A Tribute to András Huhn

András Huhn died suddenly in a tragic accident on 6 June 1985. He was only 38. His passing away is a heavy loss for all lattice theorists and for Hungarian algebraic life.

András Huhn was born in Szeged on 26 January 1947. He pursued university studies in Szeged at the József Attila University from 1966 to 1971. Since 1971 he worked at the Algebra Department of the same university. He became an associate professor in 1977. In 1975 he took the degree ‘Candidate of Mathematical Science’ at the Hungarian Academy of Sciences.

The creative activity of András started in 1970 with the introduction of $n$-distributive lattices. He wrote several papers on this theme and solved some important problems of B. Jónsson. A lattice $L$ is called $n$-distributive if it is modular and, for arbitrary $x, y_0, y_1, \ldots, y_m$,

$$D_m : x \land \bigvee_i y_i = \bigvee_i x \land \bigvee_{i \neq j} y_i$$

holds.

His first result was that $n$-distributive lattices can be characterized among the modular lattices just as distributive lattices are characterized by forbidden diamonds $M_3$. He
generalized the diamond as follows: Let $B_{n+1}$ denote the Boolean algebra of length $n+1$, and let $w$ be a further element. Define the meet and join operations in the set $P_n = B_{n+1} \cup \{w\}$ so that $w$ is a complement of all atoms of $B_{n+1}$; $B_{n+1}$ is a $(0, 1)$-sublattice of $P_n$, and $P_n$ is a partial lattice. $P_n$ is called the $n$-diamond. A modular lattice is $n$-distributive if it does not contain $P_n$ ([2, 3]) or if it does not contain a sublattice isomorphic to the subspace lattice of an irreducible projective geometry of dimension $n$. Another result concerning the $n$-diamond is this. $F_{\#}(P_n)$ denotes the free modular lattice generated by $P_n$. This lattice is trivially finitely presented over the variety $\mathcal{M}$ of all modular lattices. András proved in [5] that the automorphism group of $F_{\#}(P_n)$ is infinite. This was the first step towards the solution of a problem of G. Grätzer whether the automorphism group of a finitely presented lattice over a variety is always finite.

Among his deep results on $n$-distributive lattices one of the most important is a joint work with Ch. Herrmann [9]. $N$ is the class of all lattices of normal subgroups of groups. A lattice is called normal if it is in the variety $N^e$ generated by $N$. The main theorem of [9] gives a complete list of subdirectly irreducible normal lattices which are generated by an $n$-diamond ($n \geq 3$). In [10] András uses $n$-distributive lattices to construct lattice varieties which are not generated by their finite members, and lattice varieties which cannot be defined by finitely many identities.

In 1978–79 András spent a fruitful year in Winnipeg with G. Grätzer. During his visit they wrote several joint papers. They proved [14] that every finitely presented lattice has a congruence relation such that the quotient lattice is finite and the congruence classes are embeddable in a free lattice. Very important are their results on amalgamated free products ([15, 19, 20, 28]). The two main problems are: the common refinement property and the properties of free generating sets. In [16] he obtained, with G. Czédli and L. Szabó, some interesting results on compatible orderings of lattices.

In the last years of his life he studied the characterization problem of congruence lattices of lattices. First he found a new proof for my theorem that the ideal lattice of a distributive lattice is the congruence lattice of a lattice ([25]). For this proof he gave a very interesting representation theorem for finite distributive lattices ([24]). His last result is the following ([29]):

Let $F$ be a countable distributive semilattice. Then its ideal lattice $I(F)$ is the congruence lattice of some lattice.

(H. Dobbertin found, independently, another proof for this theorem.)

András Huhn was editor of Algebra Universalis and Acta Sci. Math. Szeged. He was also editor of two Colloquium Proceedings.

He was an outstanding lattice theorist, and also an excellent teacher: some of his pupils are successful research mathematicians.

We will cherish his memory.

Budapest, 19 December 1985
List of Publications of András Huhn

22. The Rubik cube and wreath product of groups (in Hungarian).
29. On the representation of distributive algebraic lattices II.
30. Non-modular $n$-distributive lattices and the Carathéodory theorem for convex sets.