

dred Hellenistic writers are known to us, including the names of scientists and philosophers. Simply a flood! A literary catastrophe! Such an amount of literature! (Bonnard, 1962)

Note that these expressions and exclamations of Bonnard about a book flood belong not to the middle of the 20th century, but to the 2nd and 1st centuries B.C. The citations, presented here indicate that already, 2000 years ago more manuscripts were written than one was in a position to read in an entire lifetime. It is necessary also to consider that in those distant times, books were accessible to only a small number of philosophers, scientists, writers, and poets. This means that even in ancient times the ratio of the number of books to the number of people in the literate population was quite large.

It is also interesting to mention what Bonnard called exceptional fruitfulness. Our contemporaries clearly hold an edge. The record holder here is probably entomologist Theodore Cockerell: in 67 years he wrote 3904 (!) articles; in his best years 2 articles per week appeared in print.

A contemporary of Shakespeare, suggesting to him the subject of *Twelfth Night*, writer B. Rich wrote in 1613: "One of the illnesses of our century is the quantity of books. They have so multiplied in the world." (Price, 1966). G. Leibnitz at the end of the 17th century noted:

With each year the number of books issued grows again, and in this connection as a consequence of the propensity of people to novelty, bad books often force out good ones, so that much useful information is lost and vanishes in the dense thicket of innumerable books. (Gere, 1981)

Nobel laureate, English physicist Rayleigh wrote in 1874:

People of science must often experience a panic attack, when they contemplate the flow of new knowledge which each year brings. . . . It seems that any new, however significant, addition by this time to the already existing information makes this burden almost unbearable. (Novikov & Egorov, 1974)

It should be said that since then the volume of scientific information has grown hundredfold.

Thus, it is not difficult to see that there has always been "too much information." However, this has not always produced an information crisis. It was because the forms available for information activity either were able to cope with the existing information situation or were capable of further development and attainment of a level capable of coping with the needs of the time. Why then does an information crisis exist today?

First, when we say "too much information," this is an emotional rather than a quantitative evaluation. We will try to clarify for whom or for what it is "too much information." Does this produce a problem and, if so, what kind? To answer these questions, consider and analyze the situation from the point of view of an expert on methods and forms used in information activity. That way it is possible to establish which questions lead to a dead end. To do this, these

questions can be formulated as follows: "Is it possible that there are not enough carriers of information?" No, no problems exist with the production of paper today. "Then is it possible that there exist difficulties with the publication of what is written?" Again no. Modern technology can cope with the available information flow without difficulty. "Might there exist principal difficulties with the storage of information (for example, insufficient space)?" Not so. "Is it impossible to gather information?" Again no.

It is not difficult to continue the list of questions to which negative answers can be given with certainty. However, this is unnecessary because in this case it is simpler to analyze the situation not from the point of view of experts, but from the point of view of users, which by the way, we all are. We will put the questions before the user in the following manner: "What principal information problem are you faced with today? How would you describe the main problem in dealing with information?" The answer will be unambiguous. The most acute problem is the *problem of access to information*, and one of the most important parts of this problem is the *problem of information retrieval*. This is exactly the nature of the *modern information crisis*; traditional methods and forms of information retrieval proved to be clearly unsuitable for the existing (and ever-increasing) volumes of information, as well as the rapidly growing IN of society.

It was mentioned earlier that the first people affected by the information crisis were the scientific workers themselves. Difficulty in satisfying their own IN practically forced them to search for new ways, new forms, and new methods to bring forth satisfaction and, as a consequence of this, by the middle of the 20th century a new scientific direction was established—*information science*. It should be especially stressed that we are speaking of a new direction of scientific investigations, not about a new subject of investigation. If historically various information crises have been overcome with the help of inventions, and not with the help of systematic investigations, today it is investigations that permit information activity to be refined. Practically every third publication in the area of information science is dedicated to information retrieval (Jarvelin & Vakkari, 1993).

Almost simultaneously with the rise of information science, there appeared a principally new form of satisfying IN aimed at overcoming the crisis situation connected with information retrieval. This form was the information retrieval system (IR system). In fact, it would not be an exaggeration to say that today the majority of scientific investigations in information science are devoted to the study of IR systems, and one of the main directions of study focuses on improving the quality of information service to users with the help of IR systems. Of course, this does not mean that information science is the science of creating IR systems. However, our present ability to overcome the information crisis is closely tied to the construction of effective IR systems. We say our "present" ability because in the future information crises may not be connected with information retrieval and consequently a majority of future scientific investiga-