Study "Pre-Delinquent"

➤ THE REBELLIOUS adolescent, who might be called a "pre-delinquent," is one who despises his parents. He also tends to have an unrealistic opinion of himself.

This was shown by a study of high school students who included 45 rebels and 30 "cooperators." The study was conducted by Dr. Eva Maria Shippe-Blum of the San Mateo Community Hospital, San Mateo, Calif., and is reported in the *Journal of Consulting Psychology* (Feb).

The rebels made up the school's most serious disciplinary problems calling for special handling. Many were on the "dean's black list." The cooperators were those able to attain high rankings on teachers' ratings and high scores in "citizenship." The rebels were not those who had been in trouble with the law but were known to their teachers as difficult to handle and so were considered more nearly representative of the adolescent population than are the "legal delinquents" on whom much of the research so far has been done. Average age of the group is 14 years with a range from 13 to 16. Intelligence is average and the social status of the parents is predominantly middle class.

An important difference found between the rebels and the cooperators is that the rebels regard themselves more highly than they regard their parents; cooperators admire their parents more than themselves.

Admiration and respect for parents is important in the formation of what the psychologist calls the superego. The superego is essential to conscience and a knowledge of right and wrong.

Further research is needed, Dr. Shippe-Blum points out, to determine whether the rebel's low opinion of his parents may be justified.

"It may be that dispassionate observers would tend to agree with the rebels that their parents were less admirable than parents of cooperators; but perhaps not. In the event that the rebels were correct in stating that their parents had few socially desirable traits, one could then ascribe their defective superego to the inadequacies of their models and the conflict between their parental models and the ideals held up by the society in which the rebels live. If that is the case, superego development must be viewed in terms of the actual failing of parents to provide worthy behavior models to the child."

Science News Letter, March 14, 1959

Machines to Read Books

Computers will be performing library duties now done by human cataloguers and researchers, not only finding information but "reading" books and teaching from their contents.

➤ LIBRARY machines will not only find references, but read the books for you and teach you from their contents.

This was predicted at the Western Joint Computer Conference, San Francisco, with its theme "New Horizons in Computer Technology," attended by leading computer experts from all over the country. Calvin N. Mooers, inventor, and proprietor of Zator Company, Cambridge, Mass., predicted that in the next 20 years library machines for specialized collections will begin to take over more and more of the jobs now performed by human cataloguers and researchers.

Information retrieval machines competent to handle collections of millions of documents will be available in the near future, the scientist said. However, the use of such large-scale machines will simply make worse what is now our biggest bottleneck in information retrieval. This bottleneck is the use of human beings to assign subject headings or descriptors to the torrent of documents pouring into any large library.

Because it is a human bottleneck, this task should, and can, be turned over to machines, according to Mr. Mooers. He expects this to be one of the first of his predictions to come true. Using machines to analyze documents and assign descriptors is not unlike

using machines to write automatic abstracts, as has been reported by H. P. Luhn of International Business Machines, Mr. Mooers said.

Assigning descriptors to text is also a very simple kind of language translation, he said. It may be that this rudimentary form of translation will be perfected long before machines are able to produce good idiomatic translations from one natural language to another.

Machines will talk back to the human being who comes to the library to look for information, Mr. Mooers predicted. Such back talk will tell the user what is available, help him use the classification system, and assist him in making better use of the library machine and the library. The best information retrieval systems of today, whether or not they use machines, already do this in a primitive fashion, Mr. Mooers said.

When a machine talks back, it is effectively educating the human being about the library resources, according to Mr. Mooers. He predicted that the educational technique might be extended to the presentation of the information discovered by the machine in the library system. The ability of machines to present general material, according to pre-set programs, has already been demonstrated by the teaching machines of Prof.

B. F. Skinner of Harvard University, Mr. Mooers said. If index terms can be selected from texts by machine, it is not much of a step further to select a sequence of "fact" morsels from the documents retrieved and to present them in an orderly fashion to the human user. An essential aspect of this process is that there be a high-degree of man-machine communications so that the machine can adjust its presentation of facts so as not to outstrip the human being's rate of assimilation.

When high-quality machine translation of language is possible, the techniques used to put together ideas into smooth sentences can be applied to the presentation of facts retrieved by the library machine. In the same way that indexing and abstracting by machine will achieve prescribed degrees of compression, so it will be possible to present its output within a specified length. When this day comes, it will be possible to ask the machine: "Give me a history of the development of library machines in 800 words."

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HIGHEST-PITCHED SOUND—Ultrasonic waves with a frequency of 10 billion cycles per second, believed to be the highest pitch sound ever reported, have been produced at the General Electric Research Laboratory, Schenectady, N. Y. This frequency is nearly a million times greater than what the human ear can hear, and 30,000 times the frequency of commercial ultrasonic generators used in industrial cleaning. It was reported that these extremely high frequencies can be used to make better observations and measurements of the interaction of electron spins in crystal lattices inside metals and other solids.