS OF Y90 CFD V51		
(n,α)	1.4+7		GIT	Expt	Jour	PR/C 1 358	Jan70 Fink+.ACT,TO 3.1H ISOM,SIG=5.3+ -.5MB		
(n,α)	1.5+7		ARK	Expt	Jour	PR/C 1 1233	Apr70Husain+.ACT,GE(LI),5.8+ -.5MB TO Y90M	+	
					Data	EXFOR10088.009	Jul71 1PNT.SIGMA.	+	
(n,α)	1.0+6	1.4+7	HAR	Comp	Conf	70Helsinki 1 67	Jun70 Crocker+98. SIG(E) GRAPH,FUSION DATA		
(n,α)	1.4+7	1.5+7	JYV	Eval	Rept	JU-RR-3/1970	Jun70 Leppaemaeki+ TABLE OF EVAL AVG SIG		
(n,α)	3.0+6	1.5+7	KUR	Comp	Conf	70Helsinki 1 49	Jun70 Chernilin+104. SIG(NEUT-E) GRAPH		
						-	= IAE-1986 = ENGLISH INDC(CCP)-10/U		
(n,α)	1.5+7		ARK	Expt	Abst	DA/B 32 5091	Mar72 Bari. GE(LI) DET. ACT. SIG GIVEN		
(n,α)	Pile		GHT	Expt	Jour	RCA 17 2 69	Apr72De Regge+ AVER XSECT TO 90Y M AND G		
(n,α)	1.4+7		HAM	Expt	Jour	NP/A 186 65	May72 Bormann+ SIG,A,E DISTR COMP+DIR.		
(n,α)	1.4+7		RBZ	Theo	Conf	72Budapest 168	Aug72 Caplar+ ANALYSIS OF SPECTRA,GRAPH		
(n,α)	9.0+6	2.0+7	CIS	Theo	Jour	NP/A 210 297	Aug73 Milazzo-Colli+ CALC EXCIT FN CFD XPT		
(n,α)	1.4+7	1.5+7	KAZ	Theo	Jour	YF 18 705	Oct73 Levkovsky.AVERAGED SIG,CALC,TBL		
(n,na)	1.5+7		ARK	Expt	Jour	PR 131 2649	Sep63 Bramlitt+ 2.5+ -1.1MB TO Y89M	+	
					Jour	JIN 24 1321	Dec62SUPERSEDED*		
					Rept	BNL-732	Jun62 .SUPERSEDED		
						-	TID-16949(NSA 17 309 1/63)		
(n,na)	1.4+7	1.5+7	JYV	Eval	Rept	JU-RR-3/1970	Jun70 Leppaemaeki+ TABLE OF EVAL AVG SIG		
Lvl Density	6.0+6		NWU	Expt	Rept	AD- 299005	62Seth+.NUCL TEMP+FERMI LVL DENS COEFF		
Lvl Density	4.0+6	7.0+6	ISL	Theo	Conf	64Geneva § 511	May64 Szwarcbaum+.T FROM 3 FORMLS CFD EXPS		
Lvl Density	1.5+7		RBZ	ExTh	Jour	NP 54 17	May64 Kulisc+ (N,ALFA)EXPT,TEMP+A PARAMS	+	
					Expt	Data	EXFOR30130.	Mar71 NUCL.TEMPERATURES AND 'A' PARAMETERS	+
Lvl Density	-		ANL	Theo	Jour	NP 60 70	Nov64 Vonach+.NUCL TEMP CFD ANGDIST INEL N		
Lvl Density	1.4+7		FEI	Expt	Jour	YF 2 826	Nov65 Anufrienko+.PARAMS FROM NONELASTIC	+	
					Rept	FEI-30	Dec65.		
					Rept	EANDC-50 197	Jul65 .FULL PAPER FROM 65ANTWERP		
					Prog	YFI-1 9	65.		
					Rept	FEI-4	65.		
					Conf	65Antwerp § 197	65.ABSTRACT ONLY.FULL PAPER=EANDC-50-S		
					Jour	SNP 2 589	May66 .ENGLISH TRANSL OF YF 2 826 11/65		
					Prog	INDSWG-120E 8	65.ENGLISH TRANSL OF YFI-1 9 /65		
Lvl Density	-		FEI	Eval	Rept	FEI-36	66 Kapchigashev+.TBL OF RELATQ QUANTTYS	+	
		5.0+4			Jour	YF 4 686	Sep66 .TABLE.SHORT VERSION OF FEI-36		
					Prog	YFI-3 3	66.ABSTRACT.TABLE LDL+NUCL EXCIT.E		
		5.0+4			Jour	SNP 4 486	67.ENGLISH OF YF 4.FROM(N,GAMMA).TABLE		
					Prog	INDC-140E 3	66.ENGLISH TRANSL OF YFI-3		
Lvl Density	3.5+6	8.5+6	JAE	Expt	Prog	EANDC(J)3L10	Mar66 Tsukada.TOF.SPEC CFD C FERMI-GAS MDL		
Lvl Density	-		LRL	Expt	Jour	NP/A 93 648	Mar67 Chodil+ P,N+P,2N GIVES SMALL A=A/25		
Lvl Density	1.4+7		FEI	Expt	Conf	68Dubna § 6	Jun68 Salnikov+.STATMOD LVL DENSITY PARAM		

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Figure 2. A similar page from CINDA74, showing the grouping of entries into experiment blocks, and some link entries to data files. Note the transformation of older references to Nb⁹³(n,α).