vessel on patrol sent daily radiograms to the Hydrographic Office of the Navy at New York, made public to the shipping offices, the Maritime Exchange, and others interested.

The Hydrographic Office included in its various publications an article informing masters and shipowners of the manner in which transatlantic vessels could be of assistance to the patrol. As a result of this, as soon as a vessel came within radio-working distance of the patrol ship she gave her position, course, speed and the temperature of the sea water. An officer detailed to this duty plotted the data furnished on a large scale chart, which carried the iceberg locations up to the hour. Every four hours, and sometimes more often, the vessels plotted reported their new positions and the water temperatures. If it was apparent that any vessel was standing into danger, an ice warning was sent to her immediately. In this way a most complete and accurate guard was kept."

Said the Coast Guard authorities this year in their orders to the cutter *Seneca:*

"The object of the patrol is to locate the icebergs and field ice nearest to the steamship lanes. It will be the duty of patrol vessels to keep in touch with these fields as they move to the southward, in order that radio messages may be sent out daily, giving the whereabouts of the ice, particularly the ice that may be in the immediate vicinity of the regular lanes.

"Ice information will be given in as plain, concise English as practicable. Each patrol vessel will keep a remark book, in which will be entered all data and information concerning the ice that can be collected."

After a detailed account of the experiences of this patrol boat, the writer goes on to give some observations and recommendations as follows:

"In conclusion, attention is called to the exaggerated impression of the number of bergs present. As cargo steamers continue to follow shortest routes, irrespective of warnings, and these courses lead across the Labrador Current, many of the bergs are reported several times. This practise is safe in clear weather, and is of great help to the patrol vessels in plotting sea-water temperatures and locating bergs, but very trying on their personnel when the vessels are enveloped by fog or overtaken by night before clearing these regions.

"One recommendation of the ice patrol is the use of orange-colored sun glasses to spot bergs with even in clear weather. It is said they can be discerned clearly with such glasses when not traceable at all with the naked eye.

"As to changing the transatlantic lanes, the recommendation is made to shift them south as soon as the first berg appears below the 44th parallel.

"This is because of the rapid drift of bergs in the early spring as they are borne to the south by the Labrador Current. This would place the bergs 120 miles from the nearest edge of the northernmost steamship lane, and would require a week or more for them to drift that distance."

INKLESS FINGER-PRINTS—It does not matter if criminals have their fingers stained with ink when being finger-printed, but Miss Postal Saving Depositor, drest up in white organdy, objects decidedly. Nevertheless, she and all the other thousands of thrifty people who prefer Uncle Sam's Post-office Department Banks will have to use their finger-prints every time they draw money. This is the official decision following postal robberies, we are told by Science Service's *Science News Bulletin* (Washington). Says the *Bulletin:*

"Thanks to science, ink-stained fingers now have no chance of becoming a badge of saving. Bureau of Standards experts have developed a method that rescues Miss Depositor's dress from ink-stains and the Post-office Department from a large expenditure of money. The dainty fingers of the depositor are first coated by pressing them on a sheet of heavy paper impregnated with mineral oil. An invisible impression of the thumb is made on the necessary documents, and it is 'developed' and made visible in the same way that the police bring out the lines of involuntary finger-prints when they are solving a crime mystery. The oil print is dusted with lampblack which makes it visible, and the mark is preserved by spraying with a dilute solution of shellac, just as an artist fixes his charcoal drawing. An expensive camel's hair brush has been used to dust on the lampblack, but the scientists economically suggested the use of a small ball of absorbent cotton coated with lampblack or gas black and tied up in a cover of organdy, the same material as Miss Depositor's dress, which they have protected from ink. Several New York and Chicago banks are requiring their customers to use finger-prints as check protectors. And during the war one of the largest collections of finger-prints ever made was created when some 5,000,000 men in the Army and Navy had theirs taken. At the Leavenworth, Kansas, penitentiary the Department of Justice has the largest collection of criminal prints in America. Criminals serving long terms arrange and classify the 250,000 prints that will bring them cell-mates. But police use of finger-prints, while still important, is numerically surpassed by commercial use.

"Little skill is needed in applying finger-print identification. When the Post-office Department was considering the adoption of its new system, its officials finger-printed a roomful of thirteen people and asked an old postal clerk who had never seen a finger-print before to pick out the owner of a certain print. He did, easily."

