Anatomy of a scientific bag of tricks to conjure up the likeness of an unknown face.

THE IDENTI-KIT

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One of the most difficult problems in human communication is that of exactly duplicating in another mind the visual image one has in one's own. Language is not adequate to the job: the range of variant concepts corresponding to each descriptive word, not to mention their inevitable emotional and imaginative colorings, create inaccuracies, distortions, and downright false impressions. Man has therefore had to resort to comparing such an image or its elements with accepted common physical standards, which reach their ultimate precision in the standard units of measurement. This procedure leaves no room for the vagaries of individual interpretation.

This communications problem has always been particularly acute between the describers of absent persons and those whose job it is to identify the subjects described—notably the police—and the identification world has therefore been using for more than a hundred years some system of comparing individual characteristics with physical standards. The rather startling Identi-Kit herein presented, which provides a set of such standards, must then be considered the product of a development and evolution whose basic principles have been thoroughly proven. The Kit itself is no untested or controversial invention: it has withstood continuous testing and retesting for the past five years in both experimental and practical on-the-job applications.

The Identification Process

The basic premise of all identification systems is the fact that nature never creates two identical individuals. The problem is to record the identifying characteristics and then to catalog them objectively in some system by which they can be communicated from person to person and from place

to place. In identification by fingerprints and other similar means the recording is done by taking a physical impression of the characteristic features. Systems have been developed to catalog and communicate these with accuracy. But circumstances do not always allow for the taking of these physical impressions.

Identification by facial appearance gives us a wider range requiring as it does mere visual contact with the subject, if only we have some method to crystallize out of the fluid memory of the observer an objective image of the subject's appearance and some way to code or tabulate its identifying characteristics. The Identi-Kit provides such a method of recording and cataloging. It has limits, however, short of positive identification, limits inherent in human ability to observe and remember.

If every natural mark and line in a human face could be visually compared with its antecedent image, complete and positive identification would be possible. Such positive identification is not practical because the human eye and brain, even with minute observation of all the natural marks and lines on a person's face, could not retain the memory of their exact location well enough to recreate a perfect image of it. But given the impossibility of an infallible system of visual identification, we can nevertheless make a practical and utilitarian approach to the identification problem through a process of elimination. In this process visual comparison can eliminate great numbers of possible persons who fail to qualify for likeness to the subject sought, and so reduce the possibilities to a few individuals, and frequently to a single one. The elimination process can begin with the gross physical features of age, sex, race, height, weight, build, etc., and proceed from there to the finer distinctions of facial appearance.

The Kit

It is in pinpointing these finer distinctions that we run into trouble when questioning a witness in order to build up an image of the absent person. And this is where the Identi-Kit comes in. The kit breaks a full-face image up into component parts—hair, brows, eyes, nose, lips, chin-line with ears, and age lines, plus beard, hat, and glasses, if any. It contains several dozen transparent slides picturing each of these com-

ponents with different types of contours, 500 slides in all, with five notches on the side for different placements of each feature. Each slide is coded with a letter for the facial component illustrated and a figure for the particular configuration. The witness is given a catalog showing all these slides and asked to pick out the brows, nose, chin-line, etc., which most nearly suit the person he saw.

The witness, not accustomed to recognizing a pair of eyes with the brows removed or a mouth with no face around it, will find the going difficult at first. No matter: he will soon be able to study the whole reconstructed face and make adjustments. As he makes his tentative selection of components the slides are assembled on a make-up pad and the composite image displayed. Is the nose too fat? Pick a bonier one. Are the brows too prominent? Rearrange the pile of slides, putting the brows at the back and the eyes farther forward. Is the forehead too high? Slip the hair slide down by one or two from the normal third notch. Is the hair parted on the wrong side? Reverse the slide.

The witness is at last satisfied; he recognizes this man. It is not a finished portrait, but a good line-drawing of the right *type* of person. Figure 1 shows what a close resemblance to a well-known face can be assembled with the kit. In the first 129 operational cases in which the kit was used (by four different operators), the witness was able to produce a recognizable likeness of all but nine subjects. It took him anywhere from five minutes to several hours, averaging perhaps between thirty minutes and an hour.

There is one further refinement illustrated in Figure 1: if there are moles or scars on the remembered face, a grid of numbered lines is placed over the composite image and the positions of the marks are noted in this frame of reference. The scar grid is shown in Figure 2.

One of the advantages of the kit is the ease with which its coding permits a face to be recorded or transmitted to a distant location through almost instantaneous assembly from another kit there. A face is contained, for example, in the code message

A17 N21X1 C30 E79 L16 D55 H92X4R SV40 SH20

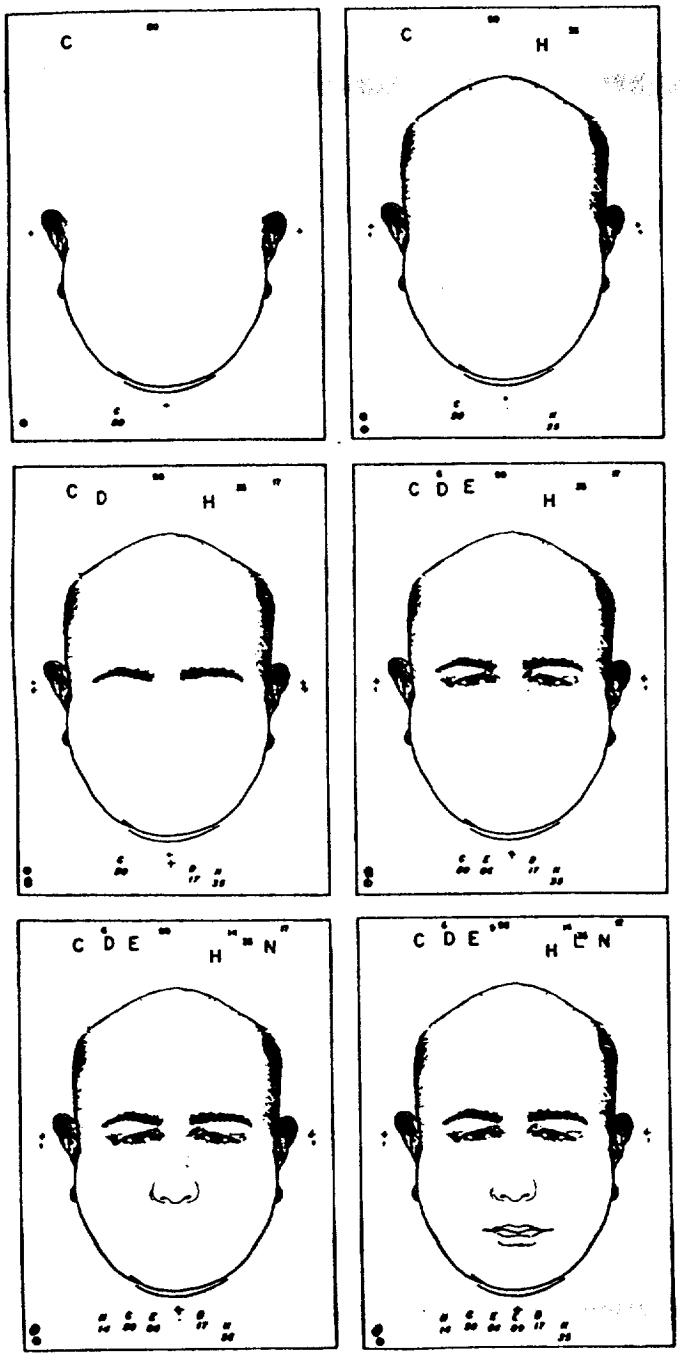
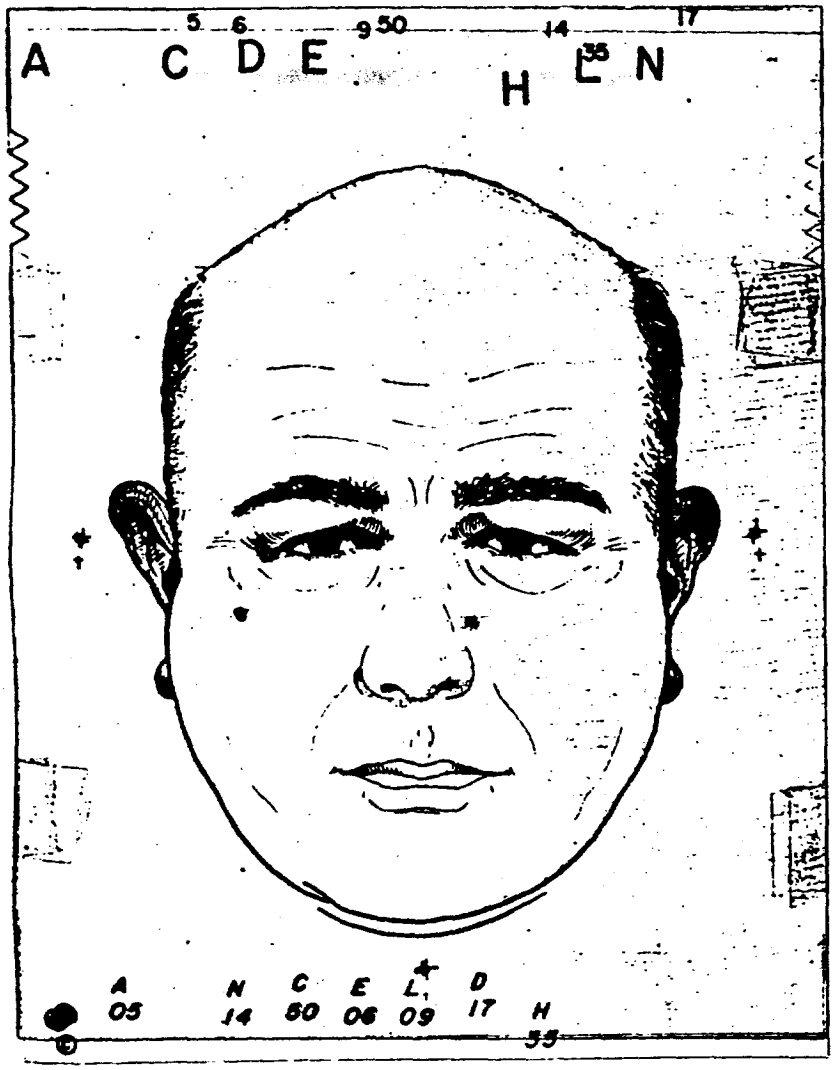


FIGURE 1



which means "Age lines slide 17, nose slide 21 two notches below normal, chin and ear slide 30, eye slide 79, lip slide 16, brow slide 55, hair slide 92 reversed and one notch above normal, mole under right eye at vertical 40 horizontal 20, no beard, glasses, or hat."

The number of such facial combinations that can be formed from the Identi-Kit is too astronomical to be conveniently

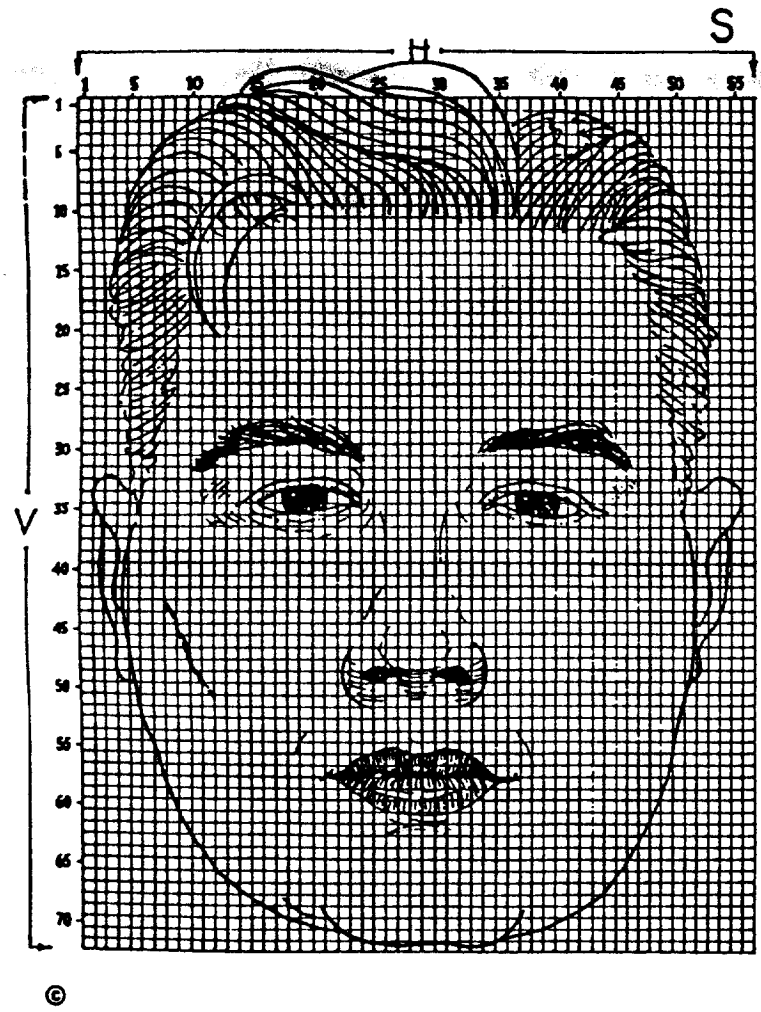


FIGURE 2

written. These assemblages are rather like passport or other identity photographs in reproducing physical contours without reflecting "personality." Although they thus fall short of portrait-type likenesses, they are sufficient when compared feature by feature with known persons to weed out quickly all but one or a few that each could represent.

We have been treating the kit as a police device, but its application in intelligence is obvious. One might almost say, in fact, that virtually every technique used in intelligence is

some variation of a police technique, a relationship reflected in the identity in many small countries of the police with the intelligence service. The kit was actually a product of intelligence effort later released for police use, and it is being applied in an ever growing number of operational intelligence cases to the problem of identifying the "third man."

The effectiveness of the kit, thoroughly tested by both intelligence and the police, has produced startling results in areas where it has been properly applied. In fewer than one percent of police cases is it identification by fingerprints that leads to an arrest. In the several hundred Identi-Kit cases on record the kit has led to a whopping 35 percent of the arrests. Most of these identifications were accomplished by cross reference of the witness's reconstruction with "mug" files of known criminals which were classified in the Identi-Kit system. This process was possible in 100 of the first 129 cases, with an average file search time of 40 seconds.

One must remember, however, that the Identi-Kit system is not intended to supplant any of the identification systems in present use. It is simply an additional tool in the interrogation kit, a special wrench that enables you to get at a formerly inaccessible spot and work there effectively. You still need your other tools, and you have to be a good mechanic in the first place: the kit needs the control of a skilled interrogator, who can master this additional instrument with the help of a special one-week course of instruction. A child can make mechanical faces from the kit; but only experience and training can develop the right images from the mind of a person who had no particular reason to remember them until the questioning began, or perhaps does not want to remember them at all.

The potential uses and performance of the Identi-Kit system have barely been touched upon in this article. Extensive files must be developed and many operators trained before the full benefit of the system will be apparent. But the intelligence officer will feel the power of a conjuror when he can take the codes from a face his agent has built up to the nearest telephone or communications center, notify a distant file of his problem, and get back the required identification, complete with details, in a matter of minutes more than the communications lag.