

-AS WE MAY THINK-

For centuries human being has been pursuing its research in the development of science. For most of that past development period, discoveries and inventions of science expanded the physical capabilities of humankind rather than empowering his thinking. Later humankind has recognized that knowledge accumulated and coming from past should be better recorded by means of some instruments, so that as the knowledge evolves throughout the existence of human race, it can be kept in durable form and can be acquired at any time for further extension. Three useful instruments for recording the knowledge throughout this journey are respectively photography, selection machines, and encyclopedias. Each of these instruments has a unique way of recording the knowledge and retrieving the required information in an efficient way.

First instrument for recording accumulated knowledge is photography. One of the techniques used for photography is minicamera idea which can take up 3 millimeters square, and it can be enlarged by a factor of 10. It also makes use of stereoscopy which is a technique that enables a three-dimensional effects on image and appends an illusion of depth to a flat image so that records can be kept in more eye-striking form. Furthermore, minicamera technique is capable of producing full color images in order to catch some critical information on the record if that parts of the record were colored or highlighted. Another technique used is dry photography which makes use of plates that has to be wet during development of image. It exposes plate to a sufficient amount of ammonia gas to exterminate the unexposed dye. After that, image can be retrieved and examined under the light. This procedure is especially useful when someone wants to take up camera and examine the record immediately. In brief if someone has to create and keep records in a detailed and structured way minicamera technique and

dry photography techniques are promising to yield satisfactory results by various enlargement and coloring options.

Second instrument is selection machines for retrieving the information from records as well as keeping knowledge in the form of records. The problem is, among the huge amount of data how the correct record can be retrieved. For example, an executive officer of a big factory may give thousands of employee identification cards as an input for the selection machine, then that machine lists a group of employees who live in particular city and are capable of speaking english. With the aid of photocell technology and microfilm techniques, this retrieval procedure can be speeded up by even 1000 fold. Another example for this selection process is telephone exchange. If you call someone with a unique number, selection machine properly selects and connects you to station out of millions of possible stations, it does not have to go through all of them. Because, it can look up the first digit of your telephone number and reduces to possible matching classes, then looks up to second digit and further reduces the possible matchings to a subclass of stations, and so on. To conclude, selection machines when used with appropriate underlying technologies and techniques can greatly simplify the process of selecting the desired record from a huge pool of records, also it provides a way to keep numerous amount of records in an ordered way so that they can be accessed efficiently at any time needed.

Third instrument for retrieving information from or keeping information in the form of records is encyclopedias. For example, when a doctor is treating her patients, and bewildered by her patients symptoms may strike a already conducted study similar to that case, and can apply similar procedures for treatment. Chemist who may be trying to synthesize an chemical compound has all the results of past experiments and their way of realization, so that she can choose the procedure that best fits to her ideals. In that way encyclopedias does not provide only past experiences and results, it can also pave the way for new approaches and procedures that may shown to be useful and take their places as in humankind's knowledge

history in the form of encyclopedias. Moreover, the procedure of finding trails from bulk data has actually become a new profession, and people who are pursuing this task are called trail blazers. Their task is to find beneficial trails from a mass of data and append them to related part of encyclopedias, so that information is not only kept in a more structured way, but also more useful information which can be utilized in real life scenarios is included in records as a part of encyclopedias. In conclusion encyclopedias are crucial instruments for recording the accumulated knowledge and experiences, and they can serve as a handbook for practitioners from different areas as they contain the past experiences of people who may have encountered the same situations. Also encyclopedias allow humankind to transfer its agglomerated knowledge to next generations by creating bridges between past knowledge pool and knowledge to be generated in the future.

To summarize, three instruments have a critical role on the journey of recorded knowledge. Each of these instruments are used in retrieving information from a huge bulk of data in different manners and at the same time used to keep new records in a structured way so that they can act as a connector between today's knowledge pool and future knowledge which will be formed. Photography as an instrument utilizes some underlying technologies such as minicamera and techniques like stereoscopy to keep records in a more detailed and colored form for future reference. Selection machines is another category of instruments which provide a way to efficiently access and retrieve records from large data pools. As last instrument that we have touched upon, encyclopedias ensure not only a knowledge pool to obtain great variety of data in a structured way but also they serve as an informative guide to practitioners from many different scientific fields to learn and apply experiences of their predecessors. These are just three widely used instruments for the information retrieval and recording knowledge, but many others exist and yet wait to be discovered.