MORE LIGHT ON BIRD MIGRATION

THE STUDIES OF MIGRATING BIRDS made in this country by labeling them with metal rings or tags have already been noted in these columns. That interesting results have been reached by this method in Europe also, we learn from an article by a German ornithologist, Friedrich von Lucanus, contributed to *Die Umschau* (Berlin). It was formerly supposed that migrating birds commonly traveled at very high altitudes, but this is a mistake according to the results of twenty years of observation with balloons, by Lucanus. He finds that nearly all migrating birds travel at less than 3,000 feet, and that it is exceedingly uncommon for birds to be found above that altitude. He says:

"These airship observations have been recently confirmed by flyers. The greatest height at which birds have been thus far observed is 7,000 feet, but in general the altitude is much less and is frequently, indeed, quite close to the surface of the earth.

"It is probable, that flight at great altitudes is prevented by the great cold, the low pressure of the air, and the force of the winds. These views are supported not only by observation of natural flights, but also by certain experimental studies such as those by Thienemann, which have been made on an international scale. Each bird (young nest birds being the best) is provided with a small numbered aluminum ring on which an address is inscribed. When such a bird is captured or killed the ring gives precise information as to the path followed during the migration. Large numbers of these rings have been returned to Thienemann in Germany, and he has drawn therefrom the interesting conclusion that there is an alarming amount of slaughter of the birds in southern lands."

One unexpected discovery made by the ringing of the birds is that the migration of European birds takes place in a lesser degree between the north and the south, as has hitherto been supposed, than between the east and the west. Von Lucanus tells us that most European birds travel in the autumn first toward the Atlantic Coast and then turn southwards in order to reach Africa by way of Gibraltar. He says:

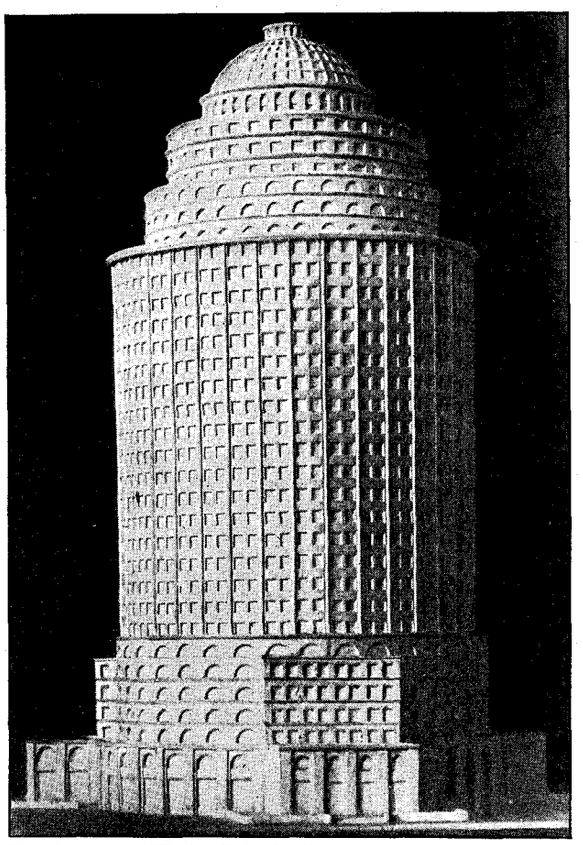
"Thus far, studies have been made of 133 kinds of birds by means of this placing of a ring upon the foot. Complete maps of the course pursued by certain varieties have already been made. Thus, the white storks living to the east of the river Weser fly over the Balkans, Asia Minor and Syria to reach Africa, while the birds born to the west fly over Spain and Gibraltar. In several cases ringed birds captured during migration were recaptured years later at the same place—a proof of the probability that they always pursue the same path. Besides the migratory flight along certain definite roads, which usually follow the watersheds, there is also the so-called 'broad front' form of migration, in which the traveling birds spread out in radiating form over the entire continent."

These experiments with ringed birds also proved that the sup-

position that migrating birds cover enormous distances in a single night is much exaggerated. It was found, for example, that storks and starlings traveled only 125 miles per day and in some cases much less. These experimental observations of marked birds have also yielded important information as to the power of orientation of migrating birds, in which instinct and inheritance have been found to play a large part. The writer remarks that such observations need not be confined to ornithologists and scientific institutions, since even schoolchildren might well be taught to pursue them, thus instilling in them a love of birds and the habit of protecting them. The foundation at Rossitte in East Prussia furnishes rings for this purpose to responsible applicants.

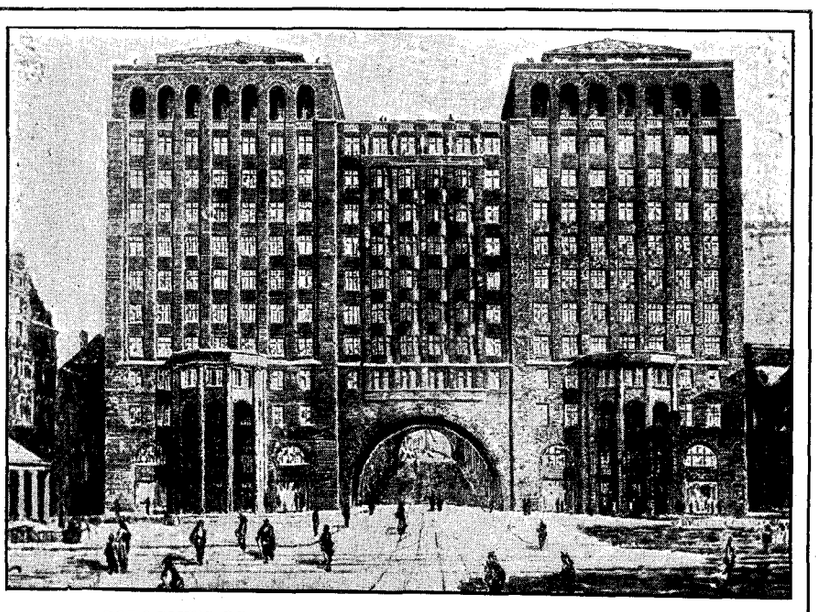
GERMANY ADOPTING THE SKYSCRAPER—America's skyscraper type of city building, heretofore never to be sufficiently scorned from the European view-point, is catching on in Germany, according to *The Scientific American* (New York, August). Says this paper:

"It appears that several of the Teutonic cities are beginning to feel the pinch of land values, and are meeting the situation just about as it has been met in American centers of population—suggesting that human nature is fairly constant after all, in spite of national antipathies of one sort or another. Cologne will apparently be the first German city to have a genuine skyscraper on the American plan—on the American plan even to the passage through the two lower floors of an archway to carry the street which the structure will straddle. In its general architectural effect an effort seems to have been made to hold the new building in keeping with the city hall and other old landmarks near which it will stand; but the skyscraper lines are there too unmistakably. Somewhat more startling is the building planned for Leipzig. This tower building will be thirty stories high and 360 feet tall. It is the plan to put it up in six sections, as funds become available, each designed to support the whole weight which will ultimately be piled on top of it. Our illustrations are drawings made from the plans."



Illustrations courtesy of "The Scientific American."

A THIRTY-STORY SKYSCRAPER FOR LEIPZIG.



COLOGNE'S PROJECTED "AMERICAN PLAN" SKYSCRAPER.

HAVE YOU "TENNIS ELBOW"?

"HOUSEMAID'S KNEE," THE MALADY made famous by Jerome K. Jerome as the only trouble he missed having, is presumably confined to the lower ranks of society. That the upper crust may not complain of neglect, its members have now been furnished with a counterpart —"tennis elbow," which Dr. Frank Romer, writing in *The Lancet* (London), reports to be a common form of disability frequently seen at this time of year. He believes that the universal use of a large-handled racquet without consideration of the size of the player's hand has much to do in bringing about this ailment. The strain on the muscles by a handle too large for the grasp is as productive of over-strained muscles as playing with too heavy a racquet. He goes on to say:

"The faulty muscles will be found crampy, indurated, and painful on pressure. In addition to the muscular lesion a tender spot may be found on the condyle itself, corresponding to some portion of the bone where the faulty muscle takes its origin. The pain in this variety is described as being of a burning character, as if the bone had been bruised.

"The onset of tennis elbow is gradual. In the simple muscular type pain can usually be elicited by pressure over the affected area, but otherwise it is only noticed on a movement which calls into action the muscles at fault. Patients thus affected notice that they can lift or pull heavy weights from the ground with perfect comfort, whilst any small action such as pouring out tea, tying a bow-tie, brushing the teeth, or similar movements are exquisitely painful. In this condition treatment is usually successful and consists in massage of the affected muscle.

"It is as well for the patient on resuming play to avoid as much as possible for the first few games those shots which originated the trouble. Some faulty method of play is too often the reason why undue strain is put upon some group of muscles, such as 'flicking' from the elbow, in back-hand strokes, instead of 'coming through' with the whole arm, and it is just as well to warn patients that they should reconsider their technique